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The psychology of behavioral finance and its impact on financial Soundness indicators - An analytical study for a sample of banks listed in the Iraq Stock Exchange

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ABSTRACT

The study aims to identify the primary elements that explain patterns of investor behavior in financial markets and assess them using behavioral financial indicators, as understanding such psychological factors aids in the correct forecast of such investors' future actions. The study's problem was to evaluate the impact of financial behavior psychology knowledge on achieving financial soundness. The study employed a descriptive-analytical technique based on financial analysis tools to evaluate behavioral financial and financial soundness indicators; additionally, statistical analysis was performed to determine the extent of the impact of behavioral finance on financial soundness indicators. The study concluded several findings and recommendations, the most important of which is the close relationship between the returns of market shares and the returns achieved by the bank as a result of its banking activity, and this close relationship is due to an increase in the sale and purchase orders of the bank's shares, which encourages investors to deal with banks in the form of deposit and borrowing, then using the money by the banks to invest. Finally, it was determined that accounting returns have a longer-term link with stock returns than a shorter-term relationship.



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Keywords: Behavioral Finance, Financial Soundness, Investor Sentiment, Herd Behavior.

1. Introduction:

The behavioral finance theory, which is regarded as one of the most recent theories in the field of financial markets, arose as a result of frequent illogical acts taken by investors when making an investment decision. Such actions called into doubt the investor's rationality theory. Behavioral theory attempts to combine psychology and finance to examine the actual behavior of individuals, which is marked by irrationality because the investment decision belongs to the investor himself/herself and is influenced by many psychological and social factors. Such a theory emphasizes the significance of understanding investor behavior and the psychological and behavioral aspects that drive him/her to make an investment decision (buying or selling securities). The awareness and understanding of the psychology behind investor behavior aid in properly predicting future movements and establishing financial soundness, which serves as an early warning system for predicting financial crises.

Research problem

The study topic is centered on the following question: does understanding the psychology of financial conduct improve the accomplishment of financial soundness for the research sample's banks?

Research hypothesis

Investor sentiment has a considerable impact on the financial soundness of the banks in the study sample in terms of its dimensions (trading volume and share turnover).

Research Objectives

The research intends to accomplish the following goals:

- Understanding the elements that explain patterns of investor behavior in financial markets.
- Assessing investor sentiment using behavioral financial indicators.
- Determining the relationship between behavioral finance and the financial soundness of the banks in the research sample.

Research Methodology

The study took a descriptive-analytical approach, utilizing financial analyses to measure behavioral financial indicators and financial soundness indicators. Statistical analysis was also used to determine the extent to which behavioral finance influences the financial soundness indicators of the banks in the study sample.

Research Sample and population

The Iraqi banking sector serves as the research population, and a sample of (8) private commercial banks listed on the Iraq Stock Exchange from 2010 to 2018 was chosen to investigate the research topic.

2. Literature review

The review of literature is separated into three sections: the first examines behavioral finance, its patterns, and indicators, and the second examines financial soundness, its dimensions, and its indicators. The final section focused on the relationship between behavioral finance and financial soundness.

2.1 Behavioral Finance

2.1.1 The nature and patterns of behavioral finance

The concept of behavioral finance (Behavioral Finance – BF) emerged in the eighties of the last century due to many reasons including the obvious gap between the financial theory and its actual application which interested many economists, including (Werner De Bondt - Andrei Shleifer - Richard Thaler - Meir Statman - Robert Shiller), along with some psychologists, led by “Daniel Kahnmen” (Antony, 2019, 3-7), to investigate this concept. The reason behind such interest can be traced back to the fact that traditional financial theory has become unable to explain many of the experimental methods, including financial illusion, added to that, many of the books in the finance and investment field did not discuss the impact of behavioral finance in the financial markets, so behavioral finance is a new model of financial theory that seeks to understand and predict the impact of organized financial markets through the understanding of human psychology that affect in investment decision-making (Sattar, et.al,2020,69-70), to that (Chris Meier) developed a concept that BF is a branch of behavioral economics, and confirms that behavioral finance is considered one of the modern theories of economic analysis, which attempt to approach the behavior of individuals

with psychological insight, in order to describe and analyze the financial market and try to produce results that are more consistent with reality (Meier, 2018, 423-430). In line with the previously mentioned (Nair & Antony) add that financial behavior has three dimensions, the first of which focuses on the cognitive psychology of investor behavior, the second revolves around investors' preferences towards ambiguity and risk, and the third dimension includes emotions among investors (Nair & Antony, 2015, 1058).

Multiple factors explain the patterns of the investor's behavior in the financial market, below are the main ones:

- A. Inference theory: It is defined as experience and practical efforts to answer questions or improve performance, and includes the following biases: (representativeness, overconfidence, consolidation or fixation, gambler fallacy), in this theory, the beneficiary of the inference is the one who helps in market interpretations for situations such as irrational behaviors, which is contrary to the financial markets model in interpreting new information such as rationalizing decision-making rules (Al-Jubouri, 2014, 792).
- B. Expectation theory: It refers to the main important approaches in the investment decision-making process for investors. In addition, (Tversky & Kahneman, 1979-1981-1986) proposed that people respond differently to equal situations depending on whether it is presented in the context of loss or profit, and investors are usually affected by the possibility of losses and are happy when they achieve expected or even certain gains, while some investors, although they are not prone to risk yet, they face certain losses and at that time they take that risk. Expectation theory includes a number of biases including (aversion to loss, regret, and mental accountability) (Maheran & Muhammad, 2009, 3-6).
- C. Market factors: such as (market information, price fluctuations, historical stock price trends, the basics of preferred stocks, focus on popular stocks, overreaction to prices, customer preferences, and seasonal price cycles), all these biases affect investors' decisions within the financial market, and they are influenced by the behavior of the herd and tend to behave same as others when the price fluctuates (Al-Najjar, 2017, 120-121).

D. Collective behavior (herd behavior): It includes the following biases: (the size of traded shares, buying and selling decisions, the duration of holding shares, choosing shares for trading), and all these behavioral biases for herd behavior push investors to emulate and imitate others when making investment decisions within the financial market (Sattar, et.al,2020, 69-71), and in the same perspective the herd behavior can cause some other emotional biases, including matching, compatibility, cognitive conflict, and gossip. Investors may prefer this behavior if they believe that the herd can help them extract useful and reliable information when the herd consists of fund managers or financial analysts, and they are usually evaluated through periodic evaluation on a relative basis and comparison with their peers (Abdelkader, et. al., 2019, 181).

It is clear now that behavioral financial patterns focus on the types of investors in terms of their psychological behaviors, some of them bear some kind of risk due to their various investments, and other may seek the least possible risks and thus will achieve lower returns and vice versa.

2.1.2 Measuring investor sentiment according to behavioral financial indicators

Investors' sentiments are overly pessimistic or optimistic about the expectations of financial markets, which may be caused by investors' mistakes in their judgment. Investors sentiment is mostly in securities such as stocks with a low or short-term capitalization of companies that do not make profits and suffer from financial hardship, and investors might also get affected by external factors as well which makes them irrational in their investment decisions (Kawle, 2016, 2291-2293), such factors can affect the mood of investors, which in turn affect their psychological behaviors, and then lead to a change in their decisions about investment operations, whether negative or positive, which is a risk in itself because it changes the course of investment for investors (Sattar, et.al, 2020, 69-71).

When knowing the measurement of the impact of investors' sentiment on the returns of securities, there are a number of indicators of behavioral finance, through which it is possible to explain the dimension and sentiment of investors and know the extent of their effects on the fluctuations of securities prices, including dividend premiums. The study of the data

resulted from investor surveys is important for companies that aim to offer their shares and bonds in the financial markets, and through which it is possible to know the extent of the optimism and pessimism of investors, moreover, the volume of trading for securities can be considered as another source of investor anxiety, as it affects the expected returns of their financial assets and plays an important role for the sensitivity of transaction costs (Finter, et.al, 2011, 2-6), as well as the size of the IPO, which is also a key indicator for measuring the financial behavior of investors, especially when the issuance of shares is greater than the total new issues, and this measures all stock offerings and not only the size of the IPO, and in the event that the number of issued shares increases, it will reduce the required share returns and the value of all shares from dividends and the size of the debt may also increase (Baker & Wurgler, 1999,3-5). The psychological factors of investors are expressed by an index through which they measure their financial sentiment and behaviors because the psychological aspects are expressed by the levels of the optimistic and pessimistic of the investor, and this may greatly affect their investment decisions, whether negatively or positively (Finter, et.al,2011, 3-5).

The study relied on two important indicators of behavioral finance, which can be measured according to the data available in the economic sectors of the Iraq Stock Exchange research sample as follows: (Mutlaq & Fares, 2019, 160) (Baker & Wurgler, 2007, 135-138)

- A. Traded stock turnover index: Stock turnover refers to the number of shares traded in the financial market, and it represents the volume of liquidity that affects investment returns, and this means that the more shares traded, the more returns will increase, so stock turnover can act as an indicator of investor sentiment, and then irrational investors participate and add liquidity only when they are optimistic, and it is used as a partial solution to getting rid of fixed commissions, and investors take the stock turnover rate as an important factor when they take Any investment decision in securities.
- B. Stock trading volume index: The general trading volume or liquidity in general, can be considered an indicator of investors' sentiment, if short selling is higher than opening or closing deals, irrational investors are likely to trade, and then add liquidity and then increase trading volume,

this is when investors are optimistic, as well as stock trading volume reveals the basic differences in the opinion and actions of investors, which in turn are related to valuation levels and when short selling is very difficult.

2.2 Financial Soundness

2.2.1 The concept of financial soundness

Many scholars discussed the concept of financial soundness from different perspectives, and some of them pointed out that it is a focused evaluation process for the operations and activities of the financial institution through risk control. financial soundness reflects a great focus on risk management in banks, and there are four main factors for managing such risks, including: (Al-Imam, 2010, 9)

- A. The quality of risk control and supervision systems.
- B. Adequacy of policies for all financial activities that involve significant risks.
- C. Efficient internal control to prevent fraud and distorted activities by some users.
- D. The quality of the conditions of supervision and control by the Board of Directors in the bank.

According to the foregoing, due to the various definitions of the concept of financial soundness and the diversity of its aspects and components, the possibility of relying on a single quantitative indicator capable of measuring the levels of its existence and the extent of its availability, becomes an issue associated by a lot of unreality and away from accuracy, especially since the components of the financial system are usually linked to each other by a matrix of intertwined and complex relationships that increase the difficulty of predicting financial crises and increase the likelihood of transmitting their effects, and therefore it is necessary to adopt a comprehensive systemic concept to assess the extent to which the financial system enjoys financial soundness, which is an urgent financial necessity, hence the publications of the International Monetary Fund to confirm with the development of a set of financial indicators that reflect the integrity of the financial system in a country, and serve as diagnostic tools for the weaknesses it suffers from and

influential tools for the shortcomings that the financial institution can suffer from (Al-Iraqi & Al-Nuaimi, 2020, 34).

2.2.2 The nature and dimensions of the financial soundness indicators

Financial soundness indicators are a new branch of economic statistics that is concerned with the disciplines of economic measurement, which relies on advanced financial accounting concepts to monitor the status of financial institutions, as well as financial information related to the banking sector and macroeconomic indicators, based on economic statistical measures, taking into account the conceptual framework of developments in international and regulatory accounting systems (Al-Shakarji & Al-Sharabi, 2017, 209).

The importance of financial soundness indicators lies in the context of financial and economic policy-making, as there are more than a dozen central banks and a large number of international financial institutions, including the International Monetary Fund and the Bank for International Settlements, which issue periodic reports on financial stability and soundness and devote part of their activities to studying financial safety and stability and striving to achieve it. The importance of financial soundness indicators can be summarized as follows: (Mohammad & Khatlan, 2021, 209)

- A. Establishing the principle of disclosure and transparency and providing all information to market parties and the public.
- B. These indicators allow for comparing financial conditions by applying them in different countries.
- C. It also allows the detection of the risks of transmission of financial crises and thus mitigates their effects and severity.
- D. It is also used for early warning in the event of financial imbalances or crises inside or outside the bank, which enables the investor to make his decisions properly.

In addition, there are a number of indicators of financial soundness, which is an important tool that helps analysis and interpretation, and these financial ratios are often divided into basic types or groups, which are as follows:

- A. Capital adequacy ratio index: It is one of the most important indicators that are used to identify the solvency of the financial institution and its

ability to withstand potential losses, as the greater the capital, the less likely the financial hardship, and the degree of its solvency rises accordingly, and vice versa, so the Central Bank of Iraq paid special attention to strengthening the financial positions of banks by increasing their capital, as the first line of defense to make them more able to overcome potential risks, and the Basel II standard was used to measure capital adequacy (Central Bank of Iraq Publications, 2019, 29).

- B. Profitability index: It is the bank's ability to obtain profits through banking investment, and in this way, it is possible to obtain a return commensurate with the size of the bank's resources during a certain period of time, and that the bank's ability to achieve profits is through the optimal investment of the bank's resources in order to achieve a return fits the volume of its resources during a period of time, and profitability is expressed in certain percentages that represent the rate of return on investment in a specific resource of the bank (Muhammad & Khatlan, 2021, 210).
- C. Liquidity Index: Assets with more Liquidity indicate the bank's ability to raise cash within a short period, but it also reduces the ability of management to reliably adhere to the investment strategy that protects investors from expected risks (Myers & Rajan, 1998, 746), and due to the importance of liquidity for banks, the monetary authorities set minimum limits for the type and volume of liquidity to be maintained by the bank and the Central Bank as the last party to lend to banks, and it is necessary to estimate the liquidity needs through predicting the volume of loans and analyzing the behavior of deposits in order to avoid reaching liquidations and declaring bankruptcy (Hazouri, 2015, 81).
- D. Asset Quality Indicators: The quality of assets is the cornerstone of the level of credibility of capital ratios, as most of the risks of financial insolvency in financial institutions often result from the quality of assets or the difficulties of converting them into liquidity when needed (Central Bank of Iraq Publications, 2019, 40).

2.3 The relationship of behavioral finance to the financial soundness

Based on what has been presented previously, it was found that when investors deal with the financial markets based on their psychological state they tend to closely follow up on the returns and risks of financial assets, and they are very interested in the number of shares traded in the market as well as knowing the volume of liquidity as it may affect their investment operations (Finter, et.al, 2011, 3-5). This is what was mentioned when presenting behavioral financial indicators, and what investors interpret as rational thinking and action about any situation that occur whether buying or selling financial assets, which represent a set of rational expectations about the future and help in determining the value of banks, therefore the prices of those assets should accurately reflect the underlying values and move up and down only when there is future insight or news, whether positive or negative (Al-Zahrani & Hamdi, 2017, 136).

Moreover, for the investor's decisions to be sound, he/she tries to ensure dealing with these investment operations correctly, and then the financial soundness indicators are sufficient because they are based on the soundness of financial transactions of investors in the capital markets (Hazouri, 2015, 82). These ratios in banking transactions focus on the quality of assets as well as the profitability and liquidity of banks, and this directly affects investors when making their investment decisions in the financial market.

3. Methodology

3.1 Research Sample

The research sample consisted of a group of banks listed in the Iraq Stock Exchange for the period (2010-2018) as shown in the table below.

Table (1)

No.	Bank name	Acronym	Date of Establishment	The date of listing in the Iraqi Stock Exchange
1.	Iraqi Commercial Bank	TBI	1992	2004
2.	Baghdad Bank	BOB	1992	2004
3.	United Investment Bank	UBI	1994	2004
4.	The National Bank of Iraq	BNOI	1995	2004

5.	Iraqi Credit Bank	BROI	1998	2004
6.	Gulf Commercial Bank	BGUC	1999	2004
7.	Mosul Bank for development and investment	BMFI	2001	2005
8.	Al-Mansour Bank	BMNS	2005	2008

Source: Prepared by researchers based on the official website of the Iraq Securities Authority.

3.2 The table below shows the average behavioral financial indicators of the research sample.

**Table (2)
Average behavioral financial indicators of the research sample for the period (2010-2018)**

N0.	Banks/indicators	Trading volume	stock turnover rate
1.	Al-Ahly of Iraq	8.6269	5.1422
2.	Iraqi credit	8.5448	2.8755
3.	United for Investment	6.5476	22.1744
4.	Mansour	9.7075	4.6288
5.	Mosul for Development and Investment	3.1767	29.767
6.	Baghdad	3.4170	12.966
7.	Iraqi commercial	1.3297	11.0858
8.	Commercial gulf	3.8185	21.2611

Source: Created by researchers.

Table (2) indicates that United Investment Bank recorded the highest trading volume among all the other banks in the sample with a mean of (6.5476), which indicates that United Investment Bank ranked first among the banks of the research sample due to the rise in trading volume, and this rise leads to changes in stock prices and risk, while the lowest trading volume was indicated at the Iraqi Credit Bank with an average of (8.5448), and this means that the change in trading volume is caused by the change in the behavioral factors of investors, which contributes to changes in stock prices and risk.

It is noted from the results shown in Table (2) that the Bank of Mosul for Development and Investment recorded the highest mean of the share turnover rate compared to the studied banks and a value of (29.77) during

the years of the study and this is evidence of the increase in buy and sell orders on the share of the same bank, while the Iraqi Credit Bank recorded the lowest mean of the share turnover rate with a value of (2.88) during the study period, which indicate the reluctance of investors to trade in the bank's shares.

Table (3)
The average of the financial soundness indicators for the study sample
(2010-2018)

No	Banks/Indicators	liquid assets/short-term liabilities	return / equity	Owned Capital /Total Deposits
1.	Al-Ahly of Iraq	1.6672	0.5369	104.9057
2.	Iraqi credit	1.6816	0.7093	92.2723
3.	United Investment	1.2502	2.2242	180.8345
4.	Mansour	1.4912	0.7052	59.3314
5.	Mosul for development	2.0298	1.9991	172.8652
6.	Baghdad	1.1582	0.6994	23.0481
7.	Iraqi commercial	2.2045	0.6818	166.6642
8.	Commercial gulf	1.2671	0.7284	69.8664

Source: Created by researchers

When observing the results shown in Table (3), it was found that the highest liquidity ratio represented by (liquid assets / short-term liabilities) was with the Commercial Bank of Iraq, as the mean reached (2.2045), and this is evidence that the bank invested most of its profits, which averaged (0.6818), as it is a low percentage compared to the studied banks and evidence that the bank maintains a certain percentage of the cash balance,

while the lowest liquidity ratio recorded at the Bank of Baghdad and with a mean of (1.1582).

Additionally, The results of Table (3) indicate that United Investment Bank achieved the highest profitability represented by the percentage of (return / equity) among all the studied banks and with a mean of (2.2242), and this means that the aforementioned bank ranked first among the studied banks due to the high percentage of profitability, which indicates the efficiency of management in practicing banking activities, while the National Bank of Iraq achieved the lowest level of profitability, as the average reached a value of (0.5369), and this indicated an alarming result to the management to expand the bank's activities and enter into multiple investments in order to increase profits.

It is noted from the above table that the United Investment Bank achieved the highest percentage of capital adequacy in terms of the ratio (owned capital / total deposits) among the banks of the research sample with an average of (180.8345), which indicates the bank's ability to use its owned capital to respond to depositors' requests on time, while the lowest percentage of this indicator was at the Bank of Baghdad with an average of (23.0481) and this is an indication of the bank's failure to use its capital to meet the requests of depositors. This requires the Bank of Baghdad to focus on increasing its owned capital and reserves to meet any demand by depositors to avoid losing investors' confidence in depositing their money in the bank.

3.3 Measuring the impact of behavioral finance on financial soundness

For the purpose of testing the research hypothesis, in terms of the impact of behavioral finance on financial soundness, a multiple regression model was adopted, and the results were as follows:

A. Measuring the impact of behavioral finance on bank liquidity

Table (4)
The results of the regression model for the effect of behavioral finance on liquidity for the period (2010-2018)

independent variables	estimated parameters	T -Test	Sig. P. Value	The coefficient of determination R ²	F -Test	Sig. P. Value
Trading volume	-26.4	-1.61	0.168	34.2%	01.30	0.351
stock turnover rate	0.267	1.60	0.170			

Source: Created by researchers

The results of the analysis shown in Table (4) show that the financial behavior of investors does not affect the liquidity of the bank in terms of the value of (F) at the level of significance (0.351), which is greater than the significance level of (0.05), as shown in the table above the effect of behavioral financial dimensions (trading volume, stock turnover), as the value of (T) appeared insignificant for the two dimensions in terms of the significance level for each of them, which was greater than (0.05), thus, indicating that their impact on the liquidity of the banking sector is weak, as the activity of banks In the stock market is related to the buying and selling of its shares, and this affects the share prices up and down, and the reluctance of investors to trade in bank shares is due to their preference to obtain a higher interest rate as a result of depositing their money in the bank.

B. Measuring the impact of behavioral finance on the profitability of the bank

Table (5)
Regression model for the impact of behavioral finance on
profitability for the period (2010-2018)

independent variables	estimated parameters	T -Test	Sig. P. Value	The coefficient of determination R ²	F- Test	Sig. P. Value
Trading volume	-36.5	-2.28	0.071	80%	10.00	0.018
stock turnover rate	0.422	2.60	0.048			

Source: Prepared by researchers based on computer output

The results of the analysis shown in Table (5) showed the effect of the behavioral financial dimensions, which showed the significance of its impact on profitability with regard to the dimension of the share turnover, as the value of (T) appeared significant, reaching (2.60) at the level of significance (0.048), which is less than (0.05) and in terms of the value of (T), whose value appeared positive, which indicates the positive relationship between the two variables, and this means when this indicator rises by (1) it leads to a rise in profitability in banks by (0.422) and this relationship is due to the increase in the buy and sell orders for the bank's shares which act as an announcement of the bank, that encourages investors to turn into dealing with banks by depositing and borrowing and then investing this money by the bank, thus achieve more profits, and such returns are linked to a long-term relationship with stock returns more than a short-term relationship.

C. Measuring the impact of behavioral finance on capital adequacy

Table (6)
Regression model for the impact of behavioral finance on capital adequacy for the period (2010-2018)

independent variables	estimated parameters	T- Test	Sig. P. Value	The coefficient of determination R ²	F -Test	Sig. P. Value
Trading volume	-2.633	-0.89	0.413	24.41%	0.81	0.497
stock turnover rate	2894	0.97	0.379			

Source: Prepared by researchers based on computer output.

The results of the analysis in Table (6) showed that behavioral finance in its two dimensions (trading volume, stock turnover) is significant for both dimensions, as the value of (T), with (-0.89) (0.97) respectively, appeared at the level of (0.413) (0.379), which are greater than (0.05), which means that its impact on financial soundness is weak, because the rise and fall of both trading volume and share turnover depends on variables outside the bank and related to the supply and demand for shares in the market. The analysis also produced a weak ability of the model to interpret the impact of variables in terms of the level P value (0.497), which is greater than (0.05) and the reason may be due to other variables which are not addressed by the model and might be more influential on the financial soundness of banks.

Conclusions

1. The behavioral financial patterns focus on the different types of investors in terms of their psychological behaviors; some of them bear some level of risk owing to their diverse investments, while others seek the lowest level of risk and hence obtain lesser returns, and vice versa.
2. Investors' psychological moods are expressed in levels of optimism and pessimism, and this can have a significant impact on their investment decisions, either positively or negatively.

3. The possibility of relying on a quantitative indicator capable of measuring the levels and quality of financial soundness is flawed with inaccuracy, especially given that the components of the financial system are typically linked to one another via a matrix of interlocking and complex relationships, which increases the difficulty of predicting financial crises and increases the likelihood of their effects being passed on.
4. The study results revealed that the activity of banks in the stock market is related to orders of buying and selling their shares, which affects the share price up and down; additionally, investors' reluctance to trade in bank shares occurs due to their preference to obtain higher interest as a result of depositing their money in the bank.
5. There is a close relationship between the returns of market shares and the returns achieved by the bank as a result of its banking activity, and this relationship is due to an increase in buying and selling orders for the bank's shares, which encourages investors to deal with banks by depositing and borrowing and then investing this money by the bank, resulting in higher profits.

Recommendations

1. Additional research into variables not covered in the model, such as market capitalization and financial intelligence, could have a greater impact on financial soundness.
2. Behavioral finance provided a new approach that challenged traditional theories and explained many of the phenomena that were occurring in the capital markets, and this calls for investors and analysts to study behavioral models through programs to develop their analytical abilities to understand how markets move and then increase their ability to accurately predict the prices of their financial assets.
3. It is critical that the process of favoring company shares is based on their results rather than the herd factor.
4. The study of behavioral finance theory will undoubtedly make it easier for researchers and analysts to construct models that are more accurate, thus more attention must be paid to this field.

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