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Abstract: Stock markets are an attractive investment environment for new investors from different financial backgrounds. In emerging markets, the risk ratio is considered high; however, the profit margin is attractive. The task of obtaining future information and forecasting is considered an essential advantage for financial institutions. The premise is that the emerging markets did not have the chance to get the trading policy derived from their own environment. Therefore, we wanted to investigate what aspects of objectives investors comprehend as a suitable policy to comply with. This study investigates the means and the fundamental objectives of short-term investment. It focuses on the personal and technical perspectives of investors in emerging markets. The results bare the relationship between means objectives and fundamental objectives. This contribution aids academics and decision-makers in finding the most relevant aspects that influence the investor's decision to trade stocks in emerging markets regarding personal and technical perspectives.

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1 Introduction

Stock markets are an attractive target for new investors with diverse financial backgrounds. In emerging markets, the associated risk is considered high, but the profit margin is particularly attractive. The task of obtaining future information and forecasting is regarded as an essential advantage for financial institutions. Thus, they offer this advantage to their preferred customers with premium subscriptions through their financial experts. Financial experts use different traditional prediction models to predict market volatility, such as fundamental analysis, technical analysis, and regression models. However, using conventional models with this massive amount of information rarely gives a good recommendation due to investor preferences and reactions to the various aspects that influence decisions.

The investment decision can be taken based on the technical or fundamental perception of the trading environment in the stock market. It depends on the business and technical requirements of the processed information and the expected outcomes (Son and Kim, 2021). The required information can vary between the stock market legacy data, national and international news, social trend, company revenue data, technical infrastructure, market regulation, etc. (Al-Hilu et al., 2017). Researchers mainly consider the technical perspective in their analysis due to the convenience of having historical market data and the trader's requirements for technical analysis (Shah et al., 2019; Yang and Ryu, 2021). On the other hand, fundamental analysis is more interesting for consideration, especially in new, growing markets in a developing country. Fundamental data can be extracted from multiple sources like financial institution reports, governments reports, social media, news, blogs, and forums. However, using such information depends on the investor's reaction to different decisions that influenced them (Parveen et al., 2020). In his seminal paper, Simon (1959) introduced the behavioural decision theory (BDT), which states two main aspects that affect the decision process: weighting probabilities and choosing the decision frame. The premise is that humans tend to overweight or underweight possibilities of a decision consequence by overfitting or underfitting data. These tendencies can affect the decision process. Therefore, using a prediction system in the emerging market can increase the probability of making rational investment decisions. In addition, it can increase the likelihood of making a sensible economic decision about financial information. In this work, the aim is to identify the aspects that affect the investor decision in the trading environment of an emerging stock market. In summary, the main contributions of this work are:

- Reviewing and elaborating on trading environment principles from a personal and technological angle that are pertinent to the subject at hand, as well as their connections to the research's suggested answers.

- Prepare for and carry out an interview with people from developing nations to gather and assess the informed user response to the listed components and the degree to which that may affect their decision.

- Recognising the key components of the stock market's trading environment.

This research focuses on discovering the trading environment aspects that influence the investor's decision from a personal and technical perspective. The following are the primary benefits of this study methodology: the first goal is to determine the goals that influence a person's behaviour when making a financial decision. The second goal is to look for any connections between the stated goals (fundamentals, means), and how they can affect an investor's choice. This research also seeks to pinpoint the elements of the stock trading environment that might influence user decision. As far as we are aware, this methodology's flaw is the lack of access to knowledgeable people in developing countries. The authors believe that the identified background disciplines are considered essential to developing a solid knowledge of this research problem. Therefore, the authors make every effort to expand the opportunity to reach as many knowledgeable people as they can.

The rest of this paper is structured as follows. The next section provides insight into the nature of the theoretical background, followed by the research methodology that defines the required foundational concepts for a robust comprehension of the analysis methodology to collect the data. Section 4 provides an analysis and interpretation of the acquired data, and Section 5 concludes this work.

2   Related work

The behavioural-economics domain is used to establish economic perception in this matter. Behavioural economics studies the impacts of human behaviour on economic decisions. It examines the effects of various aspects, such as psychological, cognitive, emotional, cultural, and social, on the individuals and institutions' investment decisions, and in what manner do these decisions differ from those of classical theory (Lin et al., 2011). It includes the economic and behaviour approaches to take decisions and the procedures that lead to the public selection. The three prevalent themes in behavioural economics are inference, framing, and market inefficiencies (Shefrin, 2002). Behavioural economics assumes that most traders are entirely related in respect to preferences, judgment, and strategic choices. Social media, institution reports, governments report seriously influence market direction (He et al., 2021; Robertson et al., 2006; Wisniewski and Lambe, 2013). The direction will be affected by the information and news they release by the stakeholders (Liu et al., 2020). Individuals' judgment will be affected differently based on their background and experiences. Traders have different perspectives to make a judgment on their behaviour reaction. Those perspectives such as overconfidence, over panic, information bias, and various human liabilities in reasoning can affect the trader's behaviour (Cai and Hong, 2019; Friesen and Weller, 2006; Parveen et al., 2020). Thus, a trader's behaviour can be formed by optimistic or negative feelings about future values (He et al., 2021).

Weak efficiency stock markets behaviour can be predicted easily or at least identify the standards that influence them. While the nature of markets is to absorb the information when released and adapt it to become more efficient against the

initial predictive criteria, information absorption differs based on market efficiency. As mentioned early, market traders are humans, and their actions are based on illogical and emotional assumptions and do not consider the actual underlying value. Thus, this type of behaviour leads to most of the existence of speculative economic bubbles. Stock markets in the real world are considered an inefficient investing environment, yet some research explained that the market efficiency could be different. Some markets can be strong, and others can be semi-strong or weak (Fama, 1970). Stock markets in the emerging economies are expected to be much less efficient compared to the developed economies. Therefore, technical trading rules have a powerful influence on trend prediction (Yu et al., 2013).

Furthermore, the technical trading rules have a more excellent capability in trend prediction in short-term variants than long-term variants. Moreover, markets become more efficient in information over time. Thus, the efficiency level in emerging markets should be revised occasionally in matters of economically dynamic and rapid growth.

The trading environment domain is used to understand the nature of trading data, policies, and infrastructure and how it can influence investor decisions. Discovering the trading environment aspects that affect the investor's decision will improve the decision support system performance. In this research, background research was conducted to identify the attribute that influenced the investor's decision to trade in the emerging stock market. Trading stocks in emerging markets has become more attractive for investors due to different aspects.

Little to no fees or taxes are one of the main advantages that attract investors to stock trading in emerging markets. For example, the UAE imposes zero taxes, especially on dividends (Al-Hilu et al., 2017). As a result, taxes will not affect an investor's decision on trading, which will attract investors from outside the country to financially participate in the market (Al-Hilu et al., 2017). Other aspects that impact the emerging market are statements about dividends in which the earnings are high or not. A study shows that emerging markets like India react optimistically when there is a boost in dividends, while the response is the opposite if it was otherwise (Berezinets et al., 2019). However, the reaction within the Russian market was the opposite of the Indian ones, as addressed in Berezinets et al. (2019), in which the study mentioned that the unenthusiastic reaction to high dividends had to do with the damaging outcomes of the 2008 stock market crash.

Another factor is imposing a cap on stock prices by regulating minimum and maximum restrictions to control exaggerated market fluctuation (Spulbar et al., 2020). The study addresses in the Egyptian market that price reversals are larger for smaller companies and that positive or negative reactions to the price reversals depend on how efficiently the information is distributed to the investors (Farag, 2015). An additional factor is the amount of information shared about a company's impact or commitments towards the environment (a.k.a. transparency), which can affect the stock price positively or negatively, which also affects the investor's decision to sell the stocks (Akrout and Ben Othman, 2016). As addressed in Akrout and Ben Othman (2016), there is a correlation between investors dissolving their assets regarding a company sharing its information about how the firm handles the environmental issues, and such information is usually disclosed by a company's choice in the MENA region.

One of the other aspects that affect the emerging market is ensuring that all investors feel confident in trading with stocks by having access to updated stock prices by banning insider information (Banik et al., 2022). Ojah et al. (2020) conducted a study on

how imposing proper laws in South Africa against insider information on stock prices proven to be prosperous, which also ensured that price information to all investors was shared in tandem. Providing different kinds of stock measurement tools can give an investor more knowledge on their investment. Trang and Tho (2017) introduced a new means of assisting investors in making decisions which are 'measurement scales of risk perception' for the Vietnamese stock market. They concluded that traders were satisfied with their investment decisions when certain stocks had higher risk perceptions. When trading stocks, additional expenses such as fees, commissions, and other costs, determine an investor's decision when building a portfolio. Zaremba and Nikorowski (2019) research east European markets to understand whether prices fluctuate based on extra trading costs. The authors found out that 'examined strategies' underperformed due to additional investing costs. Wan-Hussin et al. (2016) conduct research in the Malaysian market to understand the impact of corporate social responsibility (CSR) disclosures on investor participation. They found out that the company with stronger CSR disclosures has a higher opportunity to attract investment with positive recommendations.

3   Theoretical background

This study discovers the influencing aspects by implementing a framework based on the value-focused theory. The value-focused thinking (VFT) by Keeney (2009b) inspired the framework of this study. The study uses a VFT approach and adds to it to customisable approach to identify the aspects that influence users' decisions to trade online. The use of VFT shows the effectiveness of developing a framework to determine the influence of online stock trading. There are three characteristics of the research approach of this study: first, it is comprehensive and offers extensive alternatives to build a recommendation system. Second, recognising and utilising the rules and procedures to identify the influence aspects on stock trading online. Third, it uses a different approach and is implemented innovatively to get the most out of the data and users' experience.

3.1   VFT and alternative-focused thinking

VFT is a methodology that Keeney (2009b) proposes, and it uses value theory to identify a value. The idea behind VFT is to detect decision opportunities and forms alternatives to decide (Keeney, 2009a). This study uses the VFT to identify the fundamental and means objectives. There is another approach that uses values in decision making; alternative-focused thinking (AFT). Keeney (2009b) proposed that both VFT and AFT offer a tool that can help decision-makers identify alternatives for their dilemma. The researcher developed the new approach based on the stakeholder's needs. Keeney considers the AFT methodology less efficient than VFT as it has some limitations.

3.1.1   VFT approach

The most difficult act for a user is making a decision with different options. This concern increases the decision-makers need to recognise decision opportunities that help them reach the most suitable decision. For example, a Saudi bank wants to choose a technology to facilitate online trading activities. Traditional decision-making approaches

assess the alternatives of technologies to choose from. However, VFT identifies that the decision to evaluate the online trading procedure needs to be assessed before determining the technology to facilitate online trading activities. VFT identifies the different choices that decision-makers should consider to effectively solve the decision dilemma.

The advantage of VFT is its consideration of the individual values and preferences to identify decision alternatives. Thus, it will help the decision-maker to take advantage of the different alternatives to address the goal of making a suitable decision. On the other hand, traditional approaches identify decision alternatives prior to realising the user's preferences related to this matter.

Per Lin (2011), Keeney establishes a procedure criterion to evaluate an effective decision. Value focus theory offers system developers different options for different influenced aspects that traditional decision-making approaches may miss. Keeney's VFT entails two activities: recognising the required information and identifying the best way to get it. According to Keeney, VFT will help to get the most needed information to reach the appropriate decision. It facilitates decision-makers work to identify the best suitable decision by detecting and reducing the alternatives.

3.1.2 Alternative-focused thinking

AFT is a backward approach that Keeney has used to compare his original VFT approach. VFT aims to identify the objectives of the decision problem by using the values in order to assess the decision alternatives. In comparison, the AFT seeks to identify the alternatives then create the assessment criterion to evaluate these alternatives. AFT contains five phases of decision making:

1   Understanding the need to solve a decision problem.

2   Identify the decision alternatives.

3   Identifying values corresponding to the decision maker's objective without deep thinking.

4   Identify and apply the evaluation measure based on the decision alternatives.

5   Selecting a decision alternative.

Accordingly, it may be said that AFT is considered a traditional decision-making approach.

3.1.3 Comparing AFT and VFT

This study aims to identify the decision alternatives considering individual values and preferences. Personal values and preferences will be utilised to evaluate and prioritise decision alternatives were used. Although mainly VFT instated of AFT. According to Keeney, there are several differences between AFT and VFT that have been summarised in Table 1 (Keeney, 2009a).

Table 1   Comparing AFT and VFT

Aspect	Alternative-focused thinking (AFT)	Value-focused thinking (VFT)
Approach	Reactive	Proactive
Core element	Decision alternatives	Individuals' values and preferences
Initial steps	Identifying the decision alternatives	Identifying individual values and preferences
Outcome	1 Solves decision problems	1 Solves decision problems
		2 Identifying decision opportunities
Decision evaluation	Evaluation measure based on decision alternatives	Evaluate and select decision alternatives based on individuals' values and preferences
Objective	Discover decision options	Creating decision options

4   Research methodology and data collection

In this paper, a qualitative analysis that implements semiotic analysis was conducted. Semiotic is the study of sign, language, and behaviour within the context of culture and their interpretation and capacity within the culture (May and Dhillon, 2009). The participants are mainly Saudis; thus, the researchers and the subjects share a similar cultural background in common. Therefore, the results are uniquely suited for Saudi and similar cultural environments. In addition, it is reasonable to assume that the interpretations are mainly representative of the Saudi cultural contexts. Therefore, this study conducts semiotic analysis in the Saudi context.

This study focused on using deductive methodology as defined by Lee and Baskerville (2003). Hence, the study based its methodology, investigation, and analysis on theories and literature. In addition, it was more important from a deductive standpoint to find the most suitable subjects available rather than having a large sample size. According to Lee and Baskerville (2003), the sample size does not affect the generalisability or rigor of the findings if the study uses deductive methodology. Consequently, the study conducted the interview of 25 subjects. They were senior and sophomores' undergraduate students who took investment courses. They were students at the Department of Management Information Systems, a public Saudi Research University. Out of these students, 12 seniors were registered for decision support systems, ten sophomores were registered for management information systems, and three seniors were registered for advanced topics in management information.

Participants were asked to fill out the interview questions in Arabic (i.e., their native language) while the interview took place on-campus for over an hour. Before the students entered the online interview form, the investigator discussed the meaning of short-term investment and the personal and technical investment perspectives. The investigator defined the short-term as investments that an investor plans to keep for a short period of time. The definition of short-term depends on the investor's perception. Nonetheless, it has to be an investment that an investor does not plan to keep for more than a year and does not keep for more than three years. Next, the investigator defined personnel perspective as the investments someone invests in bettering their financial situation. In addition, it must be an investment placed by a person, not a company. Finally, the investigator defined technical perspective as the technical measures and policies that an investment firm should put in place to facilitate short-term investment and encourage short-term investors to join them.

Therefore, the interview survey was with informed users (Saudis) to collect their reactions to identify the aspects that may influence their investment decisions from their personal and technical perspectives. Investors are more committed to the particular type of investment options and preferences (Singh and Yadav, 2016). Accordingly, this research focuses on studying the aspects that may influence the investor's decision to invest in an emerging stock market driven by their surrounding environment and its impacts. In the following section, the paper will discuss the theoretical background of the research and the conducted methodology of collecting and analysing the data. Later, it will discuss the initiated results and recommendations.

Jabir ibn Hayyan, the founder of applied chemistry, said that a scientist should only include findings based on deductive methodologies to assure the accuracy of the findings. In addition, he noted that scientists should include results that they accept and can test. Generalisation is to abstract instances to make a general notion that predicts the behaviour of similar instances (Lee and Baskerville, 2003). Per Lee and Baskerville (2003), if done correctly, empirical statements to empirical statements (EE) or generalised from empirical statements to theoretical statements (ET) generalise empirical findings. EE is to generalise from data to "a measurement, observation, or other description" (p.233). ET is to generalise the description of "measurement, observation or other description to a theory" (p.233).

Figure 1 Research methodology (see online version for colours)
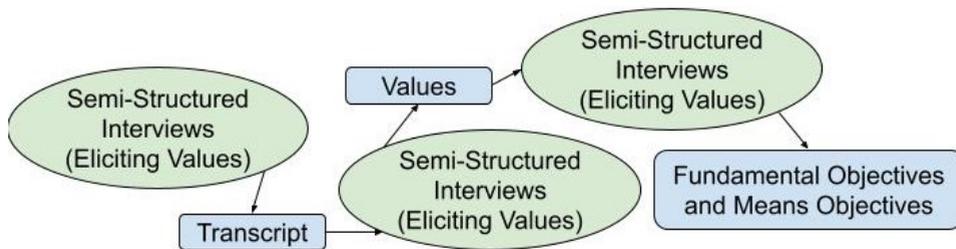
Generalisability is controversial among different methodologists. However, generalisability should not be an exclusive right to statistical studies, sampling studies, or laboratory studies. It should be a privilege given to studies that satisfy formal logic. Jabir ibn Hayyan said that a scientist should only include findings based on deductive methodologies to ensure the findings' accuracy. This empirical study follows the road plan of grounded theory in collecting, analysing, and interpreting the qualitative data. Therefore, the data analysis started once the data became available. The analysis was performed via the process of categorising the concepts and connecting them. Categories and their connections were changed per the availability of additional data. The creation of new categories stopped when no new conceptualisations emerged. Thus, this study starts with open coding, proceeds with selective coding, and ends with theoretical coding. As specified by Urquhart (2017), "the aim of grounded theory is to generate or discover a theory." Since generalisability and falsifiability are the essences of any theory, it is essential for the study findings to have generalisability and falsifiability. In an effort to generalise the results of this qualitative empirical study, the study applies grounded theory. In addition, since the subjects are mainly Saudis, the study implements a semiotic analysis of their perceptions. Therefore, the study semiotically interprets

the answers that subjects offered. Afterward, the study supports the perceptions of the subjects through informative literature. This study elicits public values to aid complex policy decisions, and it is not a study of behavioural finance in the capital market.

4.1   Research setting

The aims that VFT bares are from undergraduate participants while they were taking business classes. They offered input on the aspects that influence them to decide to use online to trade stocks in the short-term at the emerging market from personal and technical perspectives. This study offers the results of semi-structured interviews of the VFT participants. Data analysis bears several aspects and objectives to influence short-term online trading.

Figure 1 summarises the study's methodology. This study divides the process into three steps. First, developing fundamental and means objectives. The proposal is to conduct interviews to identify aspects that influence short-term online trading. Next, the interview script structures the aspects that will develop the fundamental and means objectives. The second is developing a valued forum. Finally, value focus theory is to create a respected platform derived from primary objectives and their attributes.

Per Keeney and Keeney (2009, p.33), fundamental objectives are qualitative articulation of values. They qualitatively express decision concerns and guidance for actions. In addition, they "are the basis for any interest in the decision being considered."

They are also the objectives that means objectives are trying to achieve. Decision makers put high weight on these objectives. In addition, decision makers model and design decisions to satisfy these critical objectives. Having clear and adequate fundamental objectives gives more clarity and insight to decision makers. Otherwise, decision maker can ignore information and alternatives while spending resources on collecting less important information; information that is based on vague and incomplete objectives.

Table 2   Constricting values

Value	Ensure investment stabilisation
Decision	The investment is stable
Object	Stable
Preference	Ensure

4.2   Finding values

To find the values, semi-structured interviews of participants are conducted. It is essential for all participants to understand the focus of the study and the concepts behind it. Therefore, the study concepts, purpose, context, and interview scope will be explained to the participants. The primary goal is to identify the objectives that are related to the study scope.

The participants can answer each question they find the most relevant and suitable, i.e., they can discuss any concepts. They know the study aims to discover their opinion,

so the researchers are not looking for a certain answer. This allowed the natural elicitation of values from individuals. A challenge appeared as everyone expressed values differently. However, redundancy is not a shortcoming when developing a comprehensive list of all values (Keeney, 1999). Probing techniques is to find latent values that include making implicit values explicit.

In this stage, the authors developed objectives based on the identified values construction. The objective has three attributes (Keeney, 1999): decision, object, and preference. They will have an object in the form of a noun and preference in the form of a verb, as has been illustrated in Table 2. In order to construct the values, the following five-step process was implemented (Dhillon and Smith, 2019):

1 All statements are rephrased into the same statement form. All the constructed values show the aspects of the study scope. That will produce a long list of objectives.

2 All identical phrases will be removed.

3 Common form values combined into same influence aspects sub-objectives.

4 The content of sub-objectives that have similar characteristics will be combined in the same cluster.

5 Each cluster of sub-objectives is labelled based on its common subject, which becomes the main objective of the cluster. For example, the objectives of 'use a car to go to the university', 'attend the course lectures', and 'give a correct answer in the exam' are categorised into the main objective: 'ensure the successful pass of a course'. Figure 1 shows the relationship between structuring values and the process of developing values.

4.3 Organising objectives

The last stage is organising the clusters based on their primary objectives (Dhillon and Smith, 2019). The main objectives initially include both means and fundamental objectives. The means objectives and fundamental objectives categorisation use an iterative process. The process comprises linking objectives together through means-ends relationship to specify them and show their relationships. The means objectives and fundamental objectives are categorised and related based on their importance in the decision context of short-term online trading in an emerging market. Means objective is an implication of other means objectives and fundamental objectives. The fundamental objective is an essential reason for means. Means objectives specify the logical parts of their fundamental objectives.

4.4 Analysis and interpretation

Data were collected in Saudi by interviewing a group of subjects. The interview was conducted in the Arabic language, which is the mother tongue in Saudi Arabia. The reason behind it is to give the participants the relief to express their opinions without any obstacle related to the language. The semi-structured interviews of participants find the values. It is important for all participants to understand the concepts of short-term online

trading in an emerging market. Thus, at the beginning of the interview, participants will discuss short-term online trading in emerging market concepts in addition to the purpose, context, and scope of the interview. Short-term online trading is the act of buying and selling a stock share in a stock market within a short period of time (minutes or hours). It includes using applications, computers, and the internet to access the stock market environment. The primary purpose is to identify the objectives that influence investors' decisions to trade online in the short-term. Participants scope their answers from the perspective of personals and technical. The questions were:

- From a personal perspective, what do you think makes you decide to trade in the emerging stock market using online in the short-term?

- From a technical perspective, what do you think makes you decide to trade in the emerging stock market using online in the short-term?

In the constricting values stage, objectives were developed based on the identified values construction collected for the semi-structured interviews. First, all the rephrased statements were collected from the participant into the same statement form. All the constructed values show the aspects of why short-term online trading in an emerging market is attractive. This stage was applied for each question in the interviews. The first question, which related to the participant's perspective of short-term online trading, produced a list of 176 rephrased statements. At the same time, the second question that related to the participant technical perspective of short-term online trading produced a list of 134 restated statements.

Those two lists will be entered in the second stage. The identical phrases were removed from the produced list of objectives that have been created in the first stage. As a result, the first list goes down from 176 to 80 statements, and the second list goes from 134 to 43. Third, the values of the common statement were combined into the same influence aspects sub-objectives. That resulted in the formation of 18 groups for each question. Later, the content of sub-objectives was merged with that of similar characteristics in the same cluster.

As a result, 11 clusters for the personal perspective question and 12 for the technical perspective question were arranged. Lastly, the authors labelled each cluster of sub-objectives based on its common subject, which becomes the main objective of the cluster. Table 4 shows the initial list of each labelled sub-objectives resulting from the produced list. Also, it shows the number of the statement that for each cluster based on their common characteristics. The produced objective list was reviewed many times. As the construct of the values for the cluster label begins, the objective behind reviewing the list many times is to ensure reaching the most suitable sub-objectives representing the statements cluster. Table 4 shows an example of the values constructed for each cluster label at the final version of the personal perspective question. In the organising objectives, the result contracted values for each question were categorised into one of the following objectives: means or fundamental. An iterative process was applied to categorise the objectives based on their importance in the decision context of short-term online trading in an emerging market. In addition, objectives were connected through a means-ends relationship. The aim was to identify the means and fundamental objectives for each question and show their relationships between them. The following section discusses each objective that resulted from the interview, its relation, and the participant's recommendation that preceded that objective.

Table 3 Sub-objective labels for both personal and technical perspectives

	Personal perspective question			*Technical perspective question*	
#	*Sub-objectives label*	*Number of statements*	#	*Sub-objectives label*	*Number of statements*
2	Market changes	3	2	Dealing with risks	5
3	Market stabilisation	15	3	Using technology to gain a competitive advantage	5
4	Payback period	5	4	Positive annotation and sentiment	3
5	Easy cash access	5	5	More related to short investment	3
6	Easy access to save time	3	6	Needed technologies	3
7	Trading skills and experience	10	7	Systems design advice and recommendation	7
8	Market analysis	4	8	Deciding factors	3
9	Company analysis	6	9	Negative annotation and sentiment	3
10	Market news	4	10	General concept and advice	3
11	Financial capability	10	11	Common good advantages	2
12	Government fees	1			

Table 4 Sub-objective labels for both personal and technical perspectives

| *Personal perspective question*	
Constructed values	Cluster label
Get a high return on investment	Return on investment
Get a cheap extra income	
Have knowledge before trading	Trading skills and experience
Do market analysis before trading	Company analysis
	Market analysis
Study the companies	Market news
Comprehend financial capability	Financial capability
	Government fees

4.5 Personal perspective analysis

The main goal of any investor worldwide is to maximise the profit of their investment and minimise the risk ratio. Stock markets are an open place for different types of investors with different financial backgrounds. Although different investors have their own motivations, they all agree on one rule: maximising the investment return. Singh (2012) return on investment (ROI) is a performance indicator to measure the benefit gained from any investment (Zamfir et al., 2016). Interviewees recommended that getting a high ROI is what motivates them to invest in the stock markets in the short-term.

Getting a high ROI includes increasing the investment profit and minimising the idle capital, which leads to higher profitability and reduced risk in a short time. Per Figure 2, this fundamental objective is considered as the most critical aspect that influences them to decide to trade online stocks in the short-term in emerging markets from a personal

perspective. It expands on the different fundamentals that aim to get safe extra income through market stabilisation in order to minimise the risk and maximise the benefit. Singh argues that the main objective of the investment is to increase the rate of return, decrease the risk, get rid of investment at the right time in an emergency, and carefully choose the best method to invest to save your capital (Singh, 2012).

Figure 2 Fundamental objectives for personal perspectives (see online version for colours)
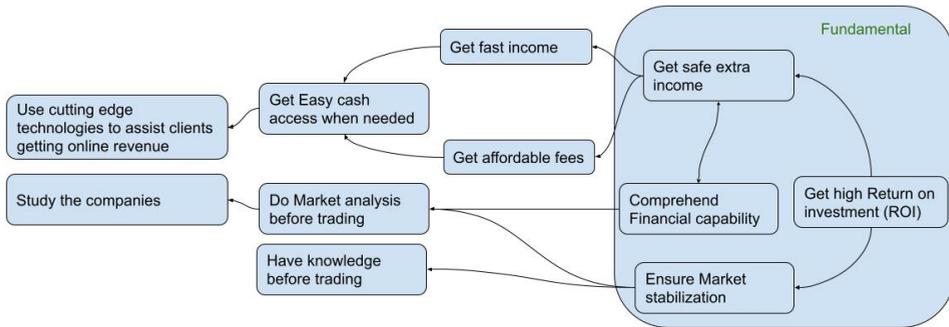
Per Figure 2, get safe extra income fundamental objective expands on the different means that aim to earn fast income with affordable fees. In addition, it derives the main fundamental objective of obtaining a high ROI. It combines with the other fundamental objective of ensuring market stabilisation and comprehending financial capability. Acquiring a fast income is one of the main characteristics of short-term investment. Investors who are looking to get quick income in the short-term are targeting stock markets. The stock market is recognised for providing an easy and fast trading environment compared to traditional investment channels. In addition, the cost of getting short-term finance is lower than long-term, which lowers the total cost of the investment compared to the earned benefit. Thus, it will provide an extra source of income for investors with a minimum possible risk associated with different types of investment.

Interviewees recommended that short-term investment in the stock markets will grant you faster income in a short time. Getting quick income includes rapid profit, getting money back quickly, and investing many times with the same capital on the same day. Furthermore, they offered several informative insights on how an investor can gain extra income safely through short-term finance with low-interest rates. It will help the investor to earn an extra low-cost income for unforeseen expenses. Moreover, they recommended short-term investment due to the fact that most of the stock prices change rapidly in nature. However, some markets control the price change with max and min percent to provide a more stable trading environment. Thus, it provides a way of extra safe income to the investor and alternative opportunities. An investor's primary goal from any investment is to increase his revenue. Looking for higher income has increased demand for investments and earnings above the regular income of people. Thus, selecting a suitable investment method will help the investors to earn a regular extra income (Singh, 2012). Accordingly, most people are looking for rapid income in a short time to increase their income and maintain their lifestyle.

Per Figure 2, ensuring market stabilisation, the fundamental objective expands on the different means that aim to study the companies one wishes to invest in their stocks and have knowledge of the basic concepts and activities in the trading environment before

getting involved. Furthermore, it derives the main fundamental objective of ensuring a higher ROI. It combines with the other fundamental objective of getting safe extra income and comprehending financial capability. Interviewees offered several informative insights on what should be done to ensure investment stabilisation as a factor in personal short-term investment. They stated that an investor should do the following:

- Know that the stock market is a risky investment environment due to its vulnerabilities to the surrounding events.

- Ensure that the targeted market is governed by policies and guidelines that aim to stabilise the market volatility.

- Ensure that the targeted market is well organised with high-quality management.

- Ensure that the short-term finance has minimum risk and low interest.

- The short-term investment provides a lower risk environment with a minimum risk of losing the total invested capital.

Briefly, it is easy to see why this is considered as a fundamental objective of short-term investment and its influence on the derived means objectives. In addition, it establishes the relation between the main fundamentals of ensuring higher ROI and the investors' desire to enter the stock market. Most investors may be aware of this objective, yet this research shows where it fits in the objectives of personal short-term investment.

Per Figure 2, comprehending financial capability is one of the fundamental objectives that derive the other fundamental objective of getting safe extra income. This shows that investors should understand and comprehend their financial standing to have safe extra income. It is important for investors to understand how much they can invest and where they should invest if they want a safe extra income. Therefore, the means objective of analysing the market as a whole influence this fundamental objective.

Interviewees offered comprehensive factors and suggestions that created the fundamental objective. They stated that in order to understand the financial standings, investors should accommodate the following:

- Investors know how much they are willing to invest.

- In addition, they should know how much risk they are willing to take.

- Furthermore, they should know their funding resources and how much they can get from each resource.

- It is important for investors not to neglect to check governmental and service fees as it is an oversight not to calculate these fees.

- Nonetheless, investors should make sure that they have enough money left to continue their lifestyle and be able to overcome losing the money they invested.

This is the fundamental objective that is based on knowledge and understanding financial stands. Investors need to comprehend how much they can risk and how much return they need to justify the risk. This objective is commonly neglected by individual investors since several of them invest irrationally and emotionally. It is a contribution to show where this objective fits among other objectives.

Per Figure 2, the 'easy cash access when needed' objective is an entry means objective that derives the other means objective of getting easy cash access when required. It also derives the other means objectives of getting a fast income and being able to afford trading fees. The use of technology aids the availability of cash. In addition, it is the deriving objective behind having a fast extra income, thus the short-term expression. In addition, it can help in making trading fees more affordable. The premise is that the pinnacle of personal short-term trading is to have the availability of cash when wanted. The interviewees supported that premise stating that the goals of personal short-term investing include the potential ease of getting returns. Besides, it is easy to find money for short-term personal investments. Moreover, short-term personal investments can liquidate stocks when there is a need for cash.

Per Figure 2, using cutting-edge technologies to assist clients in getting online revenue objective is an entry means objective that derives the other means objective of getting easy cash access when needed. The objective encourages short-term investors who invest for their personal gain to consider using technology aid in decision making. Although uncommon, the interviewees stated the importance of using technology to gain a competitive advantage in trading. They stated that using technology can save time and effort, even for personal short-term investors. In addition, using technology can aid investors in getting high returns. Moreover, they stated that using technology can encourage personal short-term investors to start trading.

Per Figure 2, 'having knowledge before trading' means objective combined with the means objective of doing market analysis before starting trading to derive the fundamental objective of ensuring market stability. This study calls for soft knowledge that is not number-based. Although neglected, it is crucial for personal short-term traders to have soft knowledge and not neglect it in favour of focusing on the knowledge that formal (i.e., number-based) market analysis derives. The premise is that knowledge that numbers do not back can also lead to making the right decision of personal short-term trading. The interviewees said that someone should expand their knowledge before personally trading short-term. In addition, they should give themselves some time before investing a high amount by gaining more experience. That should provide traders with the ability to read the market and evaluate risk-return tradeoffs. Moreover, personal short-term traders should focus on a limited number of markets, which will allow them to know when is the optimal time to invest.

Per Figure 2, 'do a market analysis before trading' means objective expands on the other means objective of studying the companies one wishes to invest in their stocks. In addition, it derives the fundamental objective of having the investor understand her financial standing. It combines with the other means objective of knowledge about trading to feed into the fundamental objective of ensuring market stabilisation. Interviewees offered several informative insights on how analysing the market as a whole is a factor in personal short-term investment. They stated that an investor should do the following before investing:

- Know how much is in trade.

- Be aware of 10Qs.

- Apply financial market analysis.

- Ensure that the targeted market is not going to suddenly lose money after investment.

- Predict when the market will increase in value.

- Be aware of the related international market and environment.

Briefly, it is easy to see why this objective is close to fundamental objectives. It derives the fundamental objective of understanding the financial stands of the investor, and it co-derives the fundamental objective of ensuring the ROI. This objective can be known to investors, but this research shows where it fits personal short-term investment objectives. Per Figure 2, by studying the companies, investors plan to add to their investment portfolio considered an entry means. It derives the mean objective of analysing the market as a whole. In addition, it influences the fundamental objectives of ensuring a steady ROI, understanding investors' financial standing, and getting the highest available ROI. The interviewees stated that it is vital to know if the company is going through significant changes like firing its CEO. The interviewee indicated that such news acts as an indicator of the upcoming destabilisation of that company. Therefore, it would be a better idea to invest elsewhere. In addition, an interviewee stated the importance of knowing if the company is planning to spend resources on a new line of products or relocating its resources to accommodate a new project. They stated that such a move should alarm potential investors since the company's revenue will decline due to resource allocation and spending. However, it can bring back more income in the long run. Nonetheless, per another interviewee, all this information should come from a reputable source to ensure its accuracy.

Overall, it does not surprise that studying the companies before investing is an entry means objective. On the contrary, it is understandable that interviewees offered input that created it. Although investors may neglect it as an oversight, it is important to be applied. Investors should study the companies they are planning to invest in to be able to predict the projection of their stocks. This objective leads naturally to other objectives such as understanding the market, understanding financial capability, ensuring the sustainability of income the portfolio generates, and getting the highest ROI.

4.6 Technical perspective analysis

The dependence on analytical services to improve the decision-making in investments is crucial. In the absence of such services, traders would prefer to invest in the short-term to overcome the risk of long-term losses. Short-term investments aim to gain a fast return on capital since information about companies' future plans, and shares trend analysis is difficult to obtain. Per Figure 3, using technology to gain competitive advantage fundamental objective considers as the most important aspect that influences them to decide to use online to trade stocks in the short-term at the emerging market from a technical perspective. It expands on the different fundamentals that aim to ensure infrastructure readiness, cybersecurity, and synchronised system capability. Technology has been an aspect of today's life, including decision-making in investments. Traders and stockholders have concerns regarding the infrastructure involved in buying and selling shares. Based on the interviews, participants indicated two major concerns when it comes to investing in the stock market from a technical perspective. These concerns are the source of information and the technology used.

Per Figure 3, the 'ensure infrastructure readiness' fundamental objective expands on the means that aim to maintain the system's availability for the investor to ensure the

stability of the provided services. In addition, it derives the main fundamental objective of using technology to gain a competitive advantage. It combines with the other fundamental objective of ensuring cybersecurity and synchronised system capability. The technological infrastructure is very important in making short-term investment decisions. Primarily, participants agree that stock trading in Saudi Arabia is easy and safe due to the government's involvement in organising the market structure. The main and official source of information comes from 'Tadawul', which acts as the securities exchange platform. Information regarding companies, prices, news, and others is available free of charge to everyone. Actual trading occurs via brokers who the government also authorises through the central bank. However, internet speed might be a concern for investors. With the widespread use of mobile devices and applications, buying and selling stocks for short-term investments requires a fast internet connection to check prices and submit trading orders. While internet speed with fibre optics and other cable mediums are stable, wireless connections perform lower than expected. The emergence of 5G technologies is supposed to eliminate this concern in the near future.

Figure 3   Fundamental objectives for technical perspectives (see online version for colours)
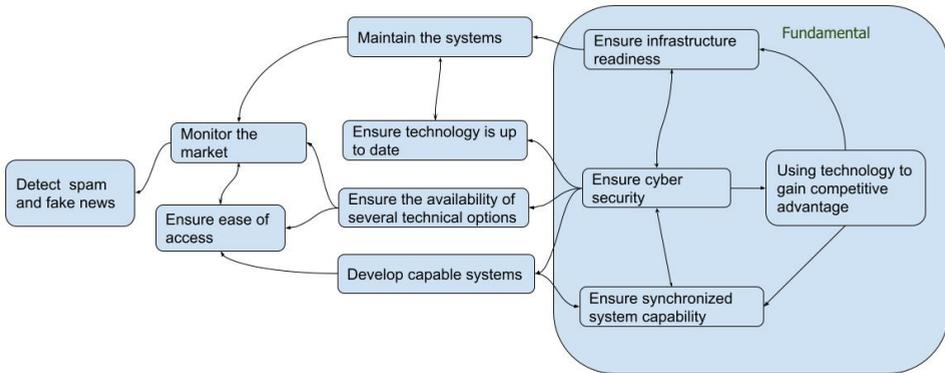
Investors are looking for assurance from companies that own the trading services or providing professional consultations regarding their security measures against cyber threats. Protection from viruses, data breaches, authentication misuse, illegal access, and others are among the big concerns of customers. Per Figure 3, ensure cybersecurity's fundamental objective expands on the means that aim to ensure the availability of several technical options and the technology is up to date, also making sure that the developed system is capable of providing sustainable, secure service. In addition, it derives the main fundamental objective of using technology to gain a competitive advantage. It combines with the other fundamental objective of ensuring infrastructure readiness and synchronised system capability. That will support the companies to make sure that their service is confidential, reliable, and available.

Per Figure 3, the fundamental objective of ensuring the synchronised system capability in connection with the other fundamental objectives of ensuring cybersecurity and infrastructure readiness derives from using technology to gain competitive advantage. It is derived from the objective of developing capable systems. It is important to aid trading decision-making by offering synchronous data to enable the systems to meet other objectives.

The interviewees derived this fundamental objective from their comments. They stated that modern systems should have synchronous information. Otherwise, the users will find other (synchronous) systems more appealing. For Saudi users, synchronisation should increase their confidence in the system. Nonetheless, for a short-term technical investment, the synchronous data should be accurate and true, avoiding fake and manipulated data and information.

Ensure synchronised system capability objective expands on the means that aim to develop a capable system. The developed system should be able to provide information to the users even if they did not ask for it. In addition, it provides a robust system that gives predetermined synchronised information and updatable services to the users. It also derives the main fundamental objective of using technology to gain a competitive advantage. It combines with the other fundamental objective of ensuring infrastructure readiness and cybersecurity. That will support the companies to make sure that their service is trustworthy.

Per Figure 3, maintaining the system's entry means objective expands on the means that aim to ensure technology is up to date, monitors the market, and ensures that the developed system is capable of providing reliable service. In addition, it derives the fundamental objective of ensuring infrastructure readiness. It combines with the other means objective of ensuring technology is up to date, the availability of several technical options, and developing capable systems. Companies should constantly update their systems and follow strict security measures. It is also vital that providers reassure their customers regarding the safety and integrity of their data by communicating the actions taken in events of security or cyber-attacks. Overall, short-term investments in underdeveloped and developing countries are still perceived as higher-risk investments compared to developed countries. This is due to uncertainties surrounding the technological capabilities that these countries can afford. Thus, the more capabilities offered by brokers will continue to give them a competitive edge. Among these capabilities are comprehensive and straightforward user interfaces that allow for drilling down in case details are needed. Another capacity is to allow traders to determine limits such as stop loss or buy at specific price options. Real-time price monitoring is also an important feature when trading short-term. Finally, by improving the services, investors will feel more secure to stay with the current provider, leading to keeping the particular investment for longer terms.

The key in short-term investments is to gain a return on capital quickly and safely. Investors need to monitor the environment, mainly the market, for opportunities. That is why investors actively seek professional consultations or trusted sources such as blogs, news, or financial reports to better judge where these opportunities are. Thus, a reliable source of information is needed. Per Figure 3, 'monitoring the market' means objective expands on the means to detect spam and fake news and make sure that the system is developed in a credible surveillance environment. It combines with the ensure ease of access to provide a sustainable trading environment. Getting access to such sources is essential. The internet made investment opportunities more available to all investors around the globe. Handheld devices are now used to monitor the markets virtually anywhere, anytime. Adaptive technology allows for content to adjust to users' available devices and internet speed. Translation software can instantly convert texts to any desired language. Because not all information sources are trustworthy, investors are afraid of falling into scammers who promote financial opportunities to catch their prey. Since the internet is open to anyone, illegal and criminal actions spread easily across

all platforms. Thus, maintaining platforms that investors use against spam, viruses, and cyber-attacks is crucial.

5   Conclusion and future works

The Saudi market is an emerging market, given that the Kingdom of Saudi Arabia is a G20 member and has a regional and global impact. Nonetheless, this study did not find any other publication questioning the Saudis about their needs and thoughts about technical and personal aspects of the short-term investment. In addition, no other paper was found that semiotically analysed their input. This study involves the socio-technical perspective to ensure the implementation of short-term investment measures by creating objectives based on common short-term inventors' input.

In conclusion, this paper offers a new combination of methodologies for improving short-term investment. It offers a summary of short-term investments from a technical and personal perspective to assist investors in concentrating on those factors when they choose to trade on the stock market. This paper presents an empirical study of Saudi participants. Data analysis shows the need to improve short-term investment policies. Additionally, Saudi participants understand that improving short-term investment needs personal and technical measures. Hence, they prefer governmental control over international and private regulations. The fundamental objectives and means objectives discovered the values that Saudis want and seek when having short-term investing. The main contribution of this study is bearing these objectives. In addition, these recommendations and objectives are aligned with Saudi semiotics. Additionally, these factors may be utilised to create a customised recommendation system that represents the preconceived notion of what drives investors in developing markets to make investments.

Future work includes the use of public forums to develop a decision-making model. The model should use the fundamental objectives and means objectives discovered by this study to aid practitioners and academicians in measuring policy complaints. One of the next goals to improve the whole study will be to investigate different viewpoints besides personal and technical ones that can influence investors' decisions.

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