


**UNRAVELLING THE COMPLEXITIES OF CRYPTOCURRENCY INVESTMENT DECISIONS: A BEHAVIORAL FINANCE PERSPECTIVE FROM GULF INVESTORS**

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ARTICLE INFO	ABSTRACT
<p><b>Article history:</b></p> <p><b>Received</b> 07 April 2023</p> <p><b>Accepted</b> 04 July 2023</p>	<p><b>Purpose:</b> This study aims to examine the impact of behavioral finance factors on the investment decisions of Gulf investors in the cryptocurrency market.</p>
<p><b>Keywords:</b></p> <p>Herding; Heuristics; Prospect; Familiarity; Self-Attribution.</p>	<p><b>Theoretical Framework:</b> The study is based on the behavioral finance theory, which highlights the role of emotions and cognitive biases in shaping investment decisions. It examines the investment behavior and decision-making of Gulf investors in the cryptocurrency market using a comprehensive set of factors, including herding, heuristics, prospect, market, familiarity bias, and self-attribution bias.</p>
	<p><b>Design/Methodology/Approach:</b> Primary data is collected through a survey-based approach using a 23-question distributed at the country level covering the United Arab Emirates, Kuwait, Qatar, and Saudi Arabia. The study analyzes the data collected using statistical methods to study the impact of behavioral finance factors on the investment decisions.</p>
	<p><b>Findings:</b> The results show that herding and heuristics strongly influence investment decisions in the cryptocurrency market among Gulf investors. The prospect factor positively affects investment decision-making in KSA and Qatar but not in UAE and Kuwait. The market factor is a significant determinant of investment behavior, and investors in UAE and Qatar are more cautious and risk-averse compared to KSA and Kuwait. The familiarity bias factor has different effects on investment decision making in KSA and UAE.</p>
	<p><b>Research, Practical &amp; Social Implications:</b> This study offers valuable insights into how behavioral finance factors impact investment decisions in the cryptocurrency market. These findings can be useful to investors and financial institutions in developing investment strategies that take into account the cognitive and emotional biases of investors.</p>
	<p><b>Originality/Value:</b> The study uses a comprehensive set of behavioral finance factors and includes respondents from four Gulf countries. Therefore, the study contributes to the existing literature by providing unique insights into the investment behavior and decision-making of Gulf investors in the cryptocurrency market.</p>
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## DESVENDANDO AS COMPLEXIDADES DAS DECISÕES DE INVESTIMENTO EM CRIPTOMOEDAS: UMA PERSPECTIVA DE FINANÇAS COMPORTAMENTAIS DE INVESTIDORES DO GOLFO

### RESUMO

**Objetivo:** Este estudo tem como objetivo examinar o impacto dos fatores de finanças comportamentais nas decisões de investimento dos investidores do Golfo no mercado de criptomoedas.

**Estrutura teórica:** O estudo baseia-se na teoria das finanças comportamentais, que destaca o papel das emoções e dos vieses cognitivos na formação das decisões de investimento. Ele examina o comportamento de investimento e a tomada de decisões dos investidores do Golfo no mercado de criptomoedas usando um conjunto abrangente de fatores, incluindo herding, heurística, perspectiva, mercado, viés de familiaridade e viés de autoatribuição.

**Projeto/Metodologia/Abordagem:** Os dados primários são coletados por meio de uma abordagem baseada em pesquisa, usando um questionário com 23 perguntas distribuídas em nível nacional, abrangendo os Emirados Árabes Unidos, Kuwait, Catar e Arábia Saudita. O estudo analisa os dados coletados usando métodos estatísticos para estudar o impacto dos fatores de finanças comportamentais nas decisões de investimento.

**Conclusões:** Os resultados mostram que o herding e a heurística influenciam fortemente as decisões de investimento no mercado de criptomoedas entre os investidores do Golfo. O fator de perspectiva afeta positivamente a tomada de decisões de investimento na KSA e no Catar, mas não nos Emirados Árabes Unidos e no Kuwait. O fator de mercado é um determinante significativo do comportamento de investimento, e os investidores dos Emirados Árabes Unidos e do Catar são mais cautelosos e avessos ao risco em comparação com os da KSA e do Kuwait. O fator de viés de familiaridade tem efeitos diferentes sobre a tomada de decisão de investimento na África do Sul e nos Emirados Árabes Unidos.

**Implicações sociais, práticas e de pesquisa:** Este estudo oferece percepções valiosas sobre como os fatores financeiros comportamentais afetam as decisões de investimento no mercado de criptomoedas. Essas descobertas podem ser úteis para investidores e instituições financeiras no desenvolvimento de estratégias de investimento que levem em conta os vieses cognitivos e emocionais dos investidores.

**Originalidade/valor:** O estudo usa um conjunto abrangente de fatores de finanças comportamentais e inclui entrevistados de quatro países do Golfo. Portanto, o estudo contribui para a literatura existente ao fornecer percepções exclusivas sobre o comportamento de investimento e a tomada de decisões dos investidores do Golfo no mercado de criptomoedas.

**Palavras-chave:** Herding, Heurística, Perspectiva, Familiaridade, Auto-atribuição.

## DESENTRAÑANDO LAS COMPLEJIDADES DE LAS DECISIONES DE INVERSIÓN EN CRIPTODIVISAS: UNA PERSPECTIVA DE FINANZAS CONDUCTUALES DESDE LOS INVERSORES DEL GOLFO

### RESUMEN

**Objetivo:** Este estudio pretende examinar el impacto de los factores de las finanzas conductuales en las decisiones de inversión de los inversores del Golfo en el mercado de criptomonedas.

**Marco teórico:** El estudio se basa en la teoría de las finanzas conductuales, que destaca el papel de las emociones y los sesgos cognitivos en la toma de decisiones de inversión. Examina el comportamiento inversor y la toma de decisiones de los inversores del Golfo en el mercado de las criptomonedas utilizando un amplio conjunto de factores que incluyen el herding, la heurística, la perspectiva, el mercado, el sesgo de familiaridad y el sesgo de autoatribución.

**Diseño/metodología/enfoque:** Los datos primarios se recopilan mediante un enfoque basado en encuestas utilizando un cuestionario con 23 preguntas distribuido a nivel nacional que abarca los EAU, Kuwait, Qatar y Arabia Saudí. El estudio analiza los datos recopilados mediante métodos estadísticos para estudiar la repercusión de los factores de comportamiento financiero en las decisiones de inversión.

**Conclusiones:** Los resultados muestran que el herding y la heurística influyen mucho en las decisiones de inversión en el mercado de criptomonedas entre los inversores del Golfo. El factor perspectiva afecta positivamente a la toma de decisiones de inversión en KSA y Qatar, pero no en EAU y Kuwait. El factor mercado es un determinante significativo del comportamiento inversor, y los inversores de EAU y Qatar son más cautelosos y reacios al riesgo que los de KSA y Kuwait. El factor del sesgo de familiaridad tiene efectos diferentes en la toma de decisiones de inversión en Sudáfrica y en los EAU.

**Repercusiones sociales, prácticas y de investigación:** Este estudio ofrece información valiosa sobre el modo en que los factores del comportamiento financiero afectan a las decisiones de inversión en el mercado de las criptomonedas. Estas conclusiones pueden ser útiles para los inversores y las instituciones financieras a la hora de desarrollar estrategias de inversión que tengan en cuenta los sesgos cognitivos y emocionales de los inversores.

**Originalidad/valor:** El estudio utiliza un amplio conjunto de factores financieros conductuales e incluye a encuestados de cuatro países del Golfo. Por lo tanto, el estudio contribuye a la literatura existente proporcionando una visión única del comportamiento inversor y la toma de decisiones de los inversores del Golfo en el mercado de criptomonedas.

**Palabras clave:** Herding, Heurística, Perspectiva, Familiaridad, Autoatribución.

## INTRODUCTION

The cryptocurrency market has become an attractive investment opportunity for investors worldwide, including those in the Gulf region. Cryptocurrencies are digital or virtual currencies that use cryptography to secure and verify transactions and to control the creation of new units. The market is highly volatile, and its price movements can be influenced by various factors, such as behavior finance, market sentiment, regulation, and technological developments (Ababio, 2020; Ballis & Verousis, 2022; Sungkawaningrum *et al.*, 2022; Diem *et al.*, 2023). Investing in cryptocurrencies is highly risky and requires a high level of caution. The market is highly speculative, and there is a lack of fundamental data, making it difficult to make informed investment decisions (Ababio, 2020). Moreover, cryptocurrencies are not backed by any government or institution, making them highly volatile and subject to sudden price movements (Zhu *et al.*, 2021).

Behavioral finance is a field that combines elements of finance and psychology to explain how people make financial decisions. It seeks to understand the psychological and emotional factors that influence investors' behavior and decision-making processes. Behavioral finance suggests that investors' behavior plays a critical role in financial markets, and various behavioral biases can affect their investment decisions (Waweru *et al.*, 2008; Almansour, 2017). Investors often face various behavioral biases that can affect their investment decisions in the cryptocurrency market. For example, investors may exhibit herding behavior, where they follow the actions of other investors, without considering the fundamental aspects of the investment (Ng *et al.*, 2022). Additionally, investors may suffer from overconfidence bias, where they overestimate their ability to predict market movements and make investment decisions based on their beliefs rather than facts (Parhi & Pal, 2022; Sabir *et al.*, 2019).

The cryptocurrency market is highly volatile, and its price movements are often driven by various behavioral biases (Almansour *et al.*, 2021). These biases can significantly affect investors' investment decisions, leading to suboptimal outcomes. The Gulf region, with its growing economy and increasing wealth, has become an attractive market for cryptocurrency investments. However, little research has been conducted on the effect of behavioral finance

factors on Gulf investors' investment decisions in the cryptocurrency market. Therefore, this study seeks to answer the following research questions: What is the effect of behavioral finance factors on Gulf investors' investment decisions in the cryptocurrency market? Specifically, this study seeks to answer the following questions. Q1: What is the effect of behavioral finance factors on Saudi investors' investment decisions in the cryptocurrency market? Q2: What is the effect of behavioral finance factors on UAE investors' investment decisions in the cryptocurrency market? Q3: What is the effect of behavioral finance factors on Kuwaiti investors' investment decisions in the cryptocurrency market? Q4: What is the effect of behavioral finance factors on Qatari investors' investment decisions in the cryptocurrency market?

Hence, investors need to consider various behavioral finance factors before making investment decisions in the cryptocurrency market. By understanding the psychological and emotional factors that influence their behavior, investors can make informed investment decisions, manage their risks, and achieve their investment objectives. The findings of this study can provide valuable insights for investors, policymakers, and regulators in the Gulf region, helping them make more informed decisions in the rapidly growing cryptocurrency market. Furthermore, this paper makes a noteworthy theoretical contribution to the academic community by presenting significant insights into investment decision-making.

## LITERATURE REVIEW

The cryptocurrency market has seen a surge in popularity in recent years, with Gulf investors being among those who have shown a keen interest in investing in digital assets<sup>D</sup>. The literature suggests that behavioral finance factors play a significant role in Gulf investors' investment decisions in the cryptocurrency market (Meero *et al.*, 2021). Prospect theory, herding behavior, overconfidence bias, and regret aversion are some of the key theories that help to explain how these factors influence investment behavior. Understanding these theories can help Gulf investors make more informed and rational investment decisions in the cryptocurrency market.

The prospect theory explains that individuals tend to have a nonlinear risk preference and are more likely to be risk-averse when facing gains, but more risk-seeking when facing losses (Trichilli *et al.*, 2021). The herding behavior is another important theory in behavioral finance that explains how investors tend to follow the actions of their peers, rather than making

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<sup>D</sup> <https://www.lexology.com/library/detail.aspx?g=2bca5d91-7961-4b6d-9de9-93cd47e1fe0b>

independent decisions. In the context of the cryptocurrency market, Gulf investors may be influenced by the actions of others, such as social media influencers or other investors, which can lead to market bubbles or crashes (Lobão, 2022). The overconfidence bias refers to the tendency of individuals to overestimate their ability to predict the future and make accurate investment decisions. This bias can lead to Gulf investors being overly optimistic about the potential returns of investing in cryptocurrencies, leading to higher risk exposure and potentially poor investment outcomes (Parhi & Pal, 2022). The regret aversion theory suggests that individuals are more likely to avoid making decisions that could result in regret, even if those decisions are potentially beneficial (Marjerison *et al.*, 2023).

Bowden and Gemayel (2022) investigate the potential impact of public sentiment on traders' decision-making in crypto-asset markets. They use a dataset of over two million transactions executed on a cryptocurrency exchange to investigate the extent to which sentiment conveyed within cryptocurrency communities on Reddit affects the performance, deposit and withdrawal behavior, and position exposure of cryptocurrency traders. The findings suggest that sentiment does play a significant role in the investment decision-making process, with traders realizing positive returns when sentiment is bullish.

Zhu *et al.*, (2021) explore the relationship between novel investor attention and financial characteristics of Bitcoin, namely return and realized volatility, which are two crucial features of this particular asset. The empirical results support the field of behavioral finance and suggest that changes in Bitcoin market return and realized volatility are caused by investor attention. The authors conduct a comprehensive investigation into the linear and non-linear connections between investor attention and Bitcoin and find that investor attention has a significant impact on the return of Bitcoin. The results show that compared to traditional historical average benchmark models in forecasting technologies, investor attention improves prediction accuracy in Bitcoin return. Finally, the authors create economic portfolios based on investor attention and demonstrate that investor attention can generate significant economic value.

Al-mansour (2020) conducted a quantitative study that focused on Arab investors who invest in the cryptocurrency market. The study aimed to investigate the impact of behavioral finance factors on investment decisions in the cryptocurrency market. The researcher used a snowball sampling method and collected data from 112 questionnaires. The results of the study indicate that herding theory, prospect theory, and heuristic theory significantly affect investors' investment decisions in the cryptocurrency market. These findings highlight the importance of behavioral factors in determining investment decisions.



Kyriazis (2020) investigate herding behavior in digital currency markets by reviewing the empirical literature and comparing it to earlier studies on traditional financial assets. The study analyzed the herding tendencies of 240 cryptocurrencies during both bull and bear markets using various approaches, including Cross-sectional absolute deviations (CSAD) and Cross-sectional standard deviations (CSSD). The findings showed a split in empirical evidence regarding the significance of herding behavior in cryptocurrency markets. The study also revealed that herding behavior is more prevalent in extreme situations and is only evident in bull markets. These results provide important insights for making investment decisions involving modern forms of liquidity, such as Bitcoin, digital currency, cryptocurrency, herding, survey, finance, behavioral economics, international economics, money, and pricing.

Senarathne (2020) focus on determining whether investment strategies in the cryptocurrency market are akin to high-risk gambling. The findings suggest a close co-movement between the risk premiums of cryptocurrencies and the returns on the CBOE Volatility Index (VIX). Therefore, the investment strategies of cryptocurrency trading are comparable to high-risk gambling, where the expectations of traders are closely linked to the expected future payoffs from gambling. This co-movement is particularly prominent when the gambling offers gains rather than losses and when the payoffs are higher than average. The findings reveal that the returns on the VIX index significantly Granger-cause the Cross-sectional absolute deviations (CSAD) of returns, both with and without Bitcoin, indicating that cryptocurrency trading can be considered a form of gambling where the motivation to gamble arises from the variability or riskiness of the gambling payoffs.

Ballis and Drakos (2020) examine whether herding behavior exists within the rapidly expanding cryptocurrency market. Through an analysis of daily data from major cryptocurrencies between August 2015 and December 2018, the researchers discover indications that investors in this market act irrationally and copy the decisions of others without considering their own beliefs. Additionally, their empirical findings demonstrate that when the market is experiencing upward movements, the dispersion of events follows the market's trajectory more quickly than during downward movements. Therefore, the behavior of cryptocurrencies appears to involve a tendency to move in synchronization that may not accurately reflect their underlying fundamentals.

Aydin *et al.*, (2020) examine whether the crypto asset market exhibits herd behavior and investigate whether financial information triggers this behavior. The study analyzes data from the announcements of the Federal Open Market Committee (FOMC), the Governing Council

of the European Central Bank (ECB), and the Policy Board of the Bank of Japan (BOJ) for interest rate changes, as well as data from the S&P 500, Nikkei 225, FTSE 100, and GOLD SPOT indices. The analysis focuses on the 100 cryptocurrencies with the highest trading volume between May 2014 and December 2019, using a Markov Switching approach and empiric models developed by Chang et al. (2000). The results indicate the presence of herd behavior in the crypto asset market during the relevant period, but also show that interest rate announcements and stock exchange performances have no effect on this behavior.

Stosic *et al.*, (2019) discuss the implications of the emergence of the cryptocurrency market on central financial institutions such as banking, and note that previous analyses using methods from statistical physics have focused solely on the behavior of prices for popular cryptocurrencies like Bitcoin. The authors take a different approach, using the multifractal detrended fluctuation analysis (MF-DFA) to examine the multifractal behavior of both daily price changes and daily volume changes for fifty cryptocurrencies. Interestingly, they note that the multifractal behavior of the cryptocurrency market is similar to that of stock markets, but differs from that of regular exchange rates.

Based on the aforementioned previous studies, it is noteworthy that, to the authors' knowledge, there is no investigation has been conducted thus far into the impact of behavioral finance factors on the investment decisions of Gulf investors in the cryptocurrency market. Furthermore, this study contributes to the existing literature in several ways. Primarily, it represents the first investigation into Gulf investors' cryptocurrency market behavior. Secondly, it employs a comprehensive measurement of behavioral finance factors. Finally, this study utilizes a questionnaire at the country level within the Gulf region, the questionnaire is distributed at the country level, covering the United Arab Emirates, Kuwait, Qatar, and Saudi Arabia.

## **MATERIALS AND METHODS**

### **Sample and Procedure**

The aim of this study is to investigate the impact of behavioral finance factors on the investment decisions of Gulf investors in the cryptocurrency market. To accurately capture the investors' behavioral tendencies, the study employs primary data obtained through a survey-based method. As stated by Lin (2011), primary data is more effective in reflecting investors' behavioral attitudes towards investment decisions than secondary data. The study focuses on individuals who invest in the cryptocurrency market as the respondents.

To gather data on behavioral finance that may impact investment decisions, a 23-question questionnaire based approach to collect primary data from individual investors in the Gulf region. To ensure that the data collected is representative of the Gulf region, the questionnaire is distributed at the country level, covering the United Arab Emirates, Kuwait, Qatar, and Saudi Arabia to investors who invest in cryptocurrency market. By utilizing a questionnaire-based approach, the study can gather detailed information on the investment behavior and decision-making of Gulf investors in the cryptocurrency market, providing valuable insights into the factors that influence their decisions. The data collected through the questionnaire is analyzed using statistical methods to identify patterns and relationships between the behavioral finance factors and investment decisions. The questionnaire was divided into two sections: demographic information (Table 1) and investment behavior factors. The demographic information section contained questions about gender, age, education, and experience. The investment behavior factors section contained questions about herding factors, heuristics factors, prospect factors, market factors, familiarity bias, self-attribution bias and investment decision. The questionnaires completed by 326 Saudi Arabian investors, 375 Emirati investors, 226 Kuwaiti investors, and 312 Qatari investors were included in the analysis.

Table 1. Demographic information

Criteria		KSA		UAE		Kuwait		Qatar	
		n	%	n	%	n	%	n	%
Gender	Male	28		23		19		27	
		4	87%	9	64%	3	85%	1	87%
	Female	42	13%	13	36%	33	15%	41	13%
<b>Total</b>		<b>32</b>	<b>100</b>	<b>37</b>	<b>100</b>	<b>22</b>	<b>100</b>	<b>31</b>	<b>100</b>
		<b>6</b>	<b>%</b>	<b>5</b>	<b>%</b>	<b>6</b>	<b>%</b>	<b>2</b>	<b>%</b>
Age	less than 30 years	87	27%	93	25%	43	19%	30	10%
	From 30 - 40	15		17		11		17	
		4	47%	7	47%	6	51%	7	57%
	From 40 - 50	69	21%	93	25%	63	28%	78	25%
	More than 50 years	16	5%	12	3%	4	2%	27	9%
<b>Total</b>		<b>32</b>	<b>100</b>	<b>37</b>	<b>100</b>	<b>22</b>	<b>100</b>	<b>31</b>	<b>100</b>
		<b>6</b>	<b>%</b>	<b>5</b>	<b>%</b>	<b>6</b>	<b>%</b>	<b>2</b>	<b>%</b>
	Secondary School	12	4%	9	2%	7	3%	11	4%
Education Level	Bachelor Degree	20		25		11		22	
		3	62%	5	68%	8	52%	4	72%
	Master Degree	97	30%	10	27%	86	38%	64	21%
	PhD Degree	14	4%	10	3%	15	7%	13	4%
<b>Total</b>		<b>32</b>	<b>100</b>	<b>37</b>	<b>100</b>	<b>22</b>	<b>100</b>	<b>31</b>	<b>100</b>
		<b>6</b>	<b>%</b>	<b>5</b>	<b>%</b>	<b>6</b>	<b>%</b>	<b>2</b>	<b>%</b>
Experience in Financial Market		23		27		18		27	
	less than 5 years	4	72%	9	74%	6	82%	4	88%



	From 5 - less than 15 years	86	26%	92	25%	24	11%	33	11%
	From 15 - less than 25 years	6	2%	4	1%	16	7%	5	2%
<b>Total</b>		<b>32</b>	<b>100</b>	<b>37</b>	<b>100</b>	<b>22</b>	<b>100</b>	<b>31</b>	<b>100</b>
		<b>6</b>	<b>%</b>	<b>5</b>	<b>%</b>	<b>6</b>	<b>%</b>	<b>2</b>	<b>%</b>

Source: Prepared by the authors (2023).

The table provides demographic information for four countries: KSA, UAE, Kuwait, and Qatar, based on certain criteria. In KSA and Qatar, the percentage of male participants is the highest, with 87% in both countries. This means that a large majority of the cryptocurrency market participants in these countries are male. On the other hand, the percentage of female participants is relatively low in these two countries, at only 13%. In the UAE, the percentage of female participants is the highest among the four countries, at 36%. This means that more than one-third of the cryptocurrency market participants in the UAE are female. However, the percentage of male participants in the UAE is still higher, at 64%. In Kuwait, the percentage of male participants is also higher than that of female participants, with 85% and 15% respectively. This means that a large majority of the cryptocurrency market participants in Kuwait are male.

In term of age, it is observed that the largest age group among all countries is from 30-40 years, which ranges from 47% to 57% of the total participants. This means that almost half of the financial market participants in each of these countries fall within this age range. This may indicate that individuals in this age group are more likely to engage in cryptocurrency market or that there are more job opportunities in this sector for this age group. The second-largest age group is from 40-50 years, ranging from 21% to 28% of the total participants. This suggests that individuals in this age range are also actively participating in cryptocurrency market, although to a lesser extent than those in the 30-40 age group. The third-largest age group is less than 30 years, ranging from 10% to 27% of the total participants. This suggests that younger individuals are also participating in cryptocurrency market, although to a lesser extent than those in the older age groups. The smallest age group is more than 50 years, ranging from 2% to 9% of the total participants. This may indicate that there are fewer opportunities or interest in cryptocurrency market for individuals in this age group, or they may have already retired from the workforce.

Regarding the education level, the table shows the number and percentage of participants in different education levels. The majority of participants have a Bachelor's degree, ranging from 52% to 72% of the total participants. The percentage of participants with a Master's degree ranges from 21% to 38%, while the percentage of participants with a PhD

ranges from 3% to 7%. The results show that the number and percentage of participants with different levels of experience. The majority of participants have less than 5 years of experience, ranging from 72% to 88% of the total participants. The percentage of participants with 5-15 years of experience ranges from 11% to 25%, while the percentage of participants with 15-25 years of experience ranges from 1% to 7%.

### Measurements

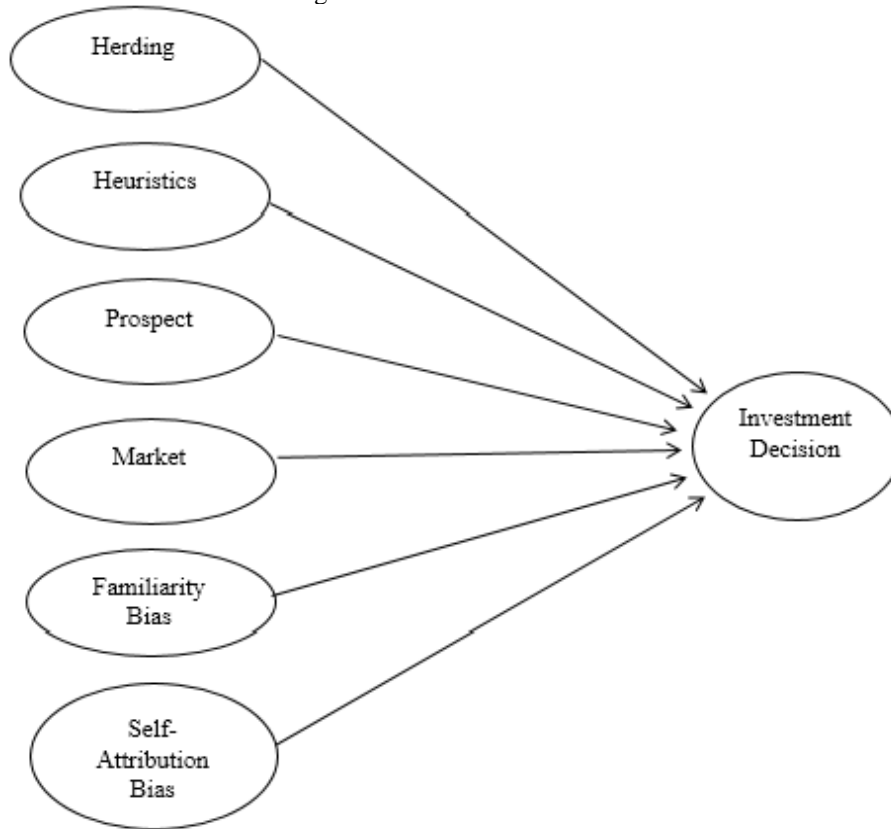
Tan *et al.*, (2008) developed a scale of four items to estimate herding factors, while Ritter (2003) examined heuristics factors using three items. Alpert and Raiffa (1982) estimated prospect factors using three items, and Thaler (1999) estimated market factors using two items. Daniel *et al.*, (1998) developed a scale of four items to estimate familiarity bias, while Almansour (2020) estimated self-attribution bias using three items. Finally, Almansour (2017) developed a scale of four items to measure investment decisions.

Before conducting the study, a pre-test was conducted with the assistance of two finance specialists, an English master, and two finance students. They inspected and evaluated the instruments, and based on their recommendations, corrections were made to improve the instrument's quality. Overall, the pre-testing process ensures that the questionnaire is well-designed, easy to understand, and effectively captures the desired data, increasing the study's validity and reliability. The involvement of experts and students with experience in finance and language also adds to the study's credibility and accuracy, ensuring that the questionnaire is suitable for the Gulf region's context and language. The responses were collected using 5-point Likert scales, where 1 represented "strongly disagree" and 5 represented "strongly agree".

### Research Framework and Hypotheses Development

The primary objective of this research is to explore the psychological factors that impact the investment decision of Gulf investors. To achieve this objective, the study employs a theoretical model that outlines the key factors that are likely to influence investment decision which is illustrated in figure 1. The model helps to provide a structured framework for understanding the complex interplay of psychological factors that drive investor behavior in the Gulf region. By utilizing this framework, the study aims to shed light on the key drivers of investor behavior, which can inform the development of more effective investment strategies and risk management practices in the region.

Figure 1. Research framework



Source: Prepared by the authors (2023).

The framework mentioned above is used to develop the hypotheses for the study. These hypotheses are based on the different psychological factors that could influence investors' investment decision in Gulf investors. These hypotheses are as follows:

**H1:** *Herding factors have a significant influence on investment decisions.*

**H2:** *Heuristics factors have a significant influence on investment decisions.*

**H3:** *Prospect factors have a significant influence on investment decisions.*

**H4:** *Market factors have a significant influence on investment decisions.*

**H5:** *Familiarity bias has a significant influence on investment decisions.*

**H6:** *Self-attribution bias has a significant influence on investment decisions.*

These hypotheses suggest that various factors can impact investment decisions, including herding, heuristics, prospect, market, familiarity bias, and self-attribution bias. The study aims to investigate the strength and significance of these influences, which can provide insights into the underlying drivers of investment behavior.

## RESULTS AND DISCUSSION

### Descriptive Statistics

Table 2 shows the descriptive statistics of six psychological factors and investment decision for four Gulf countries - KSA, UAE, Kuwait, and Qatar. The mean and standard deviation are two important measures of central tendency and dispersion, respectively, used to describe the data. Comparing the means across the four panels, it can be observed that the highest mean value for familiarity bias is in UAE (4.02), followed by Kuwait (3.98), KSA (3.94), and Qatar (3.66). This suggests that investors in the UAE tend to invest more in familiar assets compared to other countries. For market factors and prospect factors, the means are fairly similar across all four countries, with KSA having the highest mean for Market Factors (3.62) and prospect factors (3.61). Qatar has the lowest mean for market factors (3.36) and prospect factors (3.35). The mean value for investment decision is the highest in UAE (3.76), followed by Kuwait (3.72), KSA (3.69), and Qatar (3.42), indicating that investors in UAE are more likely to take investment decisions compared to other countries.

In terms of standard deviation, it is observed that the factors with the lowest variability (i.e., smallest standard deviation) are market factors and prospect factors, while familiarity bias has the highest variability across all four countries. This suggests that investors' familiarity bias varies more across different investors compared to other factors. Additionally, it can be observed that the standard deviations for all factors are relatively similar across the four countries, except for the familiarity bias, which has a higher standard deviation in UAE and Kuwait compared to KSA and Qatar.

Table 2. Descriptive statistics

<i>Panel 1: KSA</i>			
	<b>N</b>	<b>Mean</b>	<b>Std.</b>
Herding Factors	326	3.29	0.81
Heuristics Factors	326	3.35	0.68
Prospect Factors	326	3.61	0.99
Market Factors	326	3.62	1.00
Familiarity Bias	326	3.94	0.58
Self-Attribution Bias	326	3.67	0.75
Investment Decision	326	3.69	0.66
<i>Panel 2: UAE</i>			
Herding Factors	375	3.35	0.82
Heuristics Factors	375	3.41	0.69
Prospect Factors	375	3.68	1.01
Market Factors	375	3.69	1.02
Familiarity Bias	375	4.02	0.59
Self-Attribution Bias	375	3.74	0.77
Investment Decision	375	3.76	0.67
<i>Panel 3: Kuwait</i>			

Herding Factors	226	3.32	0.81
Heuristics Factors	226	3.38	0.69
Prospect Factors	226	3.64	1.00
Market Factors	226	3.65	1.01
Familiarity Bias	226	3.98	0.58
Self-Attribution Bias	226	3.70	0.76
Investment Decision	226	3.72	0.66
<b>Panel 4: Qatar</b>			
Herding Factors	312	3.05	0.75
Heuristics Factors	312	3.11	0.63
Prospect Factors	312	3.35	0.92
Market Factors	312	3.36	0.93
Familiarity Bias	312	3.66	0.54
Self-Attribution Bias	312	3.40	0.70
Investment Decision	312	3.42	0.61

Source: Prepared by the authors (2023).

## Hypothesis Testing

Table 3 shows a panel data analysis of the factors influencing investment decision-making in the cryptocurrency market for Gulf investors from four different countries: KSA, UAE, Kuwait, and Qatar. The analysis shows the standardized coefficients, t-values, collinearity statistics, coefficient, tolerance, and VIF for each of the six factors considered.

Table 3. Factors influencing investment decision-making in the cryptocurrency market for Gulf investors

<b>Panel 1: KSA</b>				
	Standardized Coefficients	t	Collinearity Statistics	
			Tolerance	VIF
Herding Factors	0.732***	23.497	0.668	1.498
Heuristics Factors	0.671***	13.541	0.526	1.58
Prospect Factors	0.296***	4.062	0.122	8.212
Market Factors	-0.145***	-2.219	0.151	6.638
Familiarity Bias	0.07***	2.04	0.553	1.808
Self-Attribution Bias	0.115***	2.443	0.293	3.412
<b>Panel 2: UAE</b>				
Herding Factors	0.752***	24.378	0.621	1.611
Heuristics Factors	0.435***	9.335	0.651	1.528
Prospect Factors	0.327***	7.284	0.294	3.405
Market Factors	-0.116***	-2.514	0.279	3.587
Familiarity Bias	-0.080***	-2.236	0.466	2.144
Self-Attribution Bias	0.069***	1.599	0.318	3.141
<b>Panel 3: Kuwait</b>				
Herding Factors	0.781***	10.830	0.527	1.463
Heuristics Factors	0.427***	7.546	0.626	1.599
Prospect Factors	-0.026	-0.422	0.522	1.915
Market Factors	0.577***	8.407	0.427	2.344
Familiarity Bias	0.067	0.861	0.335	2.981
Self-Attribution Bias	0.025	0.294	0.288	3.467
<b>Panel 4: Qatar</b>				
Herding Factors	0.462***	9.154	0.419	1.691
Heuristics Factors	0.778***	21.071	0.545	1.835
Prospect Factors	-0.219***	-4.347	0.293	3.417

Market Factors	0.287***	5.830	0.305	3.274
Familiarity Bias	0.033	0.783	0.413	2.422
Self-Attribution Bias	0.053	1.079	0.304	3.285

Significance codes: \*\*\* express significance at the 0.999 level. All VIF values are less than 10 indicates the absence of any multicollinearity issue. For KSA  $R^2$  (85.8%), the F statistic (264.971\*\*\*), for UAE  $R^2$  (78.2%), the F statistic (264.953\*\*\*), for Kuwait  $R^2$  (64.8%), the F statistic (85.481\*\*\*), for Qatar  $R^2$  (77.4%), the F statistic (208.356\*\*\*).

Source: Prepared by the authors (2023).

Interesting results reveal that the herding factor consistently has a strong positive effect on investment decision-making in the cryptocurrency market across all panels. This suggests that Gulf investors tend to follow the crowd and make investment decisions based on the actions of other investors in the market. In other words, when investors follow the actions of other investors instead of making independent investment decisions based on fundamental analysis. The result of this behavior is a trend in the market where investors make similar investment decisions based on the actions of others. The coefficient values for the herding factor range from 0.462 in the Qatar panel to 0.781 in the Kuwait panel, indicating a significant influence on investment decisions. This results are in line with previous studies findings (Almansour, 2017; Luu & Luong, 2020).

The factor also shows a significant positive effect on investment decision-making in all panels, with coefficient values ranging from 0.427 in the Kuwait panel to 0.778 in the Qatar panel. The significant effect of the heuristics factor on Gulf investors' investment decisions in the cryptocurrency market implies that these investors are more likely to use simple rules or shortcuts, such as past performance or the popularity of a particular cryptocurrency, when deciding which investments to make. For example, if a particular cryptocurrency has performed well in the past or is currently popular among other investors, Gulf investors may be more likely to invest in it without conducting a thorough analysis of its fundamentals. This behavior has both advantages and disadvantages. On the one hand, heuristics can save time and effort in decision-making and may help investors avoid analysis paralysis. On the other hand, relying too heavily on heuristics can lead to biased decision-making and may cause investors to overlook important information or make irrational decisions. This factor suggests that Gulf investors tend to use simple decision-making rules or shortcuts, such as past performance or the popularity of a particular cryptocurrency, when making investment decisions. This results are in line with previous studies findings (Linsi & Schaffner, 2019; Piotrowski & Bünnings, 2022).

In the KSA and Qatar panels, the prospect factor has been found to have a significant positive impact on investment decision-making. The prospect factor, in this context, is related



to the perceived benefits and risks associated with an investment. This finding implies that investors in these two countries may be more motivated by the potential gains rather than the risks involved in cryptocurrency investments. This results are in line with previous studies findings (Al-mansour, 2020). However, in the UAE and Kuwait panels, the prospect factor does not show a significant effect on investment decision-making. This suggests that investors in these two countries may consider other factors, such as market conditions or familiarity with a particular cryptocurrency, to be more important when making investment decisions. The prospect factor is an important determinant of investment behavior and decision-making, as it reflects an investor's perception of the potential benefits and risks of an investment. A positive perception of the benefits of an investment, such as high returns or potential for future growth, can motivate investors to invest in a particular asset, such as cryptocurrency. Conversely, a negative perception of the risks associated with an investment, such as market volatility or regulatory uncertainty, can discourage investors from investing in a particular asset.

The market factor is an essential component that investors consider before investing in the cryptocurrency market. It is because market conditions, such as price volatility, trading volume, and market liquidity, can significantly impact the investment returns. Therefore, investors in the UAE and Qatar panels who are more sensitive to the market conditions may avoid investing in the cryptocurrency market when the market conditions are unfavorable, such as during market downturns or when there is high volatility. On the other hand, investors in the KSA and Kuwait panels may not be as affected by market conditions when making investment decisions. This could be due to several reasons, such as the availability of different investment options, risk tolerance, or market knowledge. However, regardless of the differences in investor behavior, the market factor remains an important indicator for investors to monitor and evaluate the overall market conditions before making investment decisions. Furthermore, the negative effect of the market factor on investment decision-making in the UAE and Qatar panels also indicates that investors in these panels are more cautious and risk-averse compared to investors in the KSA and Kuwait panels. As a result, investors in the former panels may prefer safer investment options, such as bonds or real estate, instead of investing in the cryptocurrency market. This results are in line with previous studies findings (Al-mansour, 2020).

The familiarity bias factor shows opposite effects on investment decision-making in the KSA and UAE panels. In the KSA panel, this factor has a significant positive effect, indicating that investors may be more inclined to invest in cryptocurrencies that they are familiar with. This could be due to a greater level of trust or confidence in such investments. On the other

hand, in the UAE panel, the familiarity bias factor has a significant negative effect, suggesting that investors may be more cautious when it comes to familiar cryptocurrencies. This could be due to a higher level of scrutiny or skepticism towards popular cryptocurrencies, which may have experienced significant fluctuations in the past. Overall, the familiarity bias factor highlights the importance of investors' familiarity with the cryptocurrency market, which may influence their investment decisions differently across different panels. This results are in line with previous studies findings (Almansour, 2017; Al-mansour, 2020).

The self-attribution bias factor appears to have a significant impact on investment decision-making in most panels except for the Kuwait panel. This factor is related to the tendency of investors to attribute their investment successes to their own abilities, rather than luck or external factors. It suggests that investors in these panels may have an overconfident belief in their ability to make successful investments in the cryptocurrency market. The findings indicate that self-attribution bias is a prevalent phenomenon among Gulf investors, which may lead to overconfidence and a belief in one's ability to predict the cryptocurrency market. This factor could lead to the overestimation of one's abilities and increase the willingness to take on higher risks. Therefore, it is essential to recognize this bias and remain cautious in decision-making, especially in a highly volatile market such as cryptocurrency. This results are in line with previous studies findings (Din *et al.*, 2021; Nobre *et al.*, 2022).

In summary, the panel data analysis suggests that Gulf investors' investment decision-making in the cryptocurrency market is influenced by a range of factors, including herding behavior, heuristics, prospect perceptions, market conditions, and cognitive biases. The comparative analysis based on countries and factors reveals some interesting differences in the factors that influence investment decisions across different panels, suggesting that the cryptocurrency market may be perceived differently by investors in different countries. Based on the analysis and findings, the results can be summarized in table 4.

Table 4. Summary of results and hypotheses testing

<i>Panel 1: KSA</i>	
<b>Hypothesis</b>	<b>Decision</b>
H1: Herding factors have a significant influence on investment decisions.	Accepted
H2: Heuristics factors have a significant influence on investment decisions.	Accepted
H3: Prospect factors have a significant influence on investment decisions.	Accepted
H4: Market factors have a significant influence on investment decisions.	Accepted
H5: Familiarity bias has a significant influence on investment decisions.	Accepted
H6: Self-attribution bias has a significant influence on investment decisions.	Accepted
<i>Panel 2: UAE</i>	
H1: Herding factors have a significant influence on investment decisions.	Accepted
H2: Heuristics factors have a significant influence on investment decisions.	Accepted

H3: Prospect factors have a significant influence on investment decisions.	Accepted
H4: Market factors have a significant influence on investment decisions.	Accepted
H5: Familiarity bias has a significant influence on investment decisions.	Accepted
H6: Self-attribution bias has a significant influence on investment decisions.	Accepted
<i>Panel 3: Kuwait</i>	
H1: Herding factors have a significant influence on investment decisions.	Accepted
H2: Heuristics factors have a significant influence on investment decisions.	Accepted
H3: Prospect factors have a significant influence on investment decisions.	Rejected
H4: Market factors have a significant influence on investment decisions.	Accepted
H5: Familiarity bias has a significant influence on investment decisions.	Rejected
H6: Self-attribution bias has a significant influence on investment decisions.	Rejected
<i>Panel 4: Qatar</i>	
H1: Herding factors have a significant influence on investment decisions.	Accepted
H2: Heuristics factors have a significant influence on investment decisions.	Accepted
H3: Prospect factors have a significant influence on investment decisions.	Accepted
H4: Market factors have a significant influence on investment decisions.	Accepted
H5: Familiarity bias has a significant influence on investment decisions.	Rejected
H6: Self-attribution bias has a significant influence on investment decisions.	Rejected

Source: Prepared by the authors (2023).

## CONCLUSION

In conclusion, this study reveals that the herding, heuristics, prospect, market, familiarity bias, and self-attribution bias factors have significant effects on investment decision-making in the cryptocurrency market for Gulf investors. The study highlights that Gulf investors tend to follow the crowd, use simple decision-making rules or shortcuts, and be more motivated by potential gains rather than risks. Additionally, the familiarity bias and self-attribution bias factors influence investment decisions differently across different panels. Furthermore, market conditions and investor behavior differ across different panels, and investors' familiarity with the cryptocurrency market is an essential factor that influences investment decisions. Overall, the findings of this study suggest that there are several factors that influence investment behavior and decision-making in the cryptocurrency market among Gulf investors. Understanding these factors and their impact on investment behavior is essential for investors and policymakers to make informed decisions and mitigate risks associated with cryptocurrency investments. Further research in this area could provide valuable insights that contribute to a better understanding of investment behavior and decision-making in the cryptocurrency market.

There are a few limitations to this study that should be considered. Firstly, the study is based solely on data collected from individual investors in the Gulf region, which limits the generalizability of the findings to other regions or types of investors. Another limitation is that the study only examines the impact of six specific behavioral finance factors on investment decisions, while other factors may also play a role in shaping investor behavior.

Based on the results of this study, there are several implications for future research in the area of cryptocurrency investment behavior among Gulf investors. One potential avenue for future research is to investigate the role of social media in shaping investment decisions in the cryptocurrency market. Social media platforms have become a popular source of information and news for investors, and they may influence investors' decisions to follow the crowd or use heuristics when making investment decisions. Furthermore, social media may also contribute to the self-attribution bias factor, as investors may be more likely to attribute their investment successes to their own abilities when they receive positive feedback on social media.

Another area of future research could be to examine the impact of regulation and policy on investment behavior in the cryptocurrency market. The cryptocurrency market is largely unregulated, which may attract investors who are seeking high returns with little oversight. However, regulatory changes and policy interventions may have a significant impact on investment behavior and decision-making, particularly in the Gulf region where there has been increasing interest in cryptocurrency investments. Furthermore, the impact of cultural and social norms on investment behavior in the cryptocurrency market could also be an interesting area for future research. In addition, future research could explore the impact of other factors on investment behavior in the cryptocurrency market, such as psychological factors, risk preferences, and investment knowledge. For example, the role of risk preferences and investment knowledge in shaping investment decisions may differ across different panels, and understanding these differences could provide valuable insights for investors and policymakers.

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