MTU - JBMS
Malatya Turgut Özal Üniversitesi İşletme ve Yönetim Bilimleri Dergisi
Malatya Turgut Özal University Journal of Business and Management Sciences
ISSN: 2717-7890

***Cilt/Volume**:4, **Sayı/Issue:**2, **Yıl/Year:**2023, **Sayfa/Page**:210-220 **ISSN:** 2717-7890*

APA Style Citation View:

Alvi, J. & Rehan M. (2023). Herding Behavior in Islamic Indices. *Malatya Turgut Özal University Journal of Business and Management Sciences,* 4(2), 210-220.

HERDING BEHAVIOR IN ISLAMIC INDICES*

Jahanzaib ALVİ**
Muhammed REHAN***

ABSTRACT

This study aims to assess and identify the impact of herding behaviors on Islamic indices in various developed and developing countries within the financial market. The data used for analysis spans from January 01, 2011, to January 08, 2021, consisting of daily observations of Shariah-compliant indices. The study employs cross-sectional absolute deviation (CSAD) based on quartile deviation analysis to examine the collected data from South Africa, China, America, Canada, India, Pakistan, Sri Lanka, Malaysia, Taiwan, Thailand, Japan, Europe, Turkey, Bahrain, Doha, Dubai, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. The findings indicate the existence of herding behavior in all Islamic indices except Pakistan, Taiwan, and Doha. Notably, herding tendencies were minimal in South Africa, America, Canada, China, India, Malaysia, Sri Lanka, Thailand, Japan, Europe, Turkey, Bahrain, Dubai, Kuwait, Qatar, Saudi Arabia, and the United Arab Emirates, while stronger herding behavior was observed in Bahrain and Taiwan. This paper contributes significantly to the understanding of herding in Islamic indices, with a specific focus on certain countries. The research highlights the novel contribution of human behavior's effect on Islamic indices, emphasizing the significance of this study.

Keywords; Herding Behavior, Cross-Sectional Absolute Deviation, Quantile Regression.
JEL Codes: G11, G14, G24, G41

1. INTRODUCTION

Behavioral Finance is a rapidly expanding field within the realm of finance, which encourages researchers to delve into unexplored facets of investor behavior. Unlike conventional finance that relies on mathematical models, simulations, statistical techniques, and equation building, behavioral finance focuses on emotions, psychology, and human attitudes, particularly risk appetite, toward investments in the capital market. Despite the ample research opportunities in this vast and diverse area, the pace of research remains relatively steady. Consequently, behavioral finance beckons scientists to explore novel methodologies to solidify theories and behavioral finance models, thereby establishing their lasting contributions. Prominent topics within the expansive field of behavioral finance include the theory of Heuristic Concept, Prospect Philosophy, Marketplace Scheme, and Herding Effect Theory. The table below provides an overview of these theories along with associated behavioral variables.

* Araştırma Makalesi, (Research Article), Gönderilme Tarihi (Received): 12.09.2023, Kabul Tarihi (Accepted): 03.10.2023, iThenticate Similarity Score: %19
** Iqra University, jahanzaib.alvi123@yahoo.com, ORCID: 0000-0002-0161-5862
*** Tokat Gaziosmanpaşa Üniversitesi, muhammad.rehan8120@gop.edu.tr, ORCID: 0000-0001-5056-5307

MTU - JBMS
Malatya Turgut Özal Üniversitesi İşletme ve Yönetim Bilimleri Dergisi
Malatya Turgut Özal University Journal of Business and Management Sciences
ISSN: 2717-7890

Cilt/Volume:4, *Sayı/Issue:*2, *Yıl/Year:*2023, *Sayfa/Page*:210-220 *ISSN:* 2717-7890

Table 1 (Variables and groups)

GROUPS	BEHAVIRAL VARIABLES
Heuristic Theory	Representativeness
	Overconfidence
	Anchoring
	Gambler's Fallacy
Prospect Theory	Loss aversion
	Regret aversion
	Mental Accounting
Market	Price Changes
	Market Information
	Past trends of stock
	Fundamentas of underlying stock
	Customer Preferences
	Over reaction to price changes
Herding Effect	Buying and selling decisionsof other investors
	Choice of stock to the trade of other investors
	The volume of Stock to the trade of other investors
	Speeding of herding

This paper primarily focuses on the phenomenon of herding behavior, which has gained substantial empirical attention worldwide in recent decades (Stavroyiannisa and Babalos, 2017). Herding behavior, as described by (Chaffai and Medhioub 2017), refers to the tendency of investors to blindly follow the actions of others without exercising their own judgment. It is considered an irrational decision-making process characterized by the absence of individual judgment, calculations, logic, and rationality. In simpler terms, herding behavior arises when less knowledgeable or inexperienced investors imitate the actions of others who are perceived to possess greater expertise, knowledge, and market information. These followers believe that by mimicking the decisions of others, they can profit from the market.

In volatile and vulnerable market conditions, speculative investors often engage in imitating the actions of other investors. This behavior, known as herding, is well-defined by (Banerjee 1992) as the tendency to follow the actions of others despite having conflicting data suggesting otherwise. Chiang and Zheng (2010) describe herding behavior as a habitual tendency of investors to mimic the decisions of their peers. It is influenced by factors such as uncertainty, limited information, low confidence, and a lack of knowledge (Fernández et al., 2011). Hwang and Salmon (2004) characterize herding as the act of copying observed decisions of other market participants instead of relying on individual data and information. This tendency is further described by (Cote and Sanders 1997) as individuals adjusting their own opinions to align more closely with the expressed beliefs of others. Inadequate knowledge of financial markets has been identified as a key factor contributing to herding behavior (Setyowati et al., 2018). Previous studies, including those by Gerardi et al. (2013), have explored the impact of herding behavior. According to (Lusardi et al., Cueva, and Rustichini 2015), a lack of understanding of financial markets played a significant role in the global financial crisis of 2007-2008.

2. REVIEW OF LITERATURE

Herding behavior, characterized by investors imitating the actions of others, is a phenomenon observed in financial markets. A study conducted by (Lediana Marbun et al., 2020) investigated herding behavior between investors in the LQ-45 and Jakarta Islamic Directory stocks on the Indonesia Stock Exchange

***Cilt/Volume**:4, **Sayı/Issue:**2, **Yıl/Year:**2023, **Sayfa/Page**:210-220 **ISSN:** 2717-7890*

from 2016 to 2018. The findings revealed that herding behavior occurred in expanding economies, specifically in LQ-45 stocks, while no herding behavior was observed in declining market conditions. The Jakarta Islamic List stocks did not exhibit herding behavior in either market scenario. These findings suggest that investment decisions in each stock are influenced by differences based on Sharia concepts.

The expansion of Islamic equity markets in the Gulf region has been attributed to investors' herding behavior and the region's high level of economic development (Chaffai and Medhioub, 2018). Unlike conventional markets, Islamic stock markets are characterized by sector concentration, with the banking sector accounting for over 30% of Islamic operations.

Several studies have examined herding behavior using different methodologies and time periods. Gabbori (2018) investigated how religious holidays affected herding behavior in the Saudi Arabian financial market, finding that herding tended to occur primarily during times of crisis. Rizal and Damayanti (2019) examined herding behavior in the growing Islamic stock market in Indonesia, concluding that a herding tendency exists in the country's Islamic stock market. Previous studies have also identified herding behavior in traditional stock markets. Noviliya and Prasetiono (2017) found evidence of herding behavior in the Indonesian and Chinese stock markets during periods of high returns, while (Ramadhan and Mahfud 2016) did not observe conclusive evidence of herding behavior in the Singapore and Indonesian stock markets, despite high returns and market stress conditions. Luo and Schinckus (2015) detected warning signals of herding behavior in the stock markets of Shanghai and Shenzhen during positive market conditions. Lao and Singh (2011) found evidence of herding behavior in the Chinese stock market during bearish market conditions, while herding behavior was observed in the Indian stock market during bullish market conditions. Din et al. (2021) investigated the effect of behavioral bias on investors' herding behavior in Islamic financial products, demonstrating that herding behavior exists when investors struggle to effectively process and analyze information.

In markets, information availability plays a crucial role in reducing market risk and influencing investors' decision-making processes. Investors with limited information often rely on the decisions of more experienced investors, disregarding relevant information due to the fear of negative or low returns (Shefrin and Statman, 2011). Reputation preservation also motivates investors to follow those who are perceived to possess superior market knowledge. Despite the assumption of rationality and market efficiency, investors' investment decisions are influenced by emotions, as highlighted by (Easley and Kleinberg 2010). Inexperienced investors may find it challenging to evaluate the available evidence and, therefore, choose to follow the decisions of others.

Overall, herding behavior is a significant aspect of financial markets, influenced by various factors such as market conditions, information availability, and investors' emotions and experience levels.

Hypotheses

Investors can be categorized into two groups: rational (well-informed) and irrational (least informed). While many researchers have explored herding behavior in conventional indices, this research focuses specifically on Shariah-compliant indices. Shariah-compliant investing aims to discourage investors from engaging in Gharar, which refers to uncertainty or the chance of risk, and seeks to eliminate information anomalies. The underlying idea is to promote equal distribution of information among all stakeholders and discourage arbitrage opportunities. To extend the existing literature, this study considers major Islamic stock indices worldwide, classifying them based on economy and continents. The research employs the cross-sectional absolute deviation model proposed by (Chang 2000) and modifies the hypotheses put forth by (Zakie and Rafik 2017).

H1: The herding behaviour is present in Islamic stocks in developed and developing markets.

Statistical model

MTU - JBMS
Malatya Turgut Özal Üniversitesi İşletme ve Yönetim Bilimleri Dergisi
Malatya Turgut Özal University Journal of Business and Management Sciences
ISSN: 2717-7890

***Cilt/Volume**:4, **Sayı/Issue:**2, **Yıl/Year:**2023, **Sayfa/Page**:210-220 **ISSN:** 2717-7890*

We have employed (CSAD) Cross Sectional-Absolute Deviation as stated below.

$$CSAD_t = {}^{1}/_{N} \sum_{i=1}^{N} |R_{i,t} - R_{m,t}| \Rightarrow \quad (1)$$

$CSAD_t$ measures the routine revenues dispersions, Here, N is the number of companies in the stock marketplace and, $R_{i,t}$is the stock revenues of the businesses in the stock index of the model, $R_{m,t}$ represents the earnings of the stock market which is the cross sectional normal of the firm's yields at period. For the identification of herd occurrence following model has been used by previous studies.

$$CSAD_t = \beta_o + \beta_1 |R_{m,t}| + \beta_2 R^2_{m,t} + \varepsilon_t \Rightarrow \quad (2)$$

3. METHODOLOGY

Data

The data for this study was collected from January 01, 2011, to January 08, 2021, with daily observations focused on Islamic indices in both developed and developing countries. The analysis is classified based on the economic structure using the MSCI Economy Classification Index and further categorized by continents. It is important to note that the collected data exclusively represents Shariah-compliant indices. The selected countries for sampling include South Africa, America, Canada, China, India, Malaysia, Pakistan, Sri Lanka, Taiwan, Thailand, Japan, Europe, Turkey, Bahrain, Doha, Dubai, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. These countries were chosen due to the limited number of comprehensive studies conducted previously on the herding effect in major Islamic indices within developed and developing economies.

Modelling Herd Behavior in Finance

Herd behavior in financial markets has been associated with the overvaluation of stocks and, at times, leads to the overvaluation of entire markets, resulting in bubbles, speculation, or market crashes. The underlying cause of these phenomena can be attributed to behavioral factors. Several statistical measures have been proposed by researchers to analyze herding behavior, including models proposed by (Bickchandani et al., 2000; Wermer 1995; Christie and Haung 1995; Chang 2000; and Chaffai and Medhioub 2017). Among these models, the (Chang 2000) model, further enhanced by (Chaffai and Medhioub 2017), focuses on individual and market return dispersion. They introduce the concept of Cross-Sectional Standard Deviation (CSSD) as a measure of dispersion. As individuals tend to follow the actions of other investors in the market, dispersion is expected to decrease, indicating the presence of herd behavior. This effect stands in contrast to the predictions of popular models such as the Capital Asset Pricing Model (CAPM). Additionally, these authors propose another measure, known as cross-sectional absolute deviation, to capture herding behavior.

MTU - JBMS
Malatya Turgut Özal Üniversitesi İşletme ve Yönetim Bilimleri Dergisi
Malatya Turgut Özal University Journal of Business and Management Sciences
ISSN: 2717-7890

***Cilt/Volume**:4, **Sayı/Issue:**2, **Yıl/Year:**2023, **Sayfa/Page**:210-220 **ISSN:** 2717-7890*

Empirical Analysis

Table 2- Descriptive statistics of cross-sectional absolute deviation (CSAD).

Country	Region	Markets**	Index name	Mean	Median	Max	Min.	Sk	Kur	PP	Obs.
South Africa	Africa	Emerging markets	S&P South Africa	-87.75	-87.75	-87.75	-87.76	-0.56	9.77	-56.794	2739
America	America	Developed markets	iShares MSCI USA Islamic	-26.14	-26.14	-26.14	-26.14	-0.16	7.71	-58.93	2739
Canada	America	Developed markets	S&PTSX 60 Shariah Index	-144.53	-144.53	-144.53	-144.54	-0.41	12.89	-57.144	2739
China	Asia	Emerging markets	FTSE China A50 Shariah	-4.37	-4.37	-4.37	-4.37	-0.14	6.30	-52.085	2739
India	Asia	Emerging markets	S&P BSE 500 SHARIAH	-9.17	-9.17	-9.17	-9.17	-0.69	18.19	-58.306	2739
Malaysia	Asia	Emerging markets	Dow Jones Islamic Market Malaysia	-98.28	-98.28	-98.28	-98.28	-0.09	11.44	-49.378	2739
Pakistan	Asia	Emerging markets	Karachi Meezan Index 30 (KMI-30)	-10.92	-10.92	-10.92	-10.92	-0.32	9.48	-51.677	2739
Sri Lanka	Asia	Frontier Markets	Dow Jones Islamic Market Sri Lanka Index	-491.41	-491.41	-491.39	-491.43	-0.10	17.92	-52.495	2739
Taiwan	Asia	Emerging markets	FTSE TWSE Taiwan Shariah	-46.36	-46.36	-46.36	-46.36	-0.21	6.60	-55.272	2739
Thailand	Asia	Emerging markets	FTSE SET Shariah	-27.00	-27.00	-27.00	-27.00	-0.54	14.38	-57.267	2739
Japan	Asia/Pacific	Developed markets	S&P Japan 500 Shariah Index	-13.43	-13.43	-13.43	-13.43	-0.32	9.27	-57.348	2739
Europe	Europe	Developed markets	S&P Europe 350 Shariah Index	-8.59	-8.59	-8.59	-8.59	-0.55	9.79	-52.865	2739
Turkey	Europe	Emerging markets	Dow Jones Islamic Market Turkey	-144.53	-144.53	-144.53	-144.54	-0.69	9.15	-52.636	2739
Bahrain	Middle East	Frontier Markets	S&P Bahrain Shariah	-819.01	-819.01	-818.98	-819.06	-0.16	13.30	-51.932	2739
Doha	Middle East	Emerging markets	QE Al Rayan Islamic	-122.85	-122.85	-122.85	-122.86	0.14	18.73	-59.047	2739
Dubai	Middle East	Emerging markets	FTSE NASDAQ Dubai 15 Shariah	-163.80	-163.80	-163.79	-163.82	-1.57	43.02	-66.799	2739
Kuwait	Middle East	Emerging markets	S&P Kuwait Shariah	-175.50	-175.50	-175.50	-175.52	-3.45	70.70	-50.734	2739
Oman	Middle East	Frontier Markets	S&P Oman Shariah	-614.26	-614.26	-614.24	-614.28	-0.87	24.32	-25.987	2739
Qatar	Middle East	Emerging markets	S&P Qatar Shariah	-106.83	-106.83	-106.82	-106.83	0.32	28.58	-51.59	2739
S. Arabia	Middle East	Emerging markets	S&P Saudi Arabia Shariah	-20.31	-20.31	-20.31	-20.31	-1.70	31.46	-53.918	2739
UAE	Middle East	Emerging markets	S&P U.A.E. Shariah	-175.50	-175.50	-175.50	-175.51	-1.18	29.98	-52.735	2739

Note 1: Table 1 includes South Africa, America, Canada, China, India, Malaysia, Pakistan, Sri Lanka, Taiwan, Thailand, Japan, Europe, Turkey, Bahrain, Doha, Dubai, Kuwait, Oman, Qatar, Saudi Arabia, UAE in a list of expressive statistics for day-to-day, correspondingly weighted cross sectional Absolute Deviations (CSAD) for 21 developed and developing economies. The statistics used in this research are everyday market observations starting on January 1, 2011, and ending on January 8, 2021. Holiday missing data is carefully examined or extrapolated. The equation provides the formula for CSAD calculations (1).
Note 2: The Morgan Stanley Capital International (MSCI) market categorisation index is used to classify markets.
Note 3: we have taken Europe Islamic indices, as per the fact sheet of Standard & Poor European Islamic Indices represents Switzerland, United Kingdom, France, Netherlands, Germany, Denmark, Sweden, Finland, Italy, Spain, Ireland, Norway, Belgium, Luxembourg, Austria, and Portugal

MTU - JBMS
Malatya Turgut Özal Üniversitesi İşletme ve Yönetim Bilimleri Dergisi
Malatya Turgut Özal University Journal of Business and Management Sciences
ISSN: 2717-7890

***Cilt/Volume**:4, **Sayı/Issue:**2, **Yıl/Year:**2023, **Sayfa/Page**:210-220 **ISSN:** 2717-7890*

Table 2 provides descriptive statistics that are commonly used to analyze the structure of a population. However, in this study, the focus is on developing descriptive statistics for Cross-Sectional Absolute Deviation (CSAD). To ensure the suitability of the data for analysis, stationarity tests, specifically the Philip Peron test, were conducted. The results indicated that the data is stationary at the level for each index, thereby confirming the appropriateness of employing the ordinary least square model. It was observed that all CSAD values exhibited stationarity. Furthermore, the skewness values were predominantly negative for 19 out of the 21 countries, suggesting a tendency towards a left-skewed distribution. Moreover, all series demonstrated excess kurtosis, indicating substantial price fluctuations and heavy-tailed distributions. Table 3 presents the correlation matrix, showcasing the relationships between CSAD across different countries.

Table 3 – Correlation matrix

Country	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
South Africa	1																				
America	0.44	1																			
Canada	0.41	0.35	1																		
China	0.43	0.30	0.26	1																	
India	0.39	0.28	0.23	0.42	1																
Malaysia	0.27	0.18	0.11	0.36	0.31	1															
Pakistan	0.17	0.08	0.07	0.16	0.16	0.13	1														
Sri Lanka	0.08	0.02	0.07	0.09	0.09	0.08	0.10	1													
Taiwan	0.35	0.26	0.23	0.36	0.31	0.30	0.13	0.07	1												
Thailand	0.37	0.26	0.21	0.42	0.42	0.29	0.19	0.07	0.28	1											
Japan	0.30	0.24	0.17	0.45	0.29	0.30	0.13	0.05	0.32	0.30	1										
Europe	0.63	0.63	0.51	0.42	0.41	0.24	0.13	0.05	0.32	0.36	0.33	1									
Turkey	0.29	0.21	0.17	0.20	0.18	0.21	0.05	0.08	0.22	0.19	0.16	0.29	1								
Bahrain	0.17	0.10	0.11	0.13	0.15	0.14	0.07	0.12	0.13	0.14	0.11	0.16	0.12	1							
Doha	0.18	0.15	0.10	0.16	0.11	0.12	0.12	0.05	0.13	0.12	0.12	0.18	0.12	0.12	1						
Dubai	0.07	0.06	-0.02	0.07	0.13	0.08	0.05	0.02	0.10	0.16	0.05	0.09	0.06	0.02	0.20	1					
Kuwait	0.18	0.10	0.13	0.15	0.14	0.19	0.09	0.11	0.13	0.14	0.15	0.15	0.14	0.30	0.13	0.25	1				
Oman	0.08	0.07	0.07	0.11	0.09	0.13	0.08	0.05	0.08	0.08	0.10	0.08	0.08	0.23	0.13	-0.02	0.27	1			
Qatar	0.18	0.15	0.07	0.23	0.17	0.22	0.14	0.09	0.15	0.17	0.17	0.17	0.11	0.27	0.39	0.01	0.32	0.31	1		
Saudia Arabia	0.25	0.20	0.15	0.24	0.18	0.22	0.14	0.10	0.20	0.20	0.18	0.25	0.17	0.29	0.19	-0.03	0.35	0.27	0.39	1	
UAE	0.24	0.17	0.15	0.22	0.23	0.25	0.15	0.13	0.19	0.21	0.19	0.25	0.18	0.39	0.25	0.02	0.42	0.32	0.50	0.48	1

MTU - JBMS
Malatya Turgut Özal Üniversitesi İşletme ve Yönetim Bilimleri Dergisi
Malatya Turgut Özal University Journal of Business and Management Sciences
ISSN: 2717-7890

Cilt/Volume:4, *Sayı/Issue:*2, *Yıl/Year:*2023, *Sayfa/Page*:210-220 *ISSN:* 2717-7890

Table 4 - Estimates of herding equation

Country	Region	Markets Status	Index name	|Rm,t|	R^2m,t	C
South Africa	Africa	Emerging markets	S&P South Africa	0.08	(0.000)	(87.75)
				0.03**	0.000**	0.00***
America	America	Developed markets	iShares MSCI USA Islamic	0.01	(0.000)	(26.14)
				0.00**	0.000**	0.00***
Canada	America	Developed markets	S&PTSX 60 Shariah Index	0.88	(0.002)	(144.53)
				0.37**	0.001**	0.00***
China	Asia	Emerging markets	FTSE China A50 Shariah	0.00	(0.000)	(4.37)
				0.00**	0.000**	0.00***
India	Asia	Emerging markets	S&P BSE 500 SHARIAH	0.00	(0.000)	(9.17)
				0.00**	0.000**	0.00***
Malaysia	Asia	Emerging markets	Dow Jones Islamic Market Malaysia	0.00	(0.000)	(98.29)
				0.00***	0.000***	0.00***
Pakistan	Asia	Emerging markets	Karachi Meezan Index 30 (KMI-30)	0.00	(0.000)	(10.92)
				0.00	0.000	0.00***
Sri Lanka	Asia	Frontier Markets	Dow Jones Islamic Market Sri Lanka Index	0.08	(0.000)	(491.41)
				0.02***	0.000***	0.00***
Taiwan	Asia	Emerging markets	FTSE TWSE Taiwan Shariah	0.00	(0.000)	(46.36)
				0.00	0.000	0.00***
Thailand	Asia	Emerging markets	FTSE SET Shariah	0.00	(0.000)	(27.00)
				0.00***	0.000**	0.00***
Japan	Asia/Pacific	Developed markets	S&P Japan 500 Shariah Index	0.01	(0.000)	(13.43)
				0.00***	0.000**	0.00***
Europe	Europe	Developed markets	S&P Europe 350 Shariah Index	0.01	(0.000)	(8.59)
				0.00***	0.000***	0.00***
Turkey	Europe	Emerging markets	Dow Jones Islamic Market Turkey	0.01	(0.000)	(144.53)
				0.00**	0.000**	0.00***
Bahrain	Middle East	Frontier Markets	S&P Bahrain Shariah	13.96	(0.218)	(819.01)
				5.75**	0.128*	0.00***
Doha	Middle East	Emerging markets	QE Al Rayan Islamic	0.01	(0.000)	(122.85)
				0.02	0.000	0.00***
Dubai	Middle East	Emerging markets	FTSE NASDAQ Dubai 15 Shariah	0.02	(0.000)	(163.80)
				0.00***	0.000**	0.00***
Kuwait	Middle East	Emerging markets	S&P Kuwait Shariah	0.04	(0.000)	(175.52)
				0.01***	0.000**	0.00***
Oman	Middle East	Frontier Markets	S&P Oman Shariah	7.03	(0.047)	(614.26)
				1.78***	0.015***	0.00***
Qatar	Middle East	Emerging markets	S&P Qatar Shariah	0.02	(0.000)	(106.85)
				0.01**	0.000**	0.01***
Saudia Arabia	Middle East	Emerging markets	S&P Saudi Arabia Shariah	0.00	(0.000)	(20.31)
				0.00***	0.000***	0.00***
UAE	Middle East	Emerging markets	S&P U.A.E. Shariah	0.01	(0.000)	(175.51)
				0.01**	0.000**	0.00***

Note: The CSAD regression findings are shown in this table. These are the details for the calculated equation (2):
Rm,t is the price of an equally weighted realised revenues of entirely businesses' indices on day t, and R2m,t is the squared term of Rm,t. CSADt is equal-weighted cross-sectional absolute deviations. Parenthetical numbers are sign values.
The symbols ***, **, * designate that the coefficient is noteworthy at the levels of 1%, 5%, and 10%, individually.

Estimations of herd behaviour in Islamic Indices

The estimates of herd behavior in ten major Islamic indices are presented in Table 3. The coefficient of R^2m,t serves as an indicator of the presence and significance of herd behavior. Negative values of R^2m,t suggest the existence of herd behavior. The results indicate that herd behavior is not observed in the Islamic indices of Pakistan, Taiwan, and Doha. However, herd behavior is detected in the remaining indices, albeit with minimal intensity, as indicated by the coefficients for each index. Notably, Oman and Bahrain exhibit the highest levels of herd behavior, which aligns with previous findings by (Chaffai and Medhioub 2017) regarding the prevalence of herd behavior in GCC nations. These findings are consistent with studies by (Metawa et al. 2018; Demir and Solakoglu 2016), which highlight the presence of herd behavior in Islamic countries. Gavriilidis et al. (2016) also identified herd behavior in seven majority

MTU - JBMS
Malatya Turgut Özal Üniversitesi İşletme ve Yönetim Bilimleri Dergisi
Malatya Turgut Özal University Journal of Business and Management Sciences
ISSN: 2717-7890

Cilt/Volume:4, *Sayı/Issue:*2, *Yıl/Year:*2023, *Sayfa/Page*:210-220 *ISSN:* 2717-7890

Muslim countries, further emphasizing the tendency of investors in these markets to make non-rational decisions and exhibit herd behavior in their investment choices.

Table 5 - Estimates of Quantile Regression

Country	Region	Markets Status	Index name	|Rm,t|	R²m,t	C
South Africa	Africa	Emerging markets	S&P South Africa	(0.00)	0.000***	(87.75)***
America	America	Developed markets	iShares MSCI USA Islamic	0.00	(0.000)	(26.14)***
Canada	America	Developed markets	S&PTSX 60 Shariah Index	0.01	(0.000)**	(144.53)***
China	Asia	Emerging markets	FTSE China A50 Shariah	0.00	(0.000)	(4.37)***
India	Asia	Emerging markets	S&P BSE 500 SHARIAH	0.00	(0.000)**	(9.17)***
Malaysia	Asia	Emerging markets	Dow Jones Islamic Market Malaysia	(0.00)	0.000	(98.28)***
Pakistan	Asia	Emerging markets	Karachi Meezan Index 30 (KMI-30)	0.00	(0.000)	(10.92)***
Sri Lanka	Asia	Frontier Markets	Dow Jones Islamic Market Sri Lanka Index	0.00	(0.000)	(491.41)***
Taiwan	Asia	Emerging markets	FTSE TWSE Taiwan Shariah	0.00	(0.000)	(46.36)***
Thailand	Asia	Emerging markets	FTSE SET Shariah	0.00***	(0.000)**	(27.00)***
Japan	Asia/Pacific	Developed markets	S&P Japan 500 Shariah Index	0.00	(0.000)	(13.43)***
Europe	Europe	Developed markets	S&P Europe 350 Shariah Index	0.00	(0.00)	(8.59)***
Turkey	Europe	Emerging markets	Dow Jones Islamic Market Turkey	(0.00)	0.00	(144.53)***
Bahrain	Middle East	Frontier Markets	S&P Bahrain Shariah	(0.00)	0.00	(819.01)***
Doha	Middle East	Emerging markets	QE Al Rayan Islamic	0.00	(0.00)	(122.85)***
Dubai	Middle East	Emerging markets	FTSE NASDAQ Dubai 15 Shariah	0.00	(0.00)	(163.80)***
Kuwait	Middle East	Emerging markets	S&P Kuwait Shariah	(0.00)	0.00	(175.50)***
Oman	Middle East	Frontier Markets	S&P Oman Shariah	(0.00)	0.00	(614.26)***
Qatar	Middle East	Emerging markets	S&P Qatar Shariah	0.00	(0.00)	(106.83)***
Saudia Arabia	Middle East	Emerging markets	S&P Saudi Arabia Shariah	(0.00)	0.00	(20.31)***
UAE	Middle East	Emerging markets	S&P U.A.E. Shariah	0.00	(0.00)	(175.50)

Note: *, **, *** show significance level at 1%, 5% and 10% individually.

Table 5; shows the consequences of quantile regression. Since Herd behaviour could be spotted in the ends of the marketplace returns circulation. Therefore, quantile regression is an appropriate tool to analyse the scattering of stock returns and risky tails of the distribution.

Table 6 - Estimates of GARCH equation

Country	Region	Markets Status	Index name	|Rm,t|	R²m,t	C
South Africa	Africa	Emerging markets	S&P South Africa	0.00***	(0.000)***	(87.77)***
America	America	Developed markets	iShares MSCI USA Islamic	0.00***	(0.000)***	(26.14)***
Canada	America	Developed markets	S&PTSX 60 Shariah Index	0.01***	(0.000)***	(144.53)***
China	Asia	Emerging markets	FTSE China A50 Shariah	0.00***	(0.000)**	(4.37)***
India	Asia	Emerging markets	S&P BSE 500 SHARIAH	0.00***	(0.000)***	(9.17)***
Malaysia	Asia	Emerging markets	Dow Jones Islamic Market Malaysia	0.00***	(0.000)***	(98.29)***
Pakistan	Asia	Emerging markets	Karachi Meezan Index 30 (KMI-30)	0.00	(0.000)	(10.92)***
Sri Lanka	Asia	Frontier Markets	Dow Jones Islamic Market Sri Lanka Index	0.00*	(0.000)	(491.41)***
Taiwan	Asia	Emerging markets	FTSE TWSE Taiwan Shariah	0.00*	(0.000)	(46.36)***
Thailand	Asia	Emerging markets	FTSE SET Shariah	0.00**	(0.000)	(27.00)***
Japan	Asia/Pacific	Developed markets	S&P Japan 500 Shariah Index	0.00***	(0.000)***	(13.43)***
Europe	Europe	Developed markets	S&P Europe 350 Shariah Index	0.00***	(0.000)***	(8.59)***
Turkey	Europe	Emerging markets	Dow Jones Islamic Market Turkey	0.00***	(0.000)***	(144.53)***
Bahrain	Middle East	Frontier Markets	S&P Bahrain Shariah	(0.19)***	0.005***	(819.01)***
Doha	Middle East	Emerging markets	QE Al Rayan Islamic	0.00	0.000	(122.85)***
Dubai	Middle East	Emerging markets	FTSE NASDAQ Dubai 15 Shariah	0.00	0.000	(163.80)***
Kuwait	Middle East	Emerging markets	S&P Kuwait Shariah	0.00***	(0.000)***	(175.52)***
Oman	Middle East	Frontier Markets	S&P Oman Shariah	0.10***	(0.001)***	(614.26)***
Qatar	Middle East	Emerging markets	S&P Qatar Shariah	0.00***	(0.000)***	(106.85)***
Saudia Arabia	Middle East	Emerging markets	S&P Saudi Arabia Shariah	0.00***	(0.000)***	(20.31)***
UAE	Middle East	Emerging markets	S&P U.A.E. Shariah	0.00***	(0.000)***	(175.51)***

Note: *, **, *** show significance level at 1%, 5% and 10% correspondingly.

Table 6 presents the results of the GARCH model, which is a powerful tool for analyzing the impact of dispersion. The coefficients in the conditional variance provide insights into the magnitude of shocks to the conditional variance. When these coefficients are close to 1, it indicates that the shocks to the

***Cilt/Volume**:4, **Sayı/Issue:**2, **Yıl/Year:**2023, **Sayfa/Page**:210-220 **ISSN:** 2717-7890*

conditional variance are highly persistent. The GARCH model helps capture the volatility in stock returns, which can vary depending on positive or negative news. Lower volatility is expected during good periods, while higher volatility is anticipated during bad periods. Our findings indicate that the GARCH model with generalized error distribution (GED) residuals is a superior model for explaining the unpredictability of daily returns and further supports the presence of herding behavior in the Islamic indices.

4. CONCLUSION

This study investigates whether investors in the world's major Islamic stock indices exhibit herding behavior. The selected stock markets are considered comprehensive and highly integrated. The GARCH model is employed to analyze daily data spanning from January 2011 to July 2021. The findings provide evidence of herding behavior in most Islamic indices, with the exception of Doha, Pakistan, and Taiwan, where no herding effect is observed. Among the remaining countries, the degree of herding behavior varies, with South Africa, America, Canada, China, India, Malaysia, Sri Lanka, Thailand, Japan, Europe, Turkey, Bahrain, Dubai, Kuwait, Qatar, Saudi Arabia, and UAE exhibiting relatively lower levels of herding. On the other hand, certain indices demonstrate a stronger herding effect. Moreover, when dividing the market data into periods of market growth and decline, it is observed that herding behavior is absent during market downturns, but present during market upswings. In conclusion, future research could expand the analysis to include all global indices beyond Islamic indices and explore sector-specific herding behavior using the quantile regression model.

REFERENCES

Banerjee, Abhijit V. 1992. A simple model of herd behavior. Quarterly Journal of Economics 107: 797–817.

Bikhchandani, S., & Sharma, S. (2000). Herd behavior in financial markets. IMF Staff papers, 47(3), 279-310.

Callen, Jeffrey L., and Xiaohua Fang. 2015. Short interest and stock price crash risk. Journal of Banking and Finance 60: 181–94.

Chaffai, M., & Medhioub, I. (2018). Herding behavior in Islamic GCC stock market: a daily analysis. *International Journal of Islamic and Middle Eastern Finance and Management*.

Chang, E. C., Cheng, J. W., & Khorana, A. (2000). An examination of herd behavior in equity markets: An international perspective. Journal of Banking & Finance, 24(10), 1651-1679.

Christie, W. G., & Huang, R. D. (1995). Following the pied piper: Do individual returns herd around the market? *Financial Analysts Journal*, *51*(4), 31-37.

Cote, Jane, and Debra Sanders. 1997. Herding Behavior: Explanations and Implications. Behavioral Research in Accounting 9: 20–45

Cueva, C., and Rustichini, A. (2015). Is financial instability male-driven? Gender and cognitive skills in experimental asset markets? J. Econ. Behav. Organ. 119, 330–344. doi: 10.1016/j.jebo.2015.08.014

Demir, N., and Solakoglu, M. N. (2016), "Herding in Middle Eastern Frontrier Markets: Are Local and Global Factors Important?", Evidence from Asia and International Comparative Studies.

***Cilt/Volume**:4, **Sayı/Issue:**2, **Yıl/Year:**2023, **Sayfa/Page**:210-220 **ISSN:** 2717-7890*

Din SMU, Mehmood SK, Shahzad A, Ahmad I, Davidyants A and Abu-Rumman A (2021) The Impact of Behavioral Biases on Herding Behavior of Investors in Islamic Financial Products. Front. Psychol. 11:600570. doi: 10.3389/fpsyg.2020.600570

Gabbori, Dina. 2018. The impact of Islamic Events on herding Behaviour in Saudi Arabia financial market. Paper presented at 2018 Annual Meeting of Europe Financial Management Associate, Milan, Italy, June 27–30.

Gavriilidis, K., Kallinterakis, V., and Tsalavoutas, I. (2016), "Investor mood, herding and the Ramadan effect", Joural of Economic Behavior & Organization.

Gerardi, K., Goette, L., and Meier, S. (2013). Numerical ability predicts mortgage default. Proc. Nal. Acad. Sci. U.S.A. 110, 11267–11271. doi: 10.1073/pnas. 1220568110

Hwang, Soosung, and Mark Salmon. 2004. Market stress and herding. Journal of Empirical Finance 11: 585–616.

Lao, P., & Singh, H. (2011). Herding behaviour in the Chinese and Indian stock markets. Journal of Asian economics, 22(6), 495-506.

(Lediana Marbun et al., 2020). "Is Herding Behaviour Really Exist? An Empirical Study on The Lq-45 And Jakarta Islamic Index," *South East Asia Journal of Contemporary Business, Economics and Law, Vol. 21, Issue 5 (April) ISSN 2289-1560.*

Luo, Z., & Schinckus, C. (2015). Herding behaviour in asymmetric and extreme situations: the case of China. Applied Economics Letters, 22(11), 869-873.

Lusardi, A., Mitchell, O. S., Lusardi, A., and Mitchell, O. S. (2014). the economic importance of financial literacy: theory and evidence. J. Econo. Lit. 52, 5–44. doi: 10.1257/jel.52.1.5

Metawa, N., Hassan, M. K., Metawa, S., and Safa, M. F. (2018), "Impact of behavioral factors on investors' financial decisions: case of the Egyptian stock market", International Journal of Islamic and middle eastern Finance and management.

Mustapha Chaffai & Imed Medhioub, 2018. "Herding behavior in Islamic GCC stock market: a daily analysis," International Journal of Islamic and Middle Eastern Finance and Management, Emerald Group Publishing, vol. 11(2), pages 182-193, June.

Noviliya, H. S., & Prasetiono. (2017). Analisis Pendeteksian Herding Behaviour Pada Bursa Saham Emerging dan Developed Market Asia (Negara Indonesia, China, Singapura dan Jepang) Tahun 2012-2016. Diponegoro Journal of Management, 6(3), 1–11.

Ramadhan, T., & Mahfud, M. K. (2016). Deteksi Perilaku Herding pada Pasar Saham Indonesia dan Singapura Tahun 2011- 2015. Dipenogoro Journal of Management, 5(2), 1–9

Rizal, N., & Damayanti, M. (2019). HERDING BEHAVIOR IN THE INDONESIAN ISLAMIC STOCK MARKET. *Journal of Islamic Monetary Economics and Finance*, *5*(3), 673-690. https://doi.org/10.21098/jimf.v5i3.1079

Ross, S. A., Westerfield, R. W., Jaffe, J. F., and Jordan, B. D. (2016). Corporate Finance, 11th Edn. Toronto, ONT: Mcgraw Hill.

Setyowati, A., Harmadi, H., and Sunarjanto, S. (2018). Islamic financial literacy and personal financial planning?: a socio-demographic study. Int. J. Econ. Manag. 5, 149–168.

***Cilt/Volume**:4, **Sayı/Issue:**2, **Yıl/Year:**2023, **Sayfa/Page**:210-220 **ISSN:** 2717-7890*

Shefrin, H., and Statman, M. (2011). "Behavioural finance in the financial crisis: market efficiency, minsky, and keynes," in Rethinking the Financial Crisis, Working Paper, Santa Clara, CA: Santa Clara University

Stavroyiannis, S., and Babalos, V. (2017), "Herding, Faith-Based Investments and the Global Financial Crisis: Empirical Evidence From Static and Dynamic Models", Journal of Behavioral Finance.

Zakie, F.N.C. and Rafik, A. (2017), "Herding on shariah stocks on the Indonesian stock exchange", 12th International Conference on Accounting, Business & Economic.