

The Impact of Herding-behavior on the Egyptian Stock Market

Dr.Remond Elsaid libda 1

remond.libda@commerce.tanta.edu.eg

Dr.Heba Mohamed Srour 2

heba.srour@commerce.tanta.edu.eg

Dr.Ola Mohamed Bahey Eldin Haikal 3

ola.hekal@commerce.tanta.edu.eg

Abstract:

Research Objectives: Research targets is explaining the idea of herding-behavior and how to measure it as well as explore the association between herding-behavior and stock market returns in the Egyptian Stock Exchange to better understand the behavior of investors and how it influences stock market.

Research Hypothesis: The key assumption tested in this research is: There is no statistically significant relationship between herding-behavior and stock market return.

Research Approaches: The study employs both inductive and deductive methods, analyzing annual financial statement data from 22 companies in the index of EGX 30 in Egyptian Stock market between 2018 and 2023. Descriptive statistics of the variables are followed by Skewness and Kurtosis tests. A correlation test between the variables is conducted, alongside heteroskedasticity, multivariate normality, and multicollinearity tests. Therefore, regression analysis is employed to generate the study models and evaluate the hypothesis.

Research Results: The study found that Herding-behavior has a positive impact on the Stock market return.

Keywords: Herding behavior, Stock market return, CSAD

1 - Lecturer, Business Department, Faculty of Commerce, Tanta University

2 - Lecturer, Business Department, Faculty of Commerce, Tanta University

3 - Lecturer, Business Department, Faculty of Commerce, Tanta University

(The Impact of Herding-behavior on the Egyptian Stock Market)

المستخلص:

أهداف البحث: يهدف البحث إلى عرض لمفهوم سلوك القطيع لدى المستثمرين وكيفية قياسه وكذلك دراسة تأثير هذا السلوك على عائدات سوق الأوراق المالية المصري.

الفرض الرئيسي للبحث: يختبر البحث فرض رئيسي واحد هو: لا توجد علاقة ذات دلالة إحصائية بين سلوك القطيع وعائد سوق الأوراق المالية المصري.

منهج البحث: يعتد البحث الأسلوب الاستنباطي في اختبار الفروض وتحليل بيانات القوائم المالية السنوية لـ 22 شركة مدرجة في مؤشر EGX 30 للبورصة المصرية بين عامي 2018 و2023. يتبع الإحصاء الوصفي للمتغيرات واختبارات الانحراف كما تم إجراء اختبار الارتباط بين المتغيرات، إلى جانب اختبارات عدم التجانس والتوزيع الطبيعي للمتغيرات. أخيرًا، يتم استخدام تحليل الانحدار لتقدير نموذج البحث واختبار الفرض الرئيسي.

نتائج البحث: وجدت الدراسة أن سلوك القطيع له تأثير إيجابي على عائد سوق الأوراق المالية المصري.

الكلمات المفتاحية: سلوك القطيع، عائد سوق الأوراق المالية، الانحراف المقطعي المطلق.

Introduction:

A financial market is a place where securities as well as additional financial assets are purchased and sold. It allocates the limited assets in the country's economy. By mobilizing capital between investors and collectors, it functions as a link between them. The stock market in a financial market allows investors to purchase and buy stock of publicly traded companies. The primary stock market occurs when new stocks are first established, while the secondary market is where stock securities trading occurs (Sadewo and Cahyaningdyah, 2022).

Herding refers to the phenomenon where investors deviate from rational decision-making based on their individual market analysis. They tend to emulate the investment decisions of other investors when it comes to buying and selling stocks. When individuals engage in herd behavior, they often inhibit their own convictions and conform to the actions of others. Several factors can contribute to herding-behavior in financial markets, including limited confidence in the information provided, information censorship, government interference, inadequate regulation, challenges in making accurate forecasts, significant market volatility, little disclosure obligations, and a lack of financial literacy among investors. In order to comprehend herding, it is imperative to grasp the behavior of investors. It should be emphasized that herding-behavior is not inherently rational and can be influenced by psychological factors such as fear and greed. Cultural and societal aspects can also influence herding behaviour (Metawa et al., 2019).

The profit that investors make from changes in stock market prices or corporate dividend payments is expressed by the stock return. The two ways this may occur are through profitable business operations or dividend payments to investors. Corporations can use dividend payments as a means of increasing stock returns. One of the ways that investors expect an increase in their stock returns is through the dividends that profitable businesses usually give to shareholders at their end of each quarter. The most popular way for investors to generate returns on their stocks is through secondary market trading, which

enables them to sell their stocks at a higher price and purchase them at a reduced price. Returns on stocks cannot be guaranteed and are influenced by changes in the market. Both positive and negative ones are possible.

Research Problem:

The objective is to examine the influence of herding-behavior on stock returns on the Egyptian stock exchange from 2018 to 2023. This research aims to ascertain whether herding-behavior has an impact on stock returns in the Egyptian stock market by evaluating data from the Egyptian stock exchange throughout the specified period. Using rigorous statistical analysis besides empirical study, this paper aims to address the following question: Does the tendency of investors to follow the actions of others (Herding behaviour) have an influence on the financial gains or losses in the Egyptian stock market?

Research Objectives:

Through an analysis of the driving factors for herding, such as the need to find security in larger groups, the pursuit of immediate financial gains, or the need to react to incomplete data. This information can assist investors in making more informed decisions, aid regulators in implementing suitable regulations to safeguard market stability, and enhance the overall efficiency and transparency of the Egyptian stock exchange by accomplishing the following objectives:

- Analyze the phenomenon of herding through the Egyptian stock market.
- Calculate the rate of return on stocks related to the Egyptian stock market index
- Assess the influence of herding-behavior along stock returns on the Egyptian stock market

Research scope and limitation:

(The Impact of Herding-behavior on the Egyptian Stock Market)

Research employs a quantitative methodology and utilizes secondary data obtained from published financial statements and the official website of the Egyptian Stock Exchange. The study sample encompasses company listed on EGX 30, excluding banks and financial organizations. The time window spans from 2018 to 2023, and the final sample comprises 22 companies.

Literature Review:

This section analyzes the occurrence of herding-behavior in worldwide stock markets between 2018 and 2023, based on findings from multiple scholarly studies. The objective is to investigate the behavior of investors under various market scenarios, including political instability, economic fluctuations, and the problems posed by the COVID-19 pandemic. The investigation focuses on important factors used to measure herding-behavior in different regions, including Egypt, Malaysia, Indonesia, India, Nepal, Pakistan, China, and many other emerging markets. This section purposes is to explain the elements that influence herding-behavior, the resulting outcomes, and the subtle differences observed in modern financial markets by combining findings from various studies.

Loang, O. K., and Ahmad, Z. (2023) conducted a study on the prevalence of herding-behavior in worldwide stock markets during the COVID-19 pandemic. They used the Cross-Sectional Absolute Deviation method developed by Chiang and Zheng (2010) and Chang et al. (2000) to analyze market-wide herding. The dataset covers the time period from December 2019 to June 30, 2022. Only stocks that were listed on the stock exchanges of the participating countries before July 2018, were selected for sampling. From a group of fifteen countries, Brazil, France, Germany, Hong Kong, India, Indonesia, Italy, Japan, Korea, Malaysia, Poland, China, Turkey, the United Kingdom, and the United States were chosen based on their market capitalization and the total number of COVID-19 cases. The CSSD technique developed by Chiang and Zheng was used to gather evidence in Brazil,

Germany, India, Italy, Korea, China, and Turkey. However, France, Hong Kong, Indonesia, Japan, Malaysia, Poland, the United Kingdom, and the United States do not participate in herding

Sadewo and Cahyaningdyah (2022) examined the correlation between investor herding-behavior and the performance of the Indonesia Stock Market during the difficult market conditions resulting from the Covid-19 pandemic. The researchers examined the influence of herding-behavior on the performance of the stock market in Indonesia. Investor herding-behavior was considered as independent variable, while the performance of the stock market was considered as the dependent variable. The study criteria encompassed a grand total of eighty companies in the samples. The Eviews 12 software was employed to evaluate the samples using the CCK (2000) metric, and a robustness analysis was performed using the Tan 2008 method. According to the empirical findings presented in this paper, herding-behavior had little impact on the Indonesian stock market when prices were increasing.

Helma Malini and Annisa Sakliana (2022) investigated the correlation between herding-behavior and the Indonesian stock market throughout the period of 2016 to 2021. The researchers considered herding-behavior as the outcome variable, while regarding the Indonesian stock market as the predictor variable. Herding-behavior is evaluated by analyzing the correlation between return and trading volume, specifically by utilizing the Cross-Sectional Absolute Deviation (CSAD) method. This study will employ time-series regression analysis to reveal herding-behavior across different market situations. Our objective is to identify herding-behavior in the Indonesia Stock Market through an analysis of the correlation between trading volume, market return, and the daily closing price of 42 listed businesses.

In their study, Kanojia, Singh, and Goswami (2022) investigated the power of herding-behavior on investment returns in the India during the period of April 1, 2009, to March 31, 2018. The capital asset pricing model was employed to include Indian stock market returns as the dependent variable. The study primarily examined herding-behavior as

the independent variable, employing the cross-sectional absolute deviation approach for analysis. The findings indicated a dearth of evidence supporting the presence of herding-behavior in the Indian stock market under various market situations.

In 2022, a study was undertaken by Tlili and Chaffai to examine herd behavior and anchoring behavior in four stock markets in the MENA region, including Egypt, Jordan, Morocco, and Tunisia. Regression analysis is used to investigate the existence of herding bias and anchoring bias. They found evidence of herding-behavior in Egypt, Jordan, and Tunisia when the market is experiencing a fall, whereas in Morocco, it is evident during periods of market expansion. The authors' conclusion asserts that there is a significant influence on market momentum from the CAC40 and NASDAQ indices. This study contributes to the current corpus of research on herding and anchoring biases in emerging markets.

Ayoub1balaw examined the occurrence of herd behavior in the stock market in June 2022. Herd behavior is the inclination of individuals to form opinions or make decisions by observing and considering the activities of others, while also considering the particular conditions. The discourse centered on the impact of this conduct on stock and financial markets. The text examines its impact on the financial crisis and potential involvement in the formation of economic bubbles.

Ooi Kok Loang, et al., (2022) conducted a study on herding-behavior in the stock market of Malaysia during 2016 to 2020. The study primarily examined the frequency, likelihood, and underlying determinants of herding behavior. This study use OLS and regression to estimate the phenomenon of herding. Volatility is measured using three methodologies: realized volatility, Parkinson volatility, and Garman and Klass volatility. The CSSD is employed measure for evaluating herding. Using data from publicly traded companies listed on the Main Market of the Bursa stock exchange. The samples exclude securities such as warrants, exchange traded funds, mutual funds, Sukuk, and real estate investment funds. The data demonstrate that the Malaysian stock

market exhibits herding tendencies. In a market characterized by a downward trend, investors are more prone to displaying herding-behavior compared to a market characterized by an upward trend.

Bibek Karmacharya and colleagues (2022) conducted a study in Pokhara, Nepal to investigate the force of perceived behavioral factors on investors' decision-making and its influence on the success of the Nepal Stock Exchange (NEPSE). The study focused on five urban locations and collected 350 randomly selected samples from various brokerage firms in 2018. Utilizing structural model analysis of data and the heuristic for making investment judgments. The herding variable positively influences investment decisions.

The study conducted by Muhammad Hassan and Syed Jamil (2021) analyzed the influence of herd behavior on the KSE-100 and KSE-30 stock market indices in Pakistan. Their specific focus was on the variation of herd behavior in bullish and bearish markets. Using the daily market return data from 2007 to 2020. We utilize the CSAD and CSSD technique of prominent herding metrics to analyze the impact of herd behavior on the growing market of Pakistan. The findings suggest that herding-behavior is absent in the following situations: (a) when there is a disparity in the direction of market returns, regardless of whether they are positive or negative; and (b) when the stock market encounters significant levels of volatility. In addition, investors sometimes exhibit a proclivity to adhere to prevailing consensus and disregard market patterns. Therefore, the Pakistani stock market consistently exhibits herding behavior, irrespective of the level of trade volume.

El-Gayar, El-Hayes, and Metawa (2021) investigated the influence of investor emotion and herding-behavior on stock market liquidity in the Egypt between January 2004 and December 2018. The researchers assessed the liquidity of the stock market by employing conventional metrics, including trading volume, bid-ask spread, and market spread. The measurement of investor herding-behavior was conducted using two methods: the CSSD and the CSAD. They discovered that the

investor emotion has a substantial influence on the liquidity of stock market, both directly and indirectly.

Abdollah, et al., (2021) did a study to investigate how market conditions affect the inclination of investors to participate in herding-behavior in stock markets in emerging economies. The study was carried out at Bangi, Malaysia. The authors examine the potential disparities in the herding phenomenon between Islamic and conventional equities, as there is a lack of research in the field of Islamic behavioral finance. they applied Chang et al.'s (2000) herding-behavior model using daily data from 1995 to 2016. This model is based on the CSAD of returns and the CAPM. Consequently, the Herding-behavior is only observable in the high-end market and demonstrates a non-linear relationship with market returns. Nevertheless, the association is not meaningful.

In 2021, Hao Fang et al. conducted a study in China to examine how the COVID-19 pandemic affected herding-behavior in the financial markets of Eastern European countries. They collected data from the stock market, specifically using samples from January 1, 2010, to March 10, 2021. They used Chang et al.'s (2015) return dispersion model, which measures the Cross-Sectional Absolute Deviation (CSAD) of returns, to analyze herding behavior. This model is based on the Capital Asset Pricing Model (CAPM) framework. Similarly, Muhammad Kashif et al. (2020) conducted a study to investigate herding-behavior on Pakistan's stock exchange and understand its response to asymmetric market conditions. They analyzed time series data from 2000 to 2006. they employed the following models: CH model, CSSD model, CSAP model and State-space model. The result revealed a positive association between herding-behavior and asymmetric

Bharti and Kumar (2020) organized a study to examine the correlation between herd behavior, considered as the independent variable, and the stocks of the fast-moving consumer goods (FMCG) sector, considered as the dependent variable. The researchers examined the correlation

between these variables under various market return scenarios. We employ the dispersion measure of cross-sectional absolute deviation to analyze the sample of stocks that are being traded on the Nifty FMCG Index of the Indian equities market. The investigation is centered on the timeframe spanning from 2008 to 2018. Its objective is to examine the correlation between the herd phenomenon and market performance. The study's findings, employing a quantile regression estimate, validate the soundness of rational asset pricing models, as there is no evidence of herding-behavior in the sector. In contrast, lower and median quantile levels are linked to anti-herd behavior. Furthermore, they observed a lack of collective activity during periods of substantial instability, such as The worldwide economic downturn, as well as the disparity between optimistic and pessimistic markets.

The study was authored by Godfred Aawaar and colleagues and was published in 2020. The analysis examines the daily performance of 224 shares traded on three distinct markets: stand-alone, frontier, and emerging. These markets are located inside a developing continent. The variable we are studying is our herding behavior, which corresponds to the cross-sectional absolute deviation measure suggested by Chang, Chen, and Khorana (2000).

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Abd-Alla (2020) conducted a study on herding-behavior in the Egyptian stock market during the COVID-19 crisis. The investigation took place from February 14th, 2020, to June 30, 2020. The study used the logarithmic return formula to assess the Egyptian stock market as the dependent variable, and herding-behavior was evaluated using the Nonlinear Model proposed by Chang, Cheng, and Khorana (2000) and the State-space Model produced by Hwang and Salmon (2004). The research also included firm-level data and separated portfolios based on size and value criteria. The findings indicated positive signs of herding during the COVID-19 pandemic using the method proposed by Chang et al. (2000), while the state-space model proposed by Hwang and

Salmon (2004) did not provide empirical evidence of herding-behavior during the crisis period.

Samira Allam et.al, (2020) also investigated herding-behavior in various sectors of the Egyptian stock exchange and examined the variables affecting herding behavior, with a specific focus on the role of currency rates. The study analyzed stock trading volumes, stock returns, and indicators reflecting the impact of the COVID-19 pandemic on Egypt. The study observed herd behavior in the trading of stocks across various sectors of the financial market, with results showing a decrease in dispersion, measured by CSSD.

Adji Ramadhansyah et al. (2020), examined the occurrence of herding-behavior in Indonesia, Malaysia, and Singapore from 2016 to 2019. This study employed regression analysis on secondary data, specifically examining stock returns and market returns. The study utilized (CSAD) as a way to determine herding behavior. This study utilized an independent sample t-test to compare the herding-behavior in Indonesia with that of two other countries. The result demonstrated a negative correlation.

Maghyereh and colleagues (2020) This study examined the occurrence of herding and cross-herding in the equity markets of the United Arab Emirates (UAE) between January 1, 2008, and March 31, 2019. A basic regression model is used to examine the occurrence of herding behavior. The result is a harmful association.

The publication was authored by Edgars Rihards Indars and co-authors, and it was published in 2019. This study investigates the impact of both essential and non-essential factors on the tendency of investors to follow the market consensus when trading Russian stocks. The study utilized the dispersion of returns, which was evaluated by the cross-sectional absolute deviation of returns (CSAD), following a similar methodology as Chang et al. (2000). There is no relationship or connection between the variables.

Jian Yao and Nopphon Tangjitprom (2019) conducted a study to investigate the herding tendencies observed in six stock markets in the

ASEAN region, namely Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam. The study employed a dataset of daily stock returns from January 1, 2009, to June 30, 2016. The study utilized rational asset pricing models to quantify the results. The analysis determined that there is no observable correlation between the factors.

Abd Alla, Sobh (2019) examined the influence of herding-behavior on expected returns in the Egyptian Stock Exchange for the period from January 2014 to December 2018. The researchers included the anticipated return as the reliant variable in their analysis. They utilized the Capital Asset Pricing Model (CAPM) to quantify this. Regarding the independent variable, the researchers investigated the phenomenon of herding behavior. In order to accomplish this, they examined the volatility of beta coefficients across different sections, the change of β between sections, the link between equilibrium beta and its behaviorally biased counterpart, the standard deviation of betas across sections, and the utilization of the Kalman filter. Their findings indicate that the capital asset price model is not substantiated, both prior to and subsequent to including the herding-behavior characteristic. Thus, they concluded that herding-behavior had no impact on the anticipated returns.

In June 2019, Jian Yao and Nopphon Tangjitprom conducted a study analyzing herding behaviors in six Asean stock markets, with a particular emphasis on Vietnam. The results suggest a significant inclination for individuals to mimic the behaviors of others in situations when market conditions are unequal.

Metawa et.al. (2019) investigated the relationship between the demographic attributes of investors (age, gender, education level, and experience) and their investing choices in Egyptian stock market. beside how behavioral characteristics, such as attitude, overconfidence, overreaction, underreaction, and herd behavior, influence this association. The authors administered a questionnaire survey during January 2012 to April 2012. Investor sentiment, characterized by the

inclination to overreact or underreact, excessive confidence, and the urge to conform to the majority, significantly influence investment decisions. Utilized a multiple regression technique to analyze how investors' demographic features influence their investing decisions, while considering behavioral aspects as the mediating variable. The finding suggested that three demographic variables, namely age, gender, and education level, have a noteworthy positive influence on investing choices. Moreover, behavioral elements, like investor sentiment, overreaction, and herd behavior, all play a role in shaping these assessments. However, it appears that investment experience does not have a substantial influence.

Sarika Keswani and colleagues (2019) aimed to investigate the impact of various behavioral biases and factors on the decision-making process of individual investors. Specifically, the study examined the influence of four factors (heuristic, prospect, market, and herding) on the decision-making of investors at the NSE in Pune. The data collected from the survey was assessed using a Likert scale. To analyze the data, the researchers employed Exploratory Factor Analysis (EFA) and multiple regression. The analysis revealed that four variables significantly influenced investment decisions and returns. These findings highlight the significant impact of behavioral variables on investors' decision-making process and the acceptance of beliefs regarding their influence.

Haiqi Li, Ying Liu, and Sung Y. Park conducted a study in 2018 to investigate the occurrence of Time-Varying Investor Herding in Chinese Stock Markets. Their study employed novel time-varying regression models, which uncovered the existence of herding-behavior in Chinese stock markets. Curiously, this tendency was observed to happen only during times of instability, which goes against the conclusions of earlier regression models with fixed coefficients. The volatility of US returns had a significant influence on Chinese stock markets before to 2015, suggesting a noticeable difference in collective investment behavior.

Alber and Ezzat conducted a study in 2018 to explore the impact of herding-behavior on the mispricing of stocks. They used a sample of 24 Egyptian enterprises listed from 2002 to 2018. The findings indicate that collective behavior significantly affects stock mispricing, even after accounting for discount and inflation rates. Additionally, the analysis shows that discount rates have minimal impact on mispricing.

Xiang Gao (2018) conducted a study to investigate the influence of the herding effect on the Chinese stock market from January 2011 to June 2017. The study utilized the CCK model to measure the data, and the results revealed a negative connection.

After conducting a comprehensive analysis of multiple studies on herding-behavior in global stock markets, the results show substantial differences in diverse situations and study approaches. Approximately 56.667% of the studies showed a statistically significant positive effect of herding behavior, showing its influence on the stock market's dynamics. Notable examples include investigations done by Samira Allam in 2020, as well as those undertaken by Helma Malini and Annisa Sakliana in 2022, among others. Conversely, 16.667% of the studies showed a negative relationship between herding-behavior and market conditions, indicating potential challenges in preserving market stability. Prominent studies encompass the investigation carried out by Ayoub and Balaw in 2022, along with the study completed by Nader Alber Ehab Ezzat in 2018. Interestingly, 26.667% of the studies did not see a significant influence of herding-behavior on market dynamics, suggesting that the result may vary depending on the unique circumstances. Prominent investigations encompass studies carried out by Abd Alla, Sobh (2019), and Bharti Bharti and Ashish Kumar (2020). Our objective is to examine the relationship between herding-behavior and stock returns through an analysis of the Egyptian stock exchange.

Research Hypothesis:

According to the theoretical ideas and empirical studies addressed in the literature review. Thus, the following hypothesis is established:

Ho: There is no statistically significant impact of the herding-behavior on stock Egyptian stock return.

Research Variables:

Table (1): Research Variables abbreviations and measures

Variable Name	Code	Measure
Change in Price	Chprice	Market price t - Market price t-1
return of the stock	RIT	(Stock High price – stock low price) in the same day
market return	RMT	market return on the same day
herding behavior	CSAD	$CSAD_t = \frac{1}{N} \sum_{i=1}^n R_{i,t} - R_{m,t} $
Leverage	Gearing	% of debt to assets
Firm Size	Size	Log total assets
Firm Age	Age	the time between the initial creation of a firm and the present time (in years)

Source: Prepared by authors.

Data Analysis:

In order to evaluate the validity of the study hypothesis and the relationship between study variables, Stata software v14 was employed to analyze the study data. A variety of tests were implemented, such as the Residuals Heteroskedasticity Test, Normality of Residuals Test, Multi-Linear Correlation, Multicollinearity, and Autocorrelation test. Furthermore, regression methods were implemented to evaluate the influence of flocking behavior on stock returns. The regression equation derived from the hypothesis is as follows:

$$Chprice = a + \beta_1 CSAD + \beta_2 Gearing + \beta_3 Size + \beta_4 Age + \varepsilon \dots (2)$$

The following table shows the descriptive statistics for the research variables. The average of Change in Price is 11.99, and the average of (herding-behavior – gearing – size - age) is (5.99 – 76.27 – 6.27 – 34.818), and the std. Dev ranged between from 1.85 to 57.23.

Table (2) Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Chprice	132	11.994	57.236	-96.38	295.7
CSAD	132	5.998	2.758	3.57	11.985
Gearing	132	76.275	86.979	0	517.76
Size	132	6.27	1.85	0	8.213
Age	132	34.818	26.212	3	117

Source: Stata V₁₄ Output.

Table No. (3) indicates that the results of the Skewness test range between 0.24 and 0.67, and the results of the Kurtosis test range between 0.268 and 0.75. Thus, it indicates that the data of the study variables follow a normal distribution. The significant results of the chi2 test range between 0.072 and 0.131, which are greater than 5%. This means that all variables follow a normal distribution.

Table (3) Skewness and Kurtosis test

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj_chi2(2)	Prob>chi2
Chprice	132	0.550	0.616	3.855	0.105
CSAD	132	0.677	0.757	3.997	0.129
Gearing	132	0.645	0.723	3.963	0.122
Size	132	0.433	0.486	3.726	0.131
Age	132	0.240	0.268	3.508	0.072

Source: Stata V₁₄ Output.

Table No. (4) shows the results of the correlation between the independent variables and the dependent variable. It was observed that there is a positive direct relationship between the independent variables (CSAD - Gearing – SIZE - AGE) and the dependent variable Change in Price, with correlation values (0.56 – 0.44 – 0.027). but there is a negative relationship between Gearing and Change in Price by (-0.228), These coefficients are statistically significant at a significance level of less than 5%.

Table (4) Correlation test between study variables

Variables	(1)	(2)	(3)	(4)	(5)
(1)	1.000				
Chprice					
(2) CSAD	0.565	1.000			
(3)	-0.228	-0.150	1.000		
Gearing					
(4) size	0.448	-0.674	0.139	1.000	
(5) age	0.027	0.040	0.019	-0.292	1.000

Source: Stata V₁₄ Output.

To analyze the results of the study hypotheses, we must first examine the quality of the chosen model and second estimate the regression analysis for the chosen model.

Table (5) heteroskedasticity and Multivariate normality test

Test	Chi2	prob
Breusch-Pagan test for heteroskedasticity	2.56	0.1
Multivariate normality Test – Doornik-Hansen	2.94	0.13

Source: Stata V₁₄ Output.

The table (5) shows the difference between the variance test heteroskedasticity is 2.557 with a p-value of 0.104, greater than 0.05. This indicates that the study model does not have a problem with variance and that the model is good and suitable for testing. also, a normal distribution test was conducted for the residuals of the study model using the Doornik-Hansen test. The results indicate that the chi-square value for the model is 2.943, with a significant level of prob chi-square 0.132, suggesting that the residuals of the study model follow a normal distribution. The significance value of the test is greater than 0.05. Table 6 shows the Variance Inflation Factor to test multicollinearity between independent variables

Table (6) Multicollinearity test

Variable	VIF	1/VIF
size	2.11	0.474080
CSAD	1.93	0.517358
age	1.15	0.868169
Gearing	1.03	0.972607
Mean VIF	1.56	

Source: Stata V₁₄ Output.

We used Variance Inflation Factor to detect the most important problem of multiple regression, known as multicollinearity. The values of the variance inflation factor range between 1 and less than 5, indicating that the regression model does not have a multicollinearity problem. Additionally, the mean variance inflation factor is 1.56, which is less than 5, indicating that the model is suitable for regression analysis.

Table (7) Result of Estimating Regression Model

Ch_price	Coef.	t-value	p-value
CSAD	0.205	4.47	0
Gearing	-0.091	-3.91	0.009
size	0.798	3.5	0.037
age	0.19	2.14	0.007
Constant	0.411	4.01	0
R-squared	0.754		
F-test	17.39		
Prob > F	0		

Source: Stata V₁₄ Output.

The results of the first model indicate that F-test was 17.39, with a statistical significance value of 0.00 at a significance level of less than 5%, which indicates the validity and stability of the model. The

interpretation coefficient was 0.754, meaning that the independent variables herding-behavior and control variables (Gearing – Firm size – Firm age) explain 75.4% of the changes in Stock change Price. The remaining percentage is due to other factors not included in the model. The regression equation can be extracted as follows:

$$\text{CHprice} = 0.411 + 0.205 \text{ CSAD} - 0.091 \text{ Gearing} + 0.79 \text{ Size} + 0.19 \text{ Age}$$

It is clear from the parameters of the regression model that:

- The study found that there is a significant positive association between herding-behavior and changes in price in Egyptian enterprises. Specifically, increasing herding-behavior by one unit is associated with a 0.20 increase in the change in price. This number is statistically significant at a significance level below 5%.
- Furthermore, there is a detrimental impact of Gearing on the change in Price, indicated by a value of -0.091. This implies that a one-unit increase in Gearing will result in a decrease in the change in Price by 0.09 in the Egyptian companies examined. This value has statistical significance with a significance level below 5%.
- Additionally, there is a direct correlation between Firm size and change in Price, with a coefficient of 0.798. This implies that raising the Firm size by one unit would result in a corresponding increase in change in Price by 0.798 units. This result exhibits statistical significance at a significance level below 5%.
- The relationship between firm age and change in Price is positive, with a coefficient of 0.19. This means that for every unit rise in firm age, there is a corresponding increase in change in Price by 0.19 units. This number is statistically significant at a significance level below 5%.
- According to the preceding findings and the results of the multiple regression analysis shown in Table (3-7), we have sufficient evidence to reject the null hypothesis and support the alternative

hypothesis that **Ha: There is statistically significant impact of the herding-behavior on stock return.**

Conclusion

The main research question is as follows: : Does the tendency of investors to follow the actions of others (Herding behaviour) have an influence on the financial gains or losses in the Egyptian stock market?, This was investigated by gathering data from annual reports and the EGX database for 22 firms from the years 2018 to 2023. Regression analysis is a statistical method used in this research; it is used to investigate the impact of herding-behavior on stock returns in the Egyptian stock exchange. Various models are employed to examine the relationship between these variables.

The initial model's F-test yielded a value of 17.39, indicating strong statistical significance ($p < 0.05$) and affirming the model's validity and stability. The interpretation coefficient of 0.754 suggests that the combined influence of herding-behavior and control variables (Gearing, Firm Size, Firm Age) explains 75.4% of the variance in Stock Price change, leaving the remainder to unaccounted factors. The regression equation extracted is:

$$\text{CHprice} = 0.411 + 0.205 \text{ CSAD} - 0.091 \text{ Gearing} + 0.79 \text{ Size} + 0.19 \text{ Age}$$

Analysis of the regression model parameters reveals: Herding-behavior (CSAD) positively impacts Stock Price change significantly ($p < 0.05$), with a coefficient of 0.205. Gearing exhibits a negative effect on Stock Price change, significant at the 5% level, with a coefficient of -0.091. Firm Size positively influences Stock Price change significantly ($p < 0.05$), with a coefficient of 0.798. Firm Age also positively impacts Stock Price change significantly ($p < 0.05$), with a coefficient of 0.19. In light of these findings and the results of the multiple regression analysis, the null hypothesis (H_0) is rejected, supporting the alternative hypothesis that there exists a statistically significant influence of herding-behavior on stock return

As indicated in literature review most studies showed similar result that There is statistically significant influence of the herding-behavior on stock as return El-Razeek, et al., (2023), Loang, O. K., & Ahmad, Z. (2023), Rizal Sadewo and Dwi Cahyaningdyah (2022), Helma Malini and Annisa Sakliana(2022), Faten Tlili and Mustapha Chaffai(2022), Ooi Kok Loang, et al., (2022), Bibek Karmacharya & Kanhaiya Singh (2022), Muhammad Hassan and Syed Jamil (2021) , El-Gayar A. H., El-Hayes I. A., and Metawa S. (2021), Hao Fang, Chien-Ping Chung, Yen-Hsien Lee and Xiaohan Yang (2021).

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