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CEO Narcissism in Arab Equity Markets and Its Repercussions

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Abstract

The study investigates the narcissism of the CEO in Arab equity markets. The study concern Egypt, Saudi Arabia, Kuwait, Dubai, Bahrain, Qatar, and Oman. Due to the period from 2016 to 2020, the investigation sampled 197 non-financial firms with 985 observations. Inferential statistical techniques including the ANOVA test and cross-sectional analysis were employed in this study. The study findings that The Arabic language presents challenges for the validity of the standard measures of CEO narcissism through signature. Under ignoring the previous conclusion, there a significant difference in the levels of narcissism according to the sector also the country; both were significant at (1%). On the other side, the results revealed that there is a positive impact of measured narcissism on the corporate's ROA, the common stock's return, and the total risks of common stocks. The study uses the disparities between English and Arabic signature patterns to explain the negative impact of measured narcissism has on a corporation's return on equity, financial risk, and the systematic risk of common stocks. The study recommends investigates with other measures of narcissism, such as imagery, compensation, and press release. The findings of this study contributes to understanding of the unique cultural and financial context in which CEO narcissism operates in Arab equity markets.

Keywords: Narcissistic, CEO Narcissistic, Return, Risk, Arab Equity Markets

1. Introduction

CEOs' characteristics differ from one company to another. depend on to the company's policies (Bamber et al., 2010). Because of this, the way a corporation is led and run is affected. This variation in leadership also affects the way businesses make choices and their decision-making processes. (Zhang et al., 2018). There has been a lot of scholarly focus on narcissistic CEOs and their influence on corporate performance ever since the most-cited paper on the issue, empirical research by Chatterjee and Hambrick (2007), was published (Ham et al., 2018; Tailab et al., 2023). Several studies focused on the correlation between CEO traits and corporate performance. The study of narcissism has expanded along with the areas of personality and social psychology and organizational behavior. (Craig and Amernic, 2018; McManus, 2016; Park and Yoo, 2017).

Narcissistic Personality Disorder (NPD) is characterized by an inflated sense of self-importance, a lack of empathy, and an insatiable need for admiration. (Ronningstam and Weinberg, 2013), it is an exaggerated self-evaluation, which is reflected in the human and organizational behavior in addition to the decision-making style. A narcissistic person feels superior to others or better than others. He sees that he deserves special treatment, and that his time is valuable (Bushman et al., 2018). Generally narcissistic people try to manipulate others to reach their goal (Duchon & Burns, 2008). They either appear to be polite to others or engage in aggressive behavior in order to achieve their objective. (Michel and Bowling, 2013).

Narcissistic CEOs constantly feels superior and seeks to attract attention and admiration (Marquez-Illescas et al., 2018). Constantly seeking recognition, narcissistic CEOs often endorse decisions such as sustainable development (Tang et al., 2018) or take risky decisions regarding their company's growth strategy to satisfy their desire for praise and fame. (Chatterjee and Hambrick, 2007).

There are a numerous examples of CEOs exhibiting narcissistic behavior in the workplace. (e.g., Larry Ellison at Oracle, Jürgen Schrempp at Daimler respectively DaimlerChrysler, Pehr G. Gyllenhammar at Volvo) (Maccoby, 2004; Taylor, 2000). To the researchers' knowledge, few studies have investigated the relationship between CEO narcissism and risk and return. This study is unique because it examines narcissism not only within but also across Arab equity markets and Arab sectors, and then examines how these factors affect the performance of both real assets (corporate’s financial positions) and financial assets (securities). By filling this gap, this work contributes to the scientific literature both theoretically and practically. Market efficiency is central to the conflict between conventional and behavioral finance.

However, the contradiction remains unresolved, as the term "market efficiency" has two interpretations. One interpretation is that investors cannot consistently outperform the market. Another reason is that security pricing is logical. The rational pricing of financial assets and the organizational effectiveness of real assets reflect only utilitarian characteristics such as risk

taking. In practice, however, there are factors that influence corporate and market decision-making, including: Mood and willingness to take risks. But behavioral finance shows that the characteristics that express value influence investor decisions, management decisions, and assets. As a result, behavioral finance has received increasing attention (Statman, 1999).

Behavioral finance is a fusion of finance and behavioral science. How does the use of psychology in this context explain corporate decision-making? And how is value understood in the market? This study proposes a theoretical framework for linking the CEO's behavioral characteristics (CEO's risk attitudes) with the CEO's securities risk in the firm. Traditional finance has been concerned with the relationship between risk attitudes and asset valuations, but according to many contributors such as the capital market line (CML), this is under the risk/reward trade-off. The Capital Asset Pricing Model (CAPM) and Arbitrage pricing theory (APT). As this study and others indicated that there is a positive correlation between risk and return. (Elbannan, 2015; Wagdi and Tarek, 2019), which is one of the pillars of traditional monetary theory. Previous research has shown a favorable link between CEO narcissism and takeovers in certain areas, such as mergers and acquisitions (M&A). “Research and Development (R&D) Activities” and “Enterprise Risk” (Chatterjee and Hambrick, 2007 and 2011; Aktas et al., 2016; Ham et al., 2018; Malmendier and Tate, 2005 and 2008; Aabo et al., 2020).

This study contributes to the existing body of knowledge by identifying and evaluating the critical role of narcissist supply in the relationship between CEO narcissism and securities risk. This study explores the relationship between narcissism and risk in the Arab stock market. This study therefore includes a review of the concepts of narcissism, CEO narcissism, and narcissism and finance, in addition to study design, hypothesis testing, and final conclusions.

2. Literature review and theoretical framework:

Narcissism is a psychological construct rooted in ancient mythology that has received a great deal of attention in modern psychology. This section attempts to comprehensively restate the concept of narcissism by examining the multifaceted nature of narcissism. The study synthesizes a variety of theoretical perspectives and empirical studies to describe the core characteristics, etiology, and manifestations of narcissism. It is also discusses the effects of narcissistic traits on interpersonal relationships, mental health, and society as a whole. In Greek mythology, Narcissus was the catalyst for narcissism. It contains a complex array of psychological traits and behaviors that are of interest to scientists from all walks of life. Narcissism is often associated with self-love, but its conceptualization goes beyond superficial admiration. Narcissism is characterized by an excessive focus on the ego, excessive entitlement, and a lack of empathy. People with the Narcissist trait tend to exhibit an excessive desire for praise, engage in self-improvement strategies, and harbor illusions of limitless success

and power. In addition, they often exhibit interpersonal exploitative tendencies and fragile self-esteem that relies heavily on external evaluation.

2.1 Narcissism

According to the American Psychiatric Association (2013, pp. 669-670), NPD exhibits a broad pattern of grandiosity (in fantasies and behaviors), need for admiration, lack of empathy, grandiose complacency, and delusions of grandeur. Unlimited success and interpersonal exploitative and arrogant behavior and attitudes. Bushman and Baumeister (1998) argue that when self-esteem is threatened; people with narcissistic traits typically act aggressively. Narcissism drives individuals to authority. In general, narcissists are overconfident in their professional abilities (Campbell, Goodie, & Foster, 2004). Narcissism is usually associated with self-image and the desire for attention (Chatterjee & Hambrick, 2011; Petrenko et al., 2016). The two most common types of narcissism are flamboyant and vulnerable. Hyper narcissism is characterized by hostility, hegemonism, high self-esteem, and self-confidence. Vulnerable narcissism, on the other hand, is characterized by inadequacy, incompetence, need for approval, and introversion (Malesza & Kaczmarek, 2018; Miller, Hoffman, Gaughan, Gentile, Maples, & Campbell, 2011). Organizational leaders tend to be megalomaniacal narcissists (e.g., Grijalva et al., 2015; Hirschi & Jaensch, 2015). Therefore, this study focuses on grandiose narcissism. CEO narcissism A CEO letter is an essential tool for CEOs to communicate their views to shareholders. The CEO's letter outlines the company's past financial results and outlines future plans. This goes hand in hand with the annual report. CEO letters are believed to influence the investment decisions of individual and institutional investors. (Yan et al., 2019) The goal of the narcissistic CEO is to construct a story about the company and himself that leads shareholders to see the company's performance through the CEO's eyes (Amernic and Craig, 2010; Poole 2016). The tone of the writing is amplified to influence perceptions of company performance. According to Zhu and Chen (2015), narcissism is one of the main concepts used to describe CEO behavioral patterns. Previous research has suggested a relationship between narcissism and leadership (e.g., Galvin, Waldman & Balthazard, 2010; Harms, Spain, Hannah, 2011). Furthermore, research has shown that narcissistic individuals tend to act as leaders (Nevicka, Van Vianen, De Hoogh & Voorn, 2018; Nevicka et al., 2011). Studies have also found that narcissistic CEOs tend to run higher rated companies (Olsen, Dworkis, & Young, 2014). Several studies have confirmed that personality traits play an important role in leadership success (Côté et al., 2010; Eagly & Karau, 1991). Higher-order personality traits as represented by the HEXACO model and the Big Five model include the Big Five model and his HEXACO model (Judge et al., 2002; Lee & Ashton, 2005, 2014). Receptivity to experience, honesty and humility, agreeableness, empathy, extroversion, and conscientiousness are personality traits.

2.2 Narcissism and finance

Behavioral finance has become an explanation for many phenomena in the financial markets, through the integration between psychology and finance. Decisions, whether for managers or investors, cannot be separated from psychology. Behavioral patterns, portfolio behavior, and risk attitude are among the most relevant topics in Behavioral finance.

Campbell (1999) defines narcissism as the degree to which an individual has an inflated sense of self and seeks affirmation of that sense of self (Raskin and Shaw (1988); Raskin and Terry (1988); Campbell 1999). Clinical psychologists, social scientists, and personality psychologists have all regarded narcissism a crucial trait for quite some time (Judge et al., 2006; Resick et al., 2009; Peterson et al., 2012).

According to (Chatterjee and Hambrick, 2007, 2011; Gerstner et al., 2013) the CEOs' narcissism has an impact on strategic decisions at their corporate; CEOs with an internal locus of authority were more innovative, forward-thinking, and adaptable to the circumstances of their businesses (Miller and Toulouse,1986).

Narcissism is one of the dimensions of the CEO's personality, which is reflected in the decisions he makes. Narcissism is one of the factors that makes the CEO less willing to listen to recommendations that support the company's performance. He has a vision that he wants to achieve. He has a strong will to achieve the goal, no matter the obstacles, which makes the CEOs narcissistic be a risk-taker. In other words, the goal of a CEO narcissism is to achieve higher returns at the same time as whatever risks he takes, which he finds acceptable to himself.

According to Tailab et al., (2023) both highly narcissistic and less narcissistic CEOs use positive words and optimistic expressions even when their firms perform poorly or negatively. But Illescas and Zhou, (2022) Using a sample of S&P 500 companies to develop a measure of CEO narcissism and investigates whether and how it impacts the precision and dispersion of analyst forecasts. According to empirical data, companies with narcissistic CEOs provide such forecasts with greater accuracy and less dispersion. Investigating the mechanism by which CEO narcissism influences these characteristics, we find that companies with narcissistic CEOs are more likely to provide management earnings guidance, despite the fact that it is less accurate, resulting in observable variations in the precision and dispersion of analyst forecasts. Through increased management voluntary disclosure, this study concludes that CEO narcissism has a positive effect on the precision and a negative effect on the dispersion of financial analysts' estimates. Despite the fact that previous research has examined the impact of CEO narcissism on corporate financial reporting, this is the first study to extend such an investigation into the field of financial analysts.

3. Study Design and Hypotheses Testing

3.1 Study Problem

CEO narcissism in Arab equity markets can have significant repercussions for both individual companies and the broader economic landscape. Narcissistic CEOs, characterized by an excessive sense of self-importance, a lack of empathy, and a strong desire for admiration, can influence corporate decision-making and corporate culture in ways that may not always align with the best interests of shareholders, employees, or the economy as a whole. There is much evidence in international and emerging markets (such as: Khajavi et al., 2018; Shan et al., 2023; Wang et al., 2022; Wang et. al., 2023; Zhu and Chen, 2015; Zhang et al., 2021), but there is a scarcity of studies that has investigated Arab equity markets.

To mitigate the negative repercussions of CEO narcissism, it's crucial for boards of directors and shareholders to be vigilant in their oversight of executive leadership. Implementing strong corporate governance mechanisms, conducting regular performance evaluations, and fostering a culture of transparency and accountability can help reduce the influence of narcissistic CEOs. Additionally, regulatory authorities should play an active role in monitoring and enforcing ethical conduct within the Arab equity markets to ensure fair and stable market conditions for all participants. Therefore, the study has the following questions:

Q1: Is there difference in the parameters of the CEO narcissism among Arab sectors?
Q2: Is there difference in the parameters of the CEO narcissism among Arab equity market?
Q3: Is there impact of CEO narcissism on corporate's ROA in the Arab equity market?
Q4: Is there impact of CEO narcissism on corporate's ROE in the Arab equity market?
Q5: Is there impact of CEO narcissism on corporate's financial risk in the Arab equity market?
Q6: Is there impact of CEO narcissism on common stock' return in the Arab equity market?
Q7: Is there impact of CEO narcissism on total risks of common stocks in the Arab equity market?
Q8: Is there impact of CEO narcissism on systematic risks of common stocks in the Arab equity market?

3.2 Study goals

The following points summarize the objectives of the study:

a. Comparing CEO narcissism among Arab sectors.
b. Comparing CEO narcissism among Arab markets.
c. Investigating the impact of narcissism on profitability for Arab corporations.

d. Investigating the impact of narcissism on financial risk for Arab corporations.
e. Investigating the impact of narcissism on common stock's return for Arab corporates.
f. Investigating the impact of narcissism on the total risks of common stocks for Arab corporates.
g. Investigating the impact of narcissism on the systematic risks of common stocks for Arab corporations.

3.3 Study Design

There are several measures for narcissism like the dirty dozen scale (Jonason & Webster, 2010), Narcissistic Personality Inventory (NPI) where it uses a forty-item forced choice method (Raskin & Terry, 1988). However, when measuring a CEOs' narcissism by these methods CEOs would most probably not answer these sensitive questions in survey research (Cycyota & Harrison, 2006). Furthermore, answers can be distorted by social desirability bias.

Another measurement was developed by Chatterjee and Hambrick (2007) depending on four indicators: (i) The size of CEO's photograph in the company's annual report, (ii) CEO's name in the company's press releases, (iii) CEO's cash compensation, and (x) the CEO's non-cash compensation. But according to (Koch & Biemann, 2014), this measurement is not yet validated. Another reason for not using this measurement in this study is due to cultural differences, as annual reports in Arab countries may not include a photograph of the CEO.

A measurement used by Ham, Seybert, and Wang (2013) based on personal signature reported a positive relation between normalized signature size (signature area divided by the number of characters) and narcissism. In addition, these authors observed a negative relation between CEO normalized signature area and firm performance (measured by return on assets (ROA). Also, there was a positive relation between the signature and CEO compensation.

Through the previous discussion, the study finds an intellectual debate between the positive or negative effect on the performance of real assets (corporate's financial positions) and financial assets (securities), which highlights the importance of the current study. This study relies on personal signature model for measuring narcissism, where an area is drawn around the signature based on the length and width of signature. After that it's proportionately measured to the financial report papers size that the CEO has signed. The study framework can be summarized in the figure no. (1)

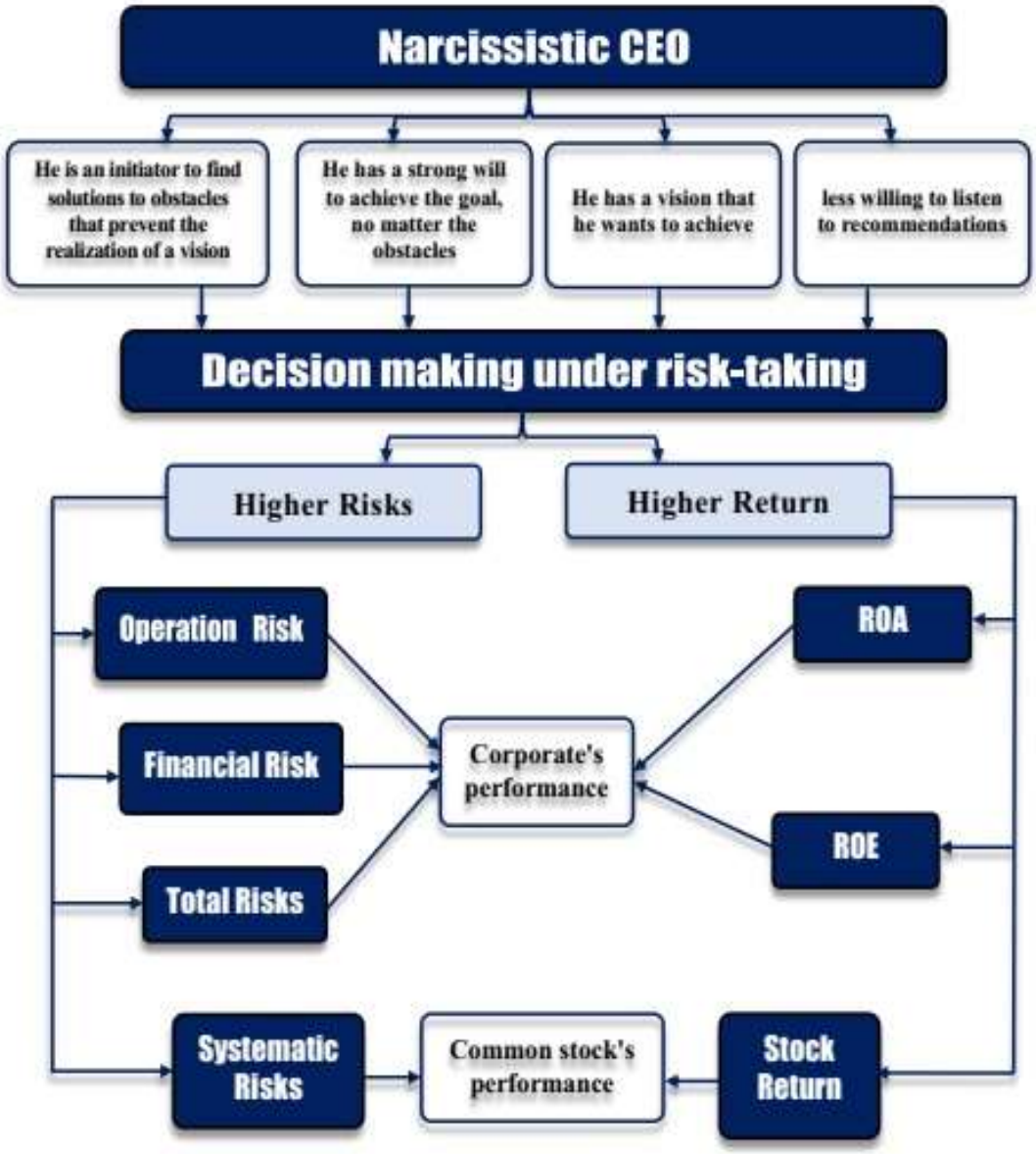


Figure (1): Study layout

According to Figure (1), a narcissistic CEO is an initiator to find solutions to obstacles that prevent the realization of their vision. He has a strong will to achieve the goal, no matter the obstacles. He has a vision that he wants to achieve and is less willing to listen to recommendations. This has an impact on the decision-making process at the senior management level, where the love of risk is the basis of decision-making.

For test this framework, eight equity markets were analyzed, there are ten sectors included. The study selected a representative sample of 197 non-financial

firms with 985 observations between 2016 and 2020. From the above, the hypotheses were formulated as follows:

H1: There is no significant difference in the parameters of the CEO narcissism among Arab sectors.
H2: There is no significant difference in the parameters of the CEO narcissism among Arab equity market.
H3: There is no significant impact of CEO narcissism on corporate's ROA in the Arab equity market.
H4: There is no significant impact of CEO narcissism on corporate's ROE in the Arab equity market.
H5: There is no significant impact of CEO narcissism on corporate's financial risk in the Arab equity market.
H6: There is no significant impact of CEO narcissism on common stock' return in the Arab equity market.
H7: There is no significant impact of CEO narcissism on total risks of common stocks in the Arab equity market.
H8: There is no significant impact of CEO narcissism on systematic risks of common stocks in the Arab equity market.

A study relied on the ANOVA test to test the first and second hypotheses, while it was used cross-sectional units to test hypotheses from the third to the eighth.

3.4 Study Sample

The study relied on a sample of companies listed on the Egyptian Stock Exchange and the Gulf Stock Exchanges (Saudi Arabia, Kuwait, Bahrain, UAE, Qatar, Oman) due to the period from 2016 to 2020, and the annual reports were obtained from the Egypt Information Dissemination Company, the database, Thomson Reuters, and the website of some facilities, and the banking sector and the financial services sector were excluded due to the special nature of these two sectors, which may affect the accuracy of the results and the companies' lack of Availability of data over the sample period, as the number of establishments reached 19 establishments, with a total number of 985 views. The study sample was divided into sectors, including a sector (Energy, Materials, Industries, Commercial, Consumer Goods, Healthcare, Information Technology, Telecommunications, Services and facilities).

Table (1) shows that the weight of a "Saudi Arabia" is the largest, while the weight of a "Oman" is the lowest; But at the level of sectors, it was the greatest weight for "Materials" vs. "Healthcare" has the lowest weight in the sample.

Table (1): The study sample matrix

Country/Sector	Energy	Materials	Industries	commercial	Consumer Goods	Healthcare	Information Technology	Telecommunications	Services and facilities	real estate	Total
Saudi Arabia (TASI)	3	23	8	5	8	4	1	6	2	3	63
UAE (DFM)	0	1	3	0	4	0	0	1	3	5	17
Al-Bajrain (Bahrain)	0	2	1	3	3	0	0	3	0	2	14
Kuwait	4	5	5	2	0	1	2	5	0	15	39
Oman (Muscat)	3	3	1	1	1	0	0	0	0	0	9
Qatar	0	1	4	2	0	1	0	2	0	3	13
Egypt (EGX)	0	11	2	7	1	2	0	3	0	16	42
Total	10	46	24	20	17	8	3	20	5	44	197

3.5 Measuring study variables

3.5.1 Narcissism variable

The study relied on measuring the narcissistic variable on two models. The first model represented the length of the signature, while the second model depended on the size of the signature (length × width) – according to Ham et. Al., (2018) -; the study also relied on dividing the length and size of the signature into 4 parts so that (the first fourth is the lowest level of narcissism and takes (1), and the highest level of narcissism takes (4). This measure is consistent with many previous studies, including: Aabo et al., 2021; Donker et al., 2023; Ham et al., 2017; Ham et al., 2018; Ismail and Gad, 2000; Kind et al., 2023; Pal et al., 2011; Wang et al., 2022; Zweigenhaft, 1977.

3.5.2 Corporation's Profitability

Profitability ratios are essential financial metrics used to evaluate a company's ability to generate profits relative to its revenue, assets, equity, or other financial parameters. These ratios provide valuable insights into a company's financial health and creating profitability from its operational process, in addition to the implications of the financing structure.

The study relied on measuring the corporation's profitability based on two ratios. The first ratio was return on assets (ROA); ROA measures how effectively a company utilizes its assets to generate profits. It indicates the creation of profitability according to their assets. The return on assets (ROA)was estimated according to equation no. 1:

$$ROA_{JT} = EAT_{JT} \div TA_{JT}$$

Equation No. (1)

where

ROA_{JT} Return on assets for corporate (J) in year (T)
EAT_{JT} Earnings after taxes for corporate (J) in year (T)
TA_{JT} Total assets of corporate (J) in year (T)

The second ratio was return on equity (ROE); ROE evaluates the return on investment for shareholders. It shows how much profit is generated for shareholders' equity. The return on equity (ROE) was estimated according to equation no. 2:

$$ROE_{JT} = EAT_{JT} \div TE_{JT}$$

Equation No. (2)

where

ROA_{JT}	Return on equity for corporate (J) in year (T)
EAT_{JT}	Earnings after taxes for corporate (J) in year (T)
TE_{JT}	Total equity of corporate (J) in year (T)

2.5.3 Corporate's Financial Risk

Corporate financial risk refers to the potential danger or exposure a corporation faces due to its financial obligations, liabilities, and the way it manages its finances. This risk can have a significant impact on a corporation's stability, solvency, and ability to achieve its financial goals. The study relied on measuring the corporation's financial risk based degree of financial leverage .The degree of financial leverage was estimated according to the equation no.3 (Mandelker and Rhee, 1984)

$$DFL_{JT} = [(EAT_{JT}/ EAT_{JT-1})-1] \div [(EBIT_{JT}/ EBIT_{JT-1})-1]$$

Equation No. (3)

where

DFL_{JT}	Degree of financial leverage for corporate (J) in year (T)
EAT_{JT}	Earnings after taxes for corporate (J) in year (T)
EAT_{JT-1}	Earnings after taxes for corporate (J) in year (T-1)
$EBIT_{JT}$	Earnings before interest and taxes for corporate (J) in year (T)
$EBIT_{JT-1}$	Earnings before interest and taxes for corporate (J) in year (T-1)

3.5.4 Common Stock' Return

Common Stock's Return, often referred to as the ratio of the gain or loss an investor realizes from holding common stock in a corporation over a specific period (in this study, based on the annual return), This return includes both the current return (from cash dividends) and the capital return (from market value changes in the stock market). Common Stock' Return was estimated according to the equation no.4

$$HR_{JT} = [(C_{JT} + P_T – P_{T-1}) \div P_{T-1}]$$

Equation No. (4)

where

HR_{JT}	Hold returns of common stock for corporate (J) in year (T)
C_{JT}	Cash dividends for a common stock for corporate (J) in year (T)
P_{JT-1}	Market value of common stock for corporate (J) in the beginning of the year (T)
P_{JT}	Market value of common stock for corporate (J) in the end of the year (T)

3.5.5 Common Stock' risk

The total risk of common stock refers to the overall volatility or uncertainty associated with investing in a particular stock. It encompasses both systematic risk and unsystematic risk. Standard deviation measures the dispersion of a stock's returns from its average return. It provides an indication of the stock's historical volatility. A higher standard deviation implies higher risk, as the stock's returns have been more variable. standard deviation was estimated according to the equation no.5 for expected data, while equation (6) is for historical data.

$$б_{JT} = [\Sigma \{(HR_{JTI} - ER_{JT})^2 \times PR_{JTI}\}]^{1/2}$$

Equation No. (5)

where

$б_{JT}$	Standard deviation of common stock returns for corporate (J) in year (T)
HR_{JTI}	Hold returns of common stock for corporate (J) in year (T) at the situation (I)
ER_{JT}	Expected returns of common stock for corporate (J) in year (T)
PR_{JTI}	Probability of achieving hold return of common stock for situation (I) for corporate (J) in year (T)

$$б_{JT} = [\Sigma \{(HR_{JTI} - ER_{JT})^2 \div (N-1)\}]^{1/2}$$

Equation No. (6)

where

$б_{JT}$	Standard deviation of common stock returns for corporate (J) in year (T)
HR_{JTI}	Hold returns of common stock for corporate (J) in year (T) at the situation (I)
ER_{JT}	Expected returns of common stock for corporate (J) in year (T)
N	The number of years during the time series under investigation

On other hand, Systematic risk is the risk that affects the entire market. It is caused by factors such as economic conditions, interest rates, inflation, and geopolitical events. Systematic risk cannot be eliminated through diversification because it affects all stocks in the market. To measure the total risk of common stock, investors often look at the stock's beta. Beta is a measure of a stock's volatility in relation to the overall market. A beta of 1 indicates that the stock's price movements are expected to closely mirror the market. A beta greater than 1 indicates higher volatility, while a beta less than 1 indicates lower volatility. Systematic risk was estimated according to the equation no.7

$$\beta_{JT} = [\ COV_{JT} \div б^2_{MT}]$$

Equation No. (7)

where

B_{JT}	Systematic risk of common stock returns for corporate (J) in year (T).
COV_J	Coefficient of variance of common stock's returns for corporate (J) in year (T) with market's returns.
$б^2_{MT}$	Variation of market returns during the year (T).

But unsystematic risk is the risk that is unique to a particular company. It includes factors such as management decisions, competition, regulatory changes, and company-specific events. Unsystematic risk can be reduced through

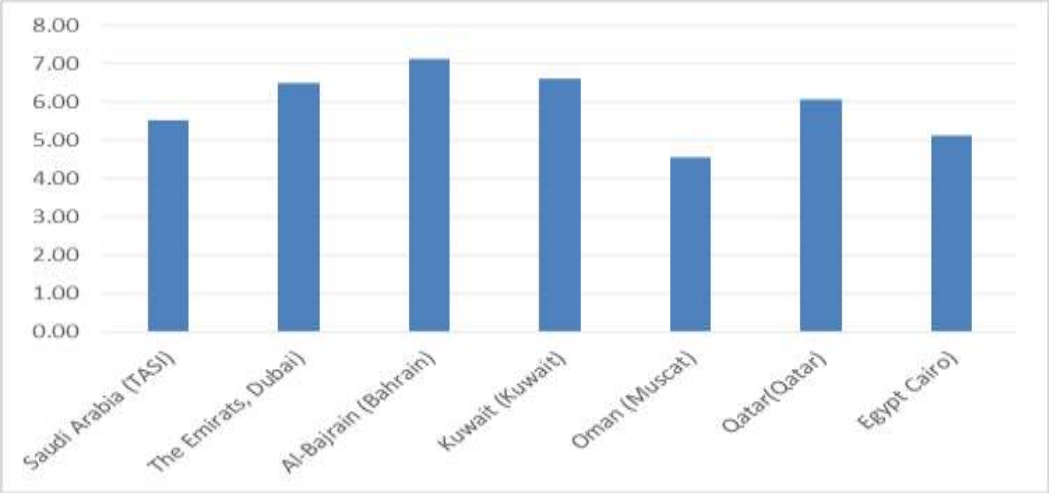
diversification by investing in a variety of stocks across different industries. This is outside the scope of the current study.

3.6 Stationary of Data

Many techniques for analyzing time series make the assumption of stationary (constant variance). Stationarity of the time series of the basic independent and dependent indicators at level zero was evaluated using a constant-level stationarity test. Stationarity is defined as the absence of time-dependent variation in the mean, variance, and autocorrelation values of a process. This was accomplished using a p value of less than 0.05 and the Augmented Dickey-Fuller (ADF), Philips-Perron (PP), Im, Pesaran, and Shin W-stat (IPSW), Levin, and Lin and Chu t (LLC) tests. The significance level for both the Tau-statistic and the Z-statistic was less than 0.05.

3.7 Descriptive analysis of CEO narcissism

Relying on "Signature length" measurement and by reviewing the average for narcissism for the following countries (Saudi Arabia, Kuwait, UAE, Oman, Qatar, Egypt). The results showed that higher narcissistic levels for managers were shown in Kuwait (4.77 cm) followed by Qatar (4.46 cm). On the other side Egypt represented the lowest narcissistic level for managers (3.64 cm). As for the sectors, the industrial sector represented the highest narcissistic level for managers (4.35 cm), followed by communication sector (4.33 cm). While service sector represented the lowest narcissistic level for managers (2.48 cm). The study can compare levels of narcissism based on sector through the following figure.



By replying on "Signature size"; its measurement based on multiplication result length with width, Bahrain had the highest narcissistic level for managers (7.14 cm), followed by Kuwait (6.63). While Oman came in the lowest level (4.53 cm). As for the sectors, using the same measurement, the industrial sector

represented highest narcissistic level for managers (6.91cm), on the other hand the Information technology represented the lowest level (3.5 cm)

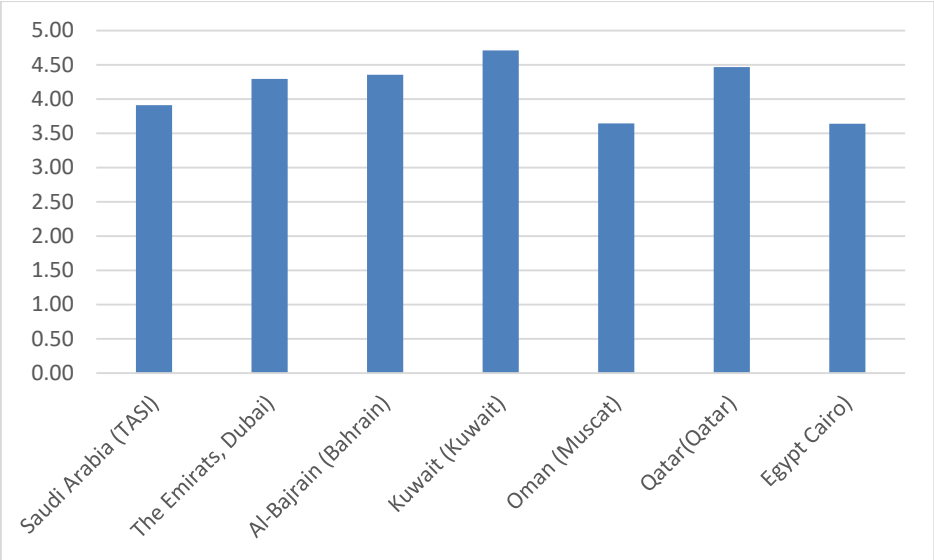


Figure (3): Average the size of narcissism based on country

3.8 Comparing CEO narcissism across Arab sectors

In this section of the study, the following null hypothesis was tested

H1: There is no significant difference in the parameters of the CEO narcissism among Arab sectors.

The study can express the null hypothesis mathematically as follows

H0: μ1 = μ2 = μ3= μ4 = μ5= μ6 = μ7= μ8 = μ9= μ10

The study classified the levels of narcissism into four groups (Q1, Q2, Q3, and Q4) according to the length and size of the signature, with comparison on the basis of the sector as shown in the following two tables

Table (2): Comparing narcissism under sectors according to the length of the signature

ANOVA

H

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	21.772	9	2.419	4.472	<.001
Within Groups	526.858	974	.541		
Total	548.630	983			

Source: Statistical Package for the Social Sciences output

Table (3): Comparing narcissism under sectors according to the size of the signature

ANOVA

A

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	10.558	9	1.173	2.856	.003
Within Groups	398.912	971	.411		
Total	409.470	980			

Source: Statistical Package for the Social Sciences output

At the level (1%), the results of the inferential analysis indicate that there is a significant difference in narcissism levels by Sector. The energy and real estate sectors had the highest level of narcissism, while the industrial sector had the lowest level of narcissism. The study can vary in nature for each sector.

Now, the study rejects the Null hypothesis and accepts the following alternative hypothesis

H_1: There is significant difference in the parameters of the CEO narcissism among Arab sectors.

3.9 Comparing CEO narcissism across Arab equity market

In this section of the study, the following null hypothesis was tested

H_2: There is no significant difference in the parameters of the CEO narcissism among Arab equity market.

The study can express the null hypothesis mathematically as follows

H_0: $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5 = \mu_6 = \mu_7 = \mu_8$

The study classified the levels of narcissism into four groups (Q_1,Q_2,Q_3, and Q_4) according to the length and size of the signature, with comparison on the basis of the country as shown in the following two tables

Table (4): Comparing narcissism under county according to the length of the signature

ANOVA

H

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	34.912	6	5.819	11.066	<.001
Within Groups	513.718	977	.526		
Total	548.630	983			

Table (5): Comparing narcissism under county according to the size of the signature

ANOVA

A

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	8.831	6	1.472	3.578	.002
Within Groups	400.639	974	.411		
Total	409.470	980			

The results of the inferential analysis indicate that there is a significant difference in narcissism levels between counties at the 1% level. The Bahrain market (Bahrain Stock Exchange) and the Kuwait market (Kuwait Stock Exchange) had the highest level of narcissism against Oman (Muscat Stock Exchange) which had the lowest level of narcissism. The study can trace this back to the nature of the prevailing popular culture.

Now, the study rejects the Null hypothesis and accepts the following alternative hypothesis

H_2: There is significant difference in the parameters of the CEO narcissism among Arab equity market.

3.10 Testing the impact of narcissism on corporate's ROA

In this section of the study, the following null hypothesis was tested

H3: There is no significant impact of CEO narcissism on corporate's ROA in the Arab equity market.

The study can express the mathematical model under test as follows

$$ROA_{j,t} = \beta_O + \beta_P P_{i,t} + \varepsilon_{i,t}$$

Equation No.8

The study tested this hypothesis, and equation (8) were drafted to test this hypothesis. Where (i) represent the firm and (t) represents time. (ROA) represents returns on assets as a dependent variable, (P) represents the parameters of the CEO narcissism as an independent variable, β0 is a population slope coefficient term, β0 is a constant term, but (ε) represents random error term.

3.10.1 according to the Length of the signature

The following table shows the results of the inferential statistical analysis according to cross-sectional data

Table (6) The impact of narcissism on corporate's ROA according to the length of the signature

Model 1: Maximum Likelihood, using 985 observations
Included 197 cross-sectional units
Dependent variable: roa
Allowing for groupwise heteroskedasticity

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Const.	0.0230122	0.00219950	10.46	<0.0001	***
length	0.00114728	0.000457368	2.508	0.0123	**

Statistics based on the weighted data:

Log-likelihood	1536.360	Akaike criterion	−3068.720
Schwarz criterion	−3058.935	Hannan-Quinn	−3064.998

Statistics based on the original data:

Mean dependent var	0.006138	S.D. dependent var	0.879244
Sum squared resid	761.2308	S.E. of regression	0.879997

Likelihood ratio test for groupwise heteroskedasticity -
Null hypothesis: the units have a common error variance
Test statistic: Chi-square(196) = 5612.56
with p-value = 0

Source: Gnu Regression, Econometrics and Time-series Library

According to the outputs of the previous statistical analysis, the study found a positive impact of narcissism based on the length of the signature with the corporation's return according to the return on assets, with significant level (5%).

3.10.2 according to the size of the signature

The following table shows the results of the inferential statistical analysis according to cross-sectional data

Table (7) The impact of narcissism on corporate's ROA according to the size of the signature

Model 2: Maximum Likelihood, using 985 observations
Included 197 cross-sectional units
Dependent variable: roa
Allowing for groupwise heteroskedasticity

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	0.0401982	0.00451970	8.894	<0.0001	***
length	−0.00373706	0.000836701	−4.466	<0.0001	***
Width	−0.00805223	0.00330449	−2.437	0.0150	**
size	0.00189408	0.000622955	3.040	0.0024	***

Statistics based on the weighted data:

Log-likelihood	1534.968	Akaike criterion	−3061.936
Schwarz criterion	−3042.365	Hannan-Quinn	−3054.492

Statistics based on the original data:

Mean dependent var	0.006138	S.D. dependent var	0.879244
Sum squared resid	760.9416	S.E. of regression	0.880727

Likelihood ratio test for groupwise heteroskedasticity -
Null hypothesis: the units have a common error variance
Test statistic: Chi-square(196) = 5609.96
with p-value = 0

Source: Gnu Regression, Econometrics and Time-series Library

According to the outputs of the previous statistical analysis, there is significant impact of narcissism based on the size of the signature on the return on assets, with significant level (5%).

3.10.3 according to the quarterly classification of signature

The following table shows the results of the inferential statistical analysis according to cross-sectional data

Table (8) The impact of narcissism on corporate's ROA according to quarterly classification of signature

Model 3: Maximum Likelihood, using 985 observations
Included 197 cross-sectional units
Dependent variable: roa
Allowing for groupwise heteroskedasticity

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Const.	0.0296978	0.00161750	18.36	<0.0001	***
qz	0.00193735	0.000632251	3.064	0.0022	***
ql	−0.00336885	0.000434656	−7.751	<0.0001	***

Statistics based on the weighted data:

Log-likelihood	1537.232	Akaike criterion	−3068.464
Schwarz criterion	−3053.786	Hannan-Quinn	−3062.881

Statistics based on the original data:

Mean dependent var	0.006138	S.D. dependent var	0.879244
Sum squared resid	760.8795	S.E. of regression	0.880242

Likelihood ratio test for groupwise heteroskedasticity -
Null hypothesis: the units have a common error variance
Test statistic: Chi-square(196) = 5614.02
with p-value = 0

Source: Gnu Regression, Econometrics and Time-series Library

According to the outputs of the previous statistical analysis, the study found an impact of narcissism based on quarterly classification of signature with the corporation's return according to the return on assets, with significant level (1%).

On the basis of the outputs of the inferential analysis for the length of the signature, the study rejects the Null hypothesis and accepts the following alternative hypothesis

H_3: There is significant impact of CEO narcissism on corporate's ROA in the Arab equity market.

3.11 Testing the impact of narcissism on corporate's ROE

In this section of the study, the following null hypothesis was tested

H_4: There is no significant impact of CEO narcissism on corporate's ROE in the Arab equity market.

The study can express the mathematical model under test as follows

$$ROE_{j,t} = \beta_O + \beta_P P_{i,t} + \varepsilon_{i,t}$$

Equation No.9

The study tested this hypothesis, and equation (9) were drafted to test this hypothesis. Where (i) represent the firm and (t) represents time. (ROE) represents returns on equity as a dependent variable, (P) represents the parameters of the CEO narcissism as an independent variable, β_0 is a population slope coefficient term, β_0 is a constant term, but **(ε)** represents random error term.

3.11.1 according to the Length of the signature

The following table shows the results of the inferential statistical analysis according to cross-sectional data

Table (9) The impact of narcissism on corporate's ROE according to the length of the signature

Model 4: Maximum Likelihood, using 985 observations
Included 197 cross-sectional units
Dependent variable: roe
Allowing for groupwise heteroskedasticity

	Coefficient	Std. Error	*t-ratio*	*p-value*	
Const.	0.0825551	0.00339008	24.35	<0.0001	***
length	−0.00220480	0.000586945	−3.756	0.0002	***

Statistics based on the weighted data:

Log-likelihood	904.0103	Akaike criterion	−1804.021
Schwarz criterion	−1794.235	Hannan-Quinn	−1800.299

Statistics based on the original data:

Mean dependent var	0.023882	S.D. dependent var	0.567459
Sum squared resid	319.1959	S.E. of regression	0.569839

Likelihood ratio test for groupwise heteroskedasticity -
Null hypothesis: the units have a common error variance
Test statistic: Chi-square (196) = 3485.38
with p-value = 0

Source: Gnu Regression, Econometrics and Time-series Library

According to the outputs of the previous statistical analysis, the study found a negative impact of narcissism based on the length of the signature with the corporation's return according to the return on equity, with significant level (1%).

3.11.2 according to the size of the signature

The following table shows the results of the inferential statistical analysis according to cross-sectional data

Table (10) The impact of narcissism on corporate's ROE according to the size of the signature

Model 5: Maximum Likelihood, using 985 observations
Included 197 cross-sectional units
Dependent variable: roe
Allowing for groupwise heteroskedasticity

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	0.0930774	0.00803349	11.59	<0.0001	***
length	−0.00448530	0.00144364	−3.107	0.0019	***
Width	−0.0166157	0.00692509	−2.399	0.0166	**
size	0.00317033	0.00131576	2.410	0.0162	**

Statistics based on the weighted data:

Log-likelihood	905.3825	Akaike criterion	−1802.765
Schwarz criterion	−1783.194	Hannan-Quinn	−1795.321

Statistics based on the original data:

0.567459	S.D. dependent var	0.023882	Mean dependent var
0.570199	S.E. of regression	318.9491	Sum squared resid

Likelihood ratio test for groupwise heteroskedasticity -
Null hypothesis: the units have a common error variance
Test statistic: Chi-square (196) = 3485.59
with p-value = 0

Source: Gnu Regression, Econometrics and Time-series Library

According to the outputs of the previous statistical analysis, there is significant impact of narcissism based on the size of the signature on the return on equity, with significant level (5%).

3.11.3 according to the quarterly classification of signature

The following table shows the results of the inferential statistical analysis according to cross-sectional data

Table (11) The impact of narcissism on corporate's ROE according to the quarterly classification of signature

Model 6: Maximum Likelihood, using 985 observations
Included 197 cross-sectional units
Dependent variable: roe
Allowing for groupwise heteroskedasticity

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	0.0833581	0.00475036	17.55	<0.0001	***
ql	−0.00486558	0.00143261	−3.396	0.0007	***
qz	0.000274680	0.00120269	0.2284	0.8194	

Statistics based on the weighted data:

Log-likelihood	904.1705	Akaike criterion	−1802.341
Schwarz criterion	−1787.663	Hannan-Quinn	−1796.758

Statistics based on the original data:

Mean dependent var	0.023882	S.D. dependent var	0.567459
Sum squared resid	319.0193	S.E. of regression	0.569971

Likelihood ratio test for groupwise heteroskedasticity -
Null hypothesis: the units have a common error variance
Test statistic: Chi-square (196) = 3485.21
with p-value = 0

Source: Gnu Regression, Econometrics and Time-series Library

According to the outputs of the previous statistical analysis, the study found negative impact of narcissism based on quarterly classification of signature's Length with the corporation's return according to the return on assets, with significant level (1%).

On the basis of the outputs of the inferential analysis for the length of the signature, the study rejects the Null hypothesis and accepts the following alternative hypothesis

H_4: There is significant impact of CEO narcissism on corporate's ROE in the Arab equity market.

3.12 Testing the impact of narcissism on corporate's financial risk

In this section of the study, the following null hypothesis was tested

H_5: There is no significant impact of CEO narcissism on corporate's financial risk in the Arab equity market.

The study can express the mathematical model under test as follows

$$Lev_{j,t} = \beta_O + \beta_P P_{i,t} + \varepsilon_{i,t}$$

Equation No.10

The study tested this hypothesis, and equation (10) were drafted to test this hypothesis. Where (i) represent the firm and (t) represents time. (Lev) represents financial Leverage as a dependent variable, (P) represents the parameters of the CEO narcissism as an independent variable, β_0 is a population slope coefficient term, β_0 is a constant term, but (**ε**) represents random error term.

3.12.1 according to the Length of the signature

The following table shows the results of the inferential statistical analysis according to cross-sectional data

Table (12): the impact of narcissism on corporate's financial risk according to the Length of the signature

Model 7: Maximum Likelihood, using 985 observations
Included 197 cross-sectional units
Dependent variable: Leverage Allowing for groupwise heteroskedasticity

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Const.	0.0276953	0.00165275	16.76	<0.0001	***
length	−0.000981428	0.000412201	−2.381	0.0175	**

Statistics based on the weighted data:

−1588.210	Akaike criterion	796.1050	Log-likelihood
−1584.488	Hannan-Quinn	−1578.425	Schwarz criterion

Statistics based on the original data:

0.217300	S.D. dependent var	0.204516	Mean dependent var
0.282915	S.E. of regression	78.68003	Sum squared resid

Likelihood ratio test for groupwise heteroskedasticity -
Null hypothesis: the units have a common error variance
Test statistic: Chi-square (196) = 1379.34
with p-value = 8.15016e-177

Source: Gnu Regression, Econometrics and Time-series Library

According to the outputs of the previous statistical analysis, the study found a negative impact of narcissism based on the length of the signature with the corporation's financial risk according to the financial Leverage, with significant level (5%).

3.12.2 according to the size of the signature

The following table shows the results of the inferential statistical analysis according to cross-sectional data

Table (13): the impact of narcissism on corporate's financial risk according to the size of the signature

Model 8: Maximum Likelihood, using 985 observations
Included 197 cross-sectional units
Dependent variable: Leverage
Allowing for groupwise heteroskedasticity

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Const.	0.0162599	0.00344420	4.721	<0.0001	***
length	0.00166005	0.000760755	2.182	0.0293	**
Width	0.0106239	0.00219659	4.837	<0.0001	***
size	−0.00256761	0.000414790	−6.190	<0.0001	***

Statistics based on the weighted data:

Log-likelihood	805.8249	Akaike criterion	−1603.650
Schwarz criterion	−1584.079	Hannan-Quinn	−1596.206

Statistics based on the original data:

Mean dependent var	0.204516	S.D. dependent var	0.217300
Sum squared resid	79.07768	S.E. of regression	0.283918

Likelihood ratio test for groupwise heteroskedasticity -
Null hypothesis: the units have a common error variance
Test statistic: Chi-square (196) = 1388.08
with p-value = 1.90079e-178

Source: Gnu Regression, Econometrics and Time-series Library

According to the outputs of the previous statistical analysis, there is significant impact of narcissism based on the size of the signature on the corporation's financial risk, with significant level (5%).

3.12.3 according to the quarterly classification of signature

The following table shows the results of the inferential statistical analysis according to cross-sectional data.

According to the outputs of the previous statistical analysis, the study doesn't found impact of narcissism on the corporation's financial risk according to quarterly classification of signature.

On the basis of the outputs of the inferential analysis for the size of the signature, the study rejects the Null hypothesis and accepts the following alternative hypothesis

H_5: There is significant impact of CEO narcissism on corporate's financial risk in the Arab equity market.

Table (14): the impact of narcissism on corporate's financial risk according to the quarterly classification of signature length

Model 9: Maximum Likelihood, using 985 observations
Included 197 cross-sectional units
Dependent variable: Leverage Allowing for groupwise heteroskedasticity

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	0.0262229	0.00171346	15.30	<0.0001	***
ql	−0.00109076	0.000667167	−1.635	0.1024	
qz	0.000525530	0.000741865	0.7084	0.4789	

Statistics based on the weighted data:

Log-likelihood	795.3069	Akaike criterion	−1584.614
Schwarz criterion	−1569.936	Hannan-Quinn	−1579.031

Statistics based on the original data:

Mean dependent var	0.204516	S.D. dependent var	0.217300
Sum squared resid	78.51035	S.E. of regression	0.282753

Likelihood ratio test for groupwise heteroskedasticity -
Null hypothesis: the units have a common error variance
Test statistic: Chi-square(196) = 1374.58
with p-value = 6.28766e-176

Source: Gnu Regression, Econometrics and Time-series Library

3.13 Testing the impact of narcissism on common stock' return

In this section of the study, the following null hypothesis was tested

H_6: There is no significant impact of CEO narcissism on common stock' return in the Arab equity market.

The study can express the mathematical model under test as follows

$$CSR_{j,t} = \beta_O + \beta_P P_{i,t} + \varepsilon_{i,t}$$

Equation No.11

The study tested this hypothesis, and equation (11) were drafted to test this hypothesis. Where (i) represent the firm and (t) represents time. (CSR) represents common stock' return as a dependent variable, (P) represents the parameters of the CEO narcissism as an independent variable, β_0 is a population slope coefficient term, β_0 is a constant term, but **(ε)** represents random error term.

Due to the unavailability of trading data for some sample vocabulary, there are missing data of a firms, it not has listing in equity market at during the investigation period they were excluded.

3.13.1 according to the Length of the signature

The following table shows the results of the inferential statistical analysis according to cross-sectional data

Table (15): the impact of narcissism on common stock' return according to the length of the signature

Model 10: Maximum Likelihood, using 810 observations
Included 162 cross-sectional units
Dependent variable: csr Allowing for groupwise heteroskedasticity

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Const.	0.000404352	0.000108229	3.736	0.0002	***
length	−2.27057e-05	2.23411e-05	−1.016	0.3098	

Statistics based on the weighted data:

Log-likelihood	4088.707	Akaike criterion	−8173.413
Schwarz criterion	−8164.019	Hannan-Quinn	−8169.807

Statistics based on the original data:

Mean dependent var	0.000640	S.D. dependent var	0.009180
Sum squared resid	0.068248	S.E. of regression	0.009191

Likelihood ratio test for groupwise heteroskedasticity -
Null hypothesis: the units have a common error variance
Test statistic: Chi-square(161) = 2873.98
with p-value = 0

Source: Gnu Regression, Econometrics and Time-series Library

3.13.2 according to the size of the signature

The following table shows the results of the inferential statistical analysis according to cross-sectional data

Table (16): the impact of narcissism on common stock' returns according to the size of the signature

Model 11: WLS, using 810 observations
Included 162 cross-sectional units
Dependent variable: csr
Weights based on per-unit error variances

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
length	6.44464e-05	1.44711e-05	4.453	<0.0001	***
Width	0.000359453	8.81907e-05	4.076	<0.0001	***
size	−6.97608e-05	1.95840e-05	−3.562	0.0004	***

Statistics based on the weighted data:

Sum squared resid	755.8669	S.E. of regression	0.967801
Uncentered R-squared	0.000298	Centered R-squared	0.053728
F(3, 807)	0.080071	P-value(F)	0.970831
Log-likelihood	−1121.327	Akaike criterion	2248.654
Schwarz criterion	2262.745	Hannan-Quinn	2254.064

Statistics based on the original data:

Mean dependent var	0.000640	S.D. dependent var	0.009180
Sum squared resid	0.068272	S.E. of regression	0.009198

Source: Gnu Regression, Econometrics and Time-series Library

According to the outputs of the previous statistical analysis, there is significant impact of narcissism based on the size of the signature on the common stock's return, with significant level (5%).

3.13.3 according to the quarterly classification of signature

The following table shows the results of the inferential statistical analysis according to cross-sectional data

Table (17): the impact of narcissism on common stock' returns according to the quarterly classification of signature

Model 12: WLS, using 810 observations
Included 162 cross-sectional units
Dependent variable: csr
Weights based on per-unit error variances

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
ql	0.000112164	2.74044e-05	4.093	<0.0001	***
qz	1.36597e-05	4.19028e-05	0.3260	0.7445	

Statistics based on the weighted data:

Sum squared resid	772.4949	S.E. of regression	0.977782
Uncentered R-squared	-0.007659	Centered R-squared	0.043886
F(2, 808)	−3.070839	P-value(F)	NA
Log-likelihood	−1130.140	Akaike criterion	2264.279
Schwarz criterion	2273.673	Hannan-Quinn	2267.886

Statistics based on the original data:

Mean dependent var	0.000640	S.D. dependent var	0.009180
Sum squared resid	0.068318	S.E. of regression	0.009195

Source: Gnu Regression, Econometrics and Time-series Library

According to the outputs of the previous statistical analysis, the study found a positive impact of narcissism based on the length of the signature with the corporation's financial risk according to the financial Leverage, with significant level (5%).

On the basis of the outputs of the inferential analysis for the quarterly classification of signature, the study rejects the Null hypothesis and accepts the following alternative hypothesis

H_6: There is significant impact of CEO narcissism on common stock' return in the Arab equity market.

3.14 Testing the impact of narcissism on total risks of common stock

In this section of the study, the following null hypothesis was tested

H_7: There is no significant impact of CEO narcissism on total risks of common stocks in the Arab equity market.

The study can express the mathematical model under test as follows

$$CSSD_{j,t} = \beta_O + \beta_P P_{i,t} + \varepsilon_{i,t}$$

Equation No.12

The study tested this hypothesis, and equations (12) were drafted to test this hypothesis. Where (i) represent the firm and (t) represents time. (CSSD) represents total risks of common stock as a dependent variable, (P) represents the parameters of the CEO narcissism as an independent variable, β_0 is a population slope coefficient term, β_0 is a constant term, but **(ε)** represents random error term.

Due to the unavailability of trading data for some sample vocabulary, there are missing data of a firms, it not has listing in equity market at during the investigation period they were excluded.

3.14.1 according to the Length of the signature

The following table shows the results of the inferential statistical analysis according to cross-sectional data.

Table (18): the impact of narcissism on total risks of common stocks according to the length of the signature

Model 13: WLS, using 810 observations
Included 162 cross-sectional units
Dependent variable: cssd Weights based on per-unit error variances

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
length	0.00597988	8.24829e-05	72.50	<0.0001	***

Statistics based on the weighted data:

Sum squared resid	732.4511	S.E. of regression	0.951514
Uncentered R-squared	-0.219747	Centered R-squared	0.549658
F(1, 809)	−145.7479	P-value(F)	NA
Log-likelihood	−1108.582	Akaike criterion	2219.164
Schwarz criterion	2223.861	Hannan-Quinn	2220.967

Statistics based on the original data:

Mean dependent var	0.030880	S.D. dependent var	0.061545
Sum squared resid	3.158647	S.E. of regression	0.062485

Source: Gnu Regression, Econometrics and Time-series Library

According to the outputs of the previous statistical analysis, the study found a positive impact of narcissism based on the length of the signature with total risks of common stocks based on standard deviation, with significant level (1%).

3.14.2 according to the size of the signature

The following table shows the results of the inferential statistical analysis according to cross-sectional data.

Table (18): the impact of narcissism on total risks of common stocks according to the size of the signature

Model 14: WLS, using 810 observations
Included 162 cross-sectional units
Dependent variable: cssd Weights based on per-unit error variances

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Const.	0.0211387	0.00200403	10.55	<0.0001	***
length	0.00126292	0.000447350	2.823	0.0049	***
Width	0.00374969	0.00129188	2.903	0.0038	***
size	−0.000930158	0.000277024	−3.358	0.0008	***

Statistics based on the weighted data:

Sum squared resid	589.2840	S.E. of regression	0.855056
R-squared	0.015155	Adjusted R-squared	0.011489
F(3, 806)	4.134270	P-value(F)	0.006376
Log-likelihood	−1020.499	Akaike criterion	2048.998
Schwarz criterion	2067.786	Hannan-Quinn	2056.212

Statistics based on the original data:

Mean dependent var	0.030880	S.D. dependent var	0.061545
Sum squared resid	3.083265	S.E. of regression	0.061850

Source: Gnu Regression, Econometrics and Time-series Library

According to the outputs of the previous statistical analysis, the study found a positive impact of narcissism based on the size of the signature with total risks of common stocks based on standard deviation, with significant level (5%).

3.14.3 according to the quarterly classification of signature

The following table shows the results of the inferential statistical analysis according to cross-sectional data.

Table (19): the impact of narcissism on total risks of common stocks according to the quarterly classification of signature

Model 15: Maximum Likelihood, using 810 observations
Included 162 cross-sectional units
Dependent variable: cssd
Allowing for groupwise heteroskedasticity

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Const.	0.0206526	0.000796163	25.94	<0.0001	***
ql	0.000126162	0.000321493	0.3924	0.6948	
qz	−0.000152141	0.000238200	−0.6387	0.5232	

Statistics based on the weighted data:

Log-likelihood	2649.694	Akaike criterion	−5293.389
Schwarz criterion	−5279.298	Hannan-Quinn	−5287.979

Statistics based on the original data:

Mean dependent var	0.030880	S.D. dependent var	0.061545
Sum squared resid	3.147149	S.E. of regression	0.062448

Likelihood ratio test for groupwise heteroskedasticity -
Null hypothesis: the units have a common error variance
Test statistic: Chi-square(161) = 3077.58
with p-value = 0

Source: Gnu Regression, Econometrics and Time-series Library

According to the outputs of the previous statistical analysis, the study doesn't found impact of narcissism on the corporation's financial risk according to quarterly classification of signature.

On the basis of the outputs of the inferential analysis for the length of the signature, the study rejects the Null hypothesis and accepts the following alternative hypothesis

H_7: There is significant impact of CEO narcissism on total risks of common stocks in the Arab equity market.

3.15 Testing the impact of narcissism on systematic risks of common stock

In this section of the study, the following null hypothesis was tested

H_8: There is no significant impact of CEO narcissism on systematic risks of common stocks in the Arab equity market.

The study can express the mathematical model under test as follows

$$Beta_{j,t} = \beta_O + \beta_P P_{i,t} + \varepsilon_{i,t}$$

Equation No.13

The study tested this hypothesis, and equation (13) were drafted to test this hypothesis. Where (i) represent the firm and (t) represents time. (Beta) represents systematic risks of common stock as a dependent variable, (P) represents the parameters of the CEO narcissism as an independent variable, β_0 is a population slope coefficient term, β_0 is a constant term, but **(ε)** represents random error term.

Due to the unavailability of trading data for some sample vocabulary, there are missing data of a firms, it not has listing in equity market at during the investigation period they were excluded.

3.15.1 according to the Length of the signature

The following table shows the results of the inferential statistical analysis according to cross-sectional data.

Table (20): the impact of narcissism on systematic risks of common stocks according to the length of the signature

Model 16: WLS, using 846 observations
Included 170 cross-sectional units
Dependent variable: beta
Weights based on per-unit error variances

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	0.962332	0.00771255	124.8	<0.0001	***
length	−0.0166582	0.00153879	−10.83	<0.0001	***

Statistics based on the weighted data:

Sum squared resid	843.9745	S.E. of regression	0.998802
R-squared	0.121671	Adjusted R-squared	0.120630
F(1, 844)	116.9157	P-value(F)	1.31e-25
Log-likelihood	−1199.408	Akaike criterion	2402.816
Schwarz criterion	2412.297	Hannan-Quinn	2406.449

Statistics based on the original data:

0.429664	S.D. dependent var	0.896611	Mean dependent var
0.429147	S.E. of regression	155.4367	Sum squared resid

Source: Gnu Regression, Econometrics and Time-series Library

The inferential analysis in table (20) shows that there is a significant negative impact of narcissism - according to the length of the signature - on the systematic risks of common stocks - according to the beta coefficient -, with significant level (1%). which is not consistent with the theoretical basis, but the study completes the tests by using the rest of the measures of narcissism under investigation.

3.15.2 according to the size of the signature

The following table shows the results of the inferential statistical analysis according to cross-sectional data.

The inferential analysis in table (21) shows that there is an impact of narcissism - according to the three measures - on the systematic risks of common stocks, with significant level (1%).

Table (21): the impact of narcissism on systematic risks of common stocks according to the size of the signature

Model 17: WLS, using 846 observations
Included 170 cross-sectional units
Dependent variable: beta
Weights based on per-unit error variances

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	1.24847	0.0177601	70.30	<0.0001	***
length	−0.0685054	0.00355988	−19.24	<0.0001	***
Width	−0.222857	0.0158128	−14.09	<0.0001	***
size	0.0403520	0.00300050	13.45	<0.0001	***

Statistics based on the weighted data:

Sum squared resid	821.7005	S.E. of regression	0.987872
R-squared	0.376762	Adjusted R-squared	0.374541
F(3, 842)	169.6694	P-value(F)	5.05e-86
Log-likelihood	−1188.094	Akaike criterion	2384.189
Schwarz criterion	2403.151	Hannan-Quinn	2391.454

Statistics based on the original data:

Mean dependent var	0.896611	S.D. dependent var	0.429664
Sum squared resid	151.6504	S.E. of regression	0.424391

Source: Gnu Regression, Econometrics and Time-series Library

3.15.3 according to the quarterly classification of signature

The following table shows the results of the inferential statistical analysis according to cross-sectional data.

Table (22): the impact of narcissism on systematic risks of common stocks according to the size of the signature

Model 18: WLS, using 846 observations
Included 170 cross-sectional units
Dependent variable: beta
Weights based on per-unit error variances

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	0.981892	0.0131671	74.57	<0.0001	***
ql	−0.0253064	0.00482364	−5.246	<0.0001	***
qz	−0.00978420	0.00346948	−2.820	0.0049	***

Statistics based on the weighted data:

Sum squared resid	803.1379	S.E. of regression	0.974339
R-squared	0.061779	Adjusted R-squared	0.059553
F(2, 843)	27.75460	P-value(F)	2.12e-12
Log-likelihood	−1178.429	Akaike criterion	2362.858
Schwarz criterion	2377.080	Hannan-Quinn	2368.307

Statistics based on the original data:

Mean dependent var	0.896611	S.D. dependent var	0.429664
Sum squared resid	155.1390	S.E. of regression	0.428990

Source: Gnu Regression, Econometrics and Time-series Library

The inferential analysis in table () shows that There is a negative impact of narcissism - according to the quarterly classification - on the systematic risks of common stocks, with significant level (5%).

On the basis of the outputs of the inferential analysis for the length of the signature, the study rejects the Null hypothesis and accepts the following alternative hypothesis

H_8: There is significant impact of CEO narcissism on systematic risks of common stocks in the Arab equity market.

4. Discussion

The influence of CEOs on corporate and its common stock performance has long been a subject of academic inquiry. However, the specific examination of CEO narcissism and its ramifications in Arab equity markets remains relatively understudied. This article aims to bridge this knowledge gap by exploring the concept of CEO narcissism, its prevalence in the Arab context, and its potential effects on equity markets in the region.

The personality trait narcissism is characterized by an inflated sense of self-importance, grandiosity, and a need for admiration from others. It is typically associated with an exaggerated sense of entitlement, a lack of empathy for others, and difficulty accepting criticism or failure. Individuals with narcissism frequently exhibit behaviors such as arrogance, aggression, manipulation, and exploitation. Although narcissism is one of the topics covered by psychology (Wink, 1991),

Today, behavioral finance has included this topic, as narcissism is one of the factors that explain the decisions of top management. There have been many studies dealing with measuring narcissism through the signature (Zweigenhaft, 1997; Ham et al., 2018, etc). In this aspect, the study must admit that it did not include other measures of narcissism, which like a picture (Olsen et al., 2014), compensation, and press release, but are not available in a systematic on the basis of the multiplicity of equity markets under investigation, which represents a limitation on the study.

Literary reviews refer to a traditional metric for measuring narcissism by signature length, the current study adding other measure that include signature parameters (signature length, signature width, and signature size) as well as characterizing intercompany narcissism on a quartile basis for both signature length and signature size.

Under classified the levels of narcissism into four groups (Q1,Q2,Q3, and Q4) according to the length and size of the signature, There is a considerable difference in narcissism levels according to industry and county, the both was significant at (1%). A summary of the results of the repercussions of narcissism on the performance of corporations can be viewed in the following table

Table No. (23) Results summary

Measure Narcissism	The corporate's ROA	The corporate's ROE	The corporate's financial risk	The common stock' return	The total risks of common stocks	The systematic risks of common stocks
the length of the signature	Positive	Negative	Negative	Negative	Positive	Negative
	Significant (5%)	Significant (1%)	Significant (5%)	Not significant	Significant (1%)	Significant (1%)
the size of the signature	NA	NA	NA	NA	NA	NA
	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant
the quarterly classification of signature	NA	Negative	NA	Positive	NA	Negative
	Not Significant	Significant (1%)	Not significant	Significant (1%)	Not significant	Significant (5%)

The previous results indicate a great conflict in the results, where, according to the theoretical basis, there should be a positive relationship between narcissism and corporate performance, or in other words there is a positive relationship with both return and risk.

There are only three results that are compatible with the theoretical framework. There a positive impact of measure narcissism according to the length of the signature on the corporate's ROA; There a positive impact of measure narcissism according to the quarterly classification of signature on the common stock' return; and there a positive impact of measure narcissism according to the length of the signature on the total risks of common stocks. The rest of the results, although they are statistically acceptable, but the study does not accept them as they are not in line with the theoretical basis. The study can explain the inadequacy of the bulk of the results to the variation of signature patterns between English and Arabic (see: Ismail and Gad,2000; Pal et al., 2011).

The differences between signature patterns in Arabic and English are notable and reflect the distinct characteristics of each writing system. Here are some key contrasts:

A. **Directionality:** Arabic is written from right to left. As a result, signatures in Arabic are typically aligned to the right side of the signature line. But English is written from left to right. Accordingly, signatures in English are typically placed on the left side of the signature line.

B. **Script and Stylistic Variations**: Arabic signatures often incorporate elements of the Arabic script, which is cursive and characterized by connected letters. The fluidity of the Arabic script allows for more elaborate and decorative signatures, with curved and flowing strokes. but English signatures are generally based on the Latin alphabet, which consists of distinct letters. English signatures tend to be more linear and straightforward, with individual letters forming the signature rather than elaborate connections.

C. **Size and Length**: Signatures in Arabic are often larger and more expansive, with a tendency for elongated strokes and flourishes. Arabic signatures may extend horizontally or vertically, encompassing more space. but Signatures in English are typically smaller and more compact. They tend to focus on the specific arrangement and shape of individual letters rather than extensive embellishments.

D. **Calligraphic Tradition**: Arabic calligraphy has a long and rich history, with various script styles, such as Naskh, Thuluth, and Diwani, known for their artistic beauty. This calligraphic tradition can influence the design and execution of Arabic signatures, often resulting in more intricate and decorative forms. While calligraphy exists in English writing, it does not have the same historical significance or widespread practice as in Arabic. English signatures may incorporate stylized or personalized letterforms, but they are generally less influenced by a formal calligraphic tradition.

The study's limitation was that a quantitative approach to measure narcissism to sign only. According to the conflict of a large part of the results with the theoretical basis, the reliance on the signature was inappropriate to measure narcissism efficiently and effectively in Arab equity markets. Therefore, the study recommends using other methods to measure narcissism, such as questionnaires, etc.

Narcissism has an impact on corporate decision-making. Therefore, the study recommends that future studies include the impact of CEO narcissism on agency cost, capital cost and cash dividends decision in the financial aspect, in addition to leadership style, organizational conflict in the aspect of organizational behavior

5. Conclusions and Recommendations

This study concentrates on the concept of narcissism in the Arab markets, which encompasses a multifaceted concept that goes beyond simple self-love. Understanding narcissism from a multidimensional perspective enhances our ability to identify, assess, and intervene with Chief Executive Officers (CEOs) displaying narcissistic traits, in addition to understanding its repercussions on corporate performance and its common stock in the capital market.

Narcissism is one of the dimensions of the CEO’s personality, which is reflected in the decisions he makes, as narcissism is one of the factors that makes the CEO less willing to listen to recommendations that support the company’s performance, which makes the CEO narcissistic be a risk-taker. In other words, the goal of CEO's narcissistic is to achieve higher returns at the same time as whatever risks he takes, which he finds acceptable to himself.

Despite the importance of the statistical results, there is a more important conclusion. The study found that The Arabic language presents challenges for the validity of the standard measures of CEO narcissism through signature. or by other word, Traditional methods of measuring CEO narcissism through signature cannot be relied upon based on the different characteristics of languages. Most of the previous studies were done on the signature of English, but according to differences in the characteristics of different languages. CEO narcissism in a method that is unique to each language.

Under ignoring the previous conclusion, there a significant difference in the levels of narcissism according to the sector also the country; both were significant at (1%). On the other side, the results revealed that there is a positive impact of measured narcissism on the corporate's ROA, the common stock's return, and the total risks of common stocks. The study uses the disparities between English and Arabic signature patterns to explain the negative impact of measured narcissism has on a corporation's return on equity, financial risk, and the systematic risk of common stocks. The study recommends investigates with other measures of narcissism, such as imagery, compensation, and press release. The findings of this study contribute to the understanding of the unique cultural and financial context in which CEO narcissism operates in Arab equity markets

In conclusion, narcissism is a personality trait which is particularly prevalent among managers and executives. This trait can have significant implications for corporate performance due to its association with unethical behavior, ineffective leadership skills, and conflict with other employees. Organizations should be aware of the potential risks associated with narcissistic managers in order to ensure optimal performance within their organization.

The study does not believe that interest in CEO narcissism ends, and the study recommend the following topics for future research:

A. Narcissistic Leadership and Employee Outcomes: This research topic focuses on examining the influence of narcissistic leaders on employee outcomes, including job satisfaction, turnover intentions, engagement, and well-being. It explores the mediating factors and mechanisms through which narcissistic leadership affects employee attitudes and behaviors.

B. This topic investigates the connection between narcissistic CEOs and ethical behavior within organizations. This study investigates whether narcissistic CEOs are more likely to engage in unethical practices, such as fraud, unethical decision-making, and abusive behavior towards employees. Additionally, it examines the impact of narcissistic leadership on ethical climate and the perception of fairness within the organization.

C. Narcissism and Leadership Succession: This research topic explores the challenges and implications of narcissistic CEOs during leadership succession processes. It examines the impact of narcissistic traits on succession planning, including the selection and development of potential successors. It also investigates the effects of narcissistic CEOs on leadership transitions, organizational stability, and performance during CEO succession.

D. Narcissism and Organizational Culture: This topic focuses on understanding the influence of CEO narcissism on organizational culture. It explores how narcissistic leaders shape the values, norms, and practices within the organization. It investigates the mechanisms through which narcissistic leaders influence culture, including the role of charisma, power dynamics, and the socialization of employees.

E. Mitigating the Negative Effects of Narcissistic Leadership: This research topic explores strategies and interventions aimed at mitigating the negative impact of narcissistic leaders in organizations. It examines leadership development programmes that target narcissistic tendencies, the role of organizational policies and practices in minimizing the influence of narcissistic CEOs, and the efficacy of employee support systems in coping with the effects of narcissistic leadership.

F. This topic examines the connection between narcissism and organizational resilience, concentrating on how narcissistic leaders respond to and manage crises or difficult situations. It investigates whether narcissistic CEOs possess unique strengths or vulnerabilities in navigating organizational crises and the impact of their behavior on employee resilience and organizational recovery.

G. Cross-Cultural Perspectives on Narcissism in Leadership: This research topic explores the cultural variations in the manifestation and consequences of narcissistic leadership. It investigates how cultural values, norms, and expectations influence the prevalence and impact of narcissistic leaders in different organizational contexts. It also examines the effectiveness of leadership styles that balance individualism and collectivism in mitigating the negative effects of narcissistic leadership.

H. This topic investigates the connection between CEO narcissism and corporate social responsibility (CSR) initiatives. It investigates whether narcissistic CEOs prioritize CSR activities for self-enhancement purposes or engage in CSR efforts primarily for instrumental reasons. It explores the impact of narcissism on the authenticity and long-term sustainability of CSR initiatives within organizations.

I. This research topic examines the impact of narcissistic leaders on team performance and dynamics. It examines how narcissistic leaders interact with their teams, the effects of their behavior on team cohesion, communication, and creativity. It also explores the role of team composition and leader-follower dynamics in moderating the impact of narcissistic leadership on team outcomes.

The study's suggested research topics include narcissism within organizational contexts, shedding light on its implications for leadership, employee well-being, organizational culture, and performance. In addition to recommending investigations with other measures of narcissism, such as imagery, compensation, and press releases.

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نرجسية الرئيس التنفيذي في أسواق الأسهم العربية وتداعياتها

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ملخص البحث:

تبحث الدراسة في نرجسية الرئيس التنفيذي في أسواق الأسهم العربية، حيث تغطى الدراسة اسواق كلاً من مصر والمملكة العربية السعودية والكويت ودبي والبحرين وقطر وعمان. خلال الفترة من ٢٠١٦ إلى ٢٠٢٠، حيث شملت عينة الدراسة ١٩٧ شركة غير مالية باجمالى ٩٨٥ مشاهده. تم استخدام اساليب إحصائية استدلالية شملت اختبار ANOVA والتحليل المقطعي للبيانات. وتوصلت الدراسة إلى أن اللغة العربية تمثل تحدي أمام صحة المقاييس المعيارية لنرجسية المدير التنفيذي التى تعتمد على التوقيع. وفي ظل تجاهل الاستنتاج السابق، فإن هناك اختلافاً معنوياً في مستويات النرجسية تبعاً للقطاع، بالاضافة الى الدولة أيضاً؛ وكلاهما كان معنوياً بنسبة (١%). وعلى الجانب الآخر، أظهرت النتائج أن هناك تأثيراً إيجابياً لنرجسية المدير التنفيذى على كلا من معدلات العائد على أصول الشركة، عائد ومخاطر أسهمها العادية. أستخدمت الدراسة التباينات بين أنماط التوقيع باللغة الإنجليزية مقابل اللغة العربية لتفسير التأثير السلبي لنرجسية المدير التنفيذى على كلاً من العائد على حق الملكية، المخاطر المالية، والمخاطر المنتظمة للأسهم العادية. وتوصي الدراسة بإجراء مزيد من الدراسات باستخدام مقاييس أخرى للنرجسية، مثل الصور والتعويضات والبيانات الصحفية. تساهم نتائج هذه الدراسة في فهم السياق الثقافي والمالي الفريد لنرجسية الرؤساء التنفيذيين في أسواق الأسهم العربية.

الكلمات المفتاحية: النرجسية، نرجسية المدير التنفيذي، العائد، المخاطره، اسواق الاسهم العربية