

Measuring the Impact of Managerial Overconfidence on Firm Value Using a Hybrid Model Based on Longitudinal Data Models and the Random Forest Algorithm

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ID: 0009-0008-9729-7854

Abstract: The research attempts to find the degree to which extreme administrative confidence has impact on the value of industrial firms that are listed on the Iraq stock market, with the use of a hybrid model that integrates longitudinal data obtained through linear associations between variables, and machine learning frameworks (random forest) that obtain non-linear and tricky connection between variables. To attain the study objectives, a purposeful sample was selected, which consist of ten industrial firms for the period of 2016-2025. The findings of the study indicated that disproportionate administrative has a positive effect on the values of firms, as well as the supremacy of the hybrid framework over the fixed effects model and the random model to represent correlation between variables. This needs the boards of directors of these firms to avoid the appointment of managers who lack the confidence to present genuine decisions. The study recommend that investors should direct their investments towards the firms that have managers with reliable leadership features and traits who are capable of facing all the potential circumstances and make necessary decisions without delay.

Keywords: excessive managerial confidence, company value, hybrid model, machine learning, random forest algorithm.

1. Introduction

Swift technological advances that increases competition among firms, and the intricacy of the business setting have pushed firms to incessantly search for mechanisms that can improve their ability to create value and attain financial sustainability. As a result, management choices have emerged as one of the most protruding key determinants of firms' performance and value, especially those related to the behavioral and emotional traits of firms' senior management, which directly affect financing, investment, and operative choices. Because these decisions determine the well-being of shareholders, the precision of these choices by managers is one of the main deliberations for investors, as this is connected to their self-confidence in the proper administration of invested funds (Zulaikab et al., 2019) (Trianita & Basuki, 2020).

Human behavior is varied and multifaceted and is not always subject to the absolute prudence presumed by most financial theories and models, as these theories and models assume that the process of making financial choices is rational. Numerous studies designate that there are recurring patterns of irrationality in the decision-making process of individuals and managers, particularly in the face of uncertainty (Dalal, 2023).



Managers repeatedly face situations of uncertainty in real-world practices, which leads to intricate judgments that may cause them to commit mistakes, whether by underestimating or overstating matters. Additionally, managers, as decision-makers, tend to swerve from logic and often display mental biases, one of which is the extreme confidence bias, which is an important part of mental and personal traits (Dalal, 2023).

There is a discussion in the monetary thought review about the degree to which extreme managerial confidence impacts the value of the company. Despite the growing interest in it, the results of studies are still varied with regards to its impact on the worth of the firm. Numerous studies have resolved that extreme managerial confidence has a negative effect on the worth of firms, such as the study by (Listiani et al.2024), (Kunjal et al. 2021), and (Shan et al.2018), owing to its connotation with investment alterations, value-destroying acquisitions (Malmendier et al., 2011), financing distortions (Ben-David et al., 2013), an increase in risk (Niu, 2010), and perversion in financial reports (Schrand & Zechman, 2012). On the other hand, some studies have established that extreme managerial confidence has a positive effect on firm value, such as the study by (Gao et al.2021), (Trianita & Basuki, 2020), and (Gao & Kyoung-Hwa, 2020) owing to its association with increased innovation and advanced success (Hirshleifer et al.,2012) and a reduction in the tendency towards extreme spending behavior after administration change (Gu, 2023), which means that the influence of extreme managerial confidence on firm value is still a fertile domain of research. It is important to note that emerging countries, especially Iraq, lack such studies, and most of the studies conducted in this field rely on traditional standard models, while the use of hybrid models and machine learning techniques in explaining the impact of excessive managerial self-reliance on firm value is still very inadequate. Hence, this study aims to test the degree of the influence of excessive managerial confidence on the worth of the firm and to compare the results of the classical model with the hybrid model resulting from the combination of machine learning (random forests) with econometrics (longitudinal models) and to assess its predictive ability, as well as to offer novel evidence from developing markets so that the research findings are essential in inspiring the literature on behavioral finance, especially extreme managerial confidence and the degree of its effect on the key objective of financial management, which is to exploit the worth of the firm, and to reach conclusions that will assist investors, corporate management and decision-makers to make sound planned choices. To reach more precise results, the hybrid methodology was employed, which is based on the combination of the traditional standard approach with machine learning. The research was applied to a purposive sample of ten industrial joint-stock firms listed on the Iraq Stock Exchange for the period from 2016 to 2025. The rest of the investigation is distributed as follows: Section Two presents the review of the theoretical aspect and the advancement of hypotheses, whereas Section Three focuses on the methodology. Section Four discusses the results, and Section Five, the final section, presents the conclusions and discusses the constraints of the research and recommended future studies.

2. Literature Review and Theoretical Framework

Excessive managerial confidence is signified by the inclination of managers to overrate the likelihood of their achievement and underrate the probability of their failure (Gao et al., 2021), i.e., the tendency to assess oneself based on ability, knowledge, and the precision of information (indicators of future probabilities) and to underrate the likelihood of negative outcomes and possible risks. Psychology researchers believe that extreme confidence leads managers to overrate their knowledge and capability to control events and underrate the risks they may face (Pham & Nguyen, 2019). It results from bias and holding unrealistic (positive) beliefs about any aspect of outcomes under conditions of uncertainty, so that the average estimation is overstated (Khalilabad, 2020). Dalal (2023) adds that extreme confidence is an unfounded belief in instinctive reasoning resulting from intellectual and hypercritical skills, making managers very confident in their abilities and skills, as well as their ignorance of the risks of decision-making. Extreme confidence begins with the psychology literature connected to the better-than-average effect, where an individual tends to overrate their knowledge, ability, and the accuracy of the information they possess. Excessive confidence can also be designated via two distinct phenomena in the decision-making process: the first is the inclination to overrate individual capabilities, and the second is the overestimation of the precision of information, which leads managers to be excessively hopeful about positive outcomes. The levels of extreme confidence vary based on the levels of management. The higher the managerial position, the greater the extreme confidence in decision-making. The manifestation of excessive confidence affects the administrative processes and planned policies followed, especially with regard to investment, mergers and acquisitions, company expansion, and financing decisions (Trianita & Basuki, 2020). CEOs make strategic decisions that affect the survival and health and of the firm, and decision-makers may resort to heuristic approaches to deal with multifaceted and uncertain domains, which may lead to suboptimal results (Toksoz et al., 2026).

There is an argument in the financial thought review about the degree to which extreme managerial overconfidence affects the value of the firm. (Yu et al., 2013) and (Gao et al., 2021) believe that extreme managerial

overconfidence is powerfully connected to the company's risks. Confident managers are more willing to take risks and make more decisive choices in the face of chances that increase investment in research, growth, and innovation (Hirshleifer et al., 2012) (Gao et al., 2021). (Kang & Cho, 2019), (Gao & Han, 2020), and (Gao et al., 2021) believe that extreme executive overconfidence may increase the levels of corporate social responsibility, as firms meet the choices of stakeholders and thus gain their appreciation by giving back to society. These sorts of activities also enhance customer loyalty and brand value, which means that excessive managerial overconfidence improves the competitive advantage and value of the company (Gao et al., 2021).

Likewise, other scholars believe that extreme executive confidence has a negative effect on the firm's value, as overconfident managers tend to use high levels of leverage, which may lead to higher costs of financial crises and augmented risks of discounting debt and equity (Listiani et al., 2024) (Research 111). These managers also tend to evade taxes or try to show a lower tax liability, which destructively affects the firm's reputation and worth (Demirkan et al., 2023) (Listiani et al., 2024). Additionally, excessive managerial confidence reduces the willingness of managers to use financing by allotting common shares, which leads to a lack of investment. These managers may tend to underrate investment risks, and investors react negatively to these two managerial actions, which leads to a decrease in the firm's value (Listiani et al., 2024). Overconfident managers are also less receptive to corrective response with regards to the improvement of the precision of management forecasts (2015, Chen et al.) (Demirkan et al., 2023).

Overconfident managers may tend to make exceedingly hopeful or exaggerated estimates of potential investment returns and underrate their risks, which leads them to obtain other firms after the success of the first achievement, even though the acquisition procedure is fraught with risks (Meikle et al., 2016) (Trianita & Basuki, 2020). Overconfident managers also tend not to invest when external financing is needed, even if the projects achieve a positive net present value (underinvestment), owing to the high cost of peripheral financing, because they believe that the market decreases the worth of their investment projects (Demirkan et al., 2023). In other words, firms managed by overconfident managers invest more in risky projects because these managers are dependent on their hopeful prospects, overrate the return on investment in high-risk projects, and underrate the probability of failure. Overconfident managers also overrate the anticipated future cash flows of their firms' projects and thus overrate the likelihood and magnitude of positive shocks to future cash flows and underrate the negative shocks to those flows. Therefore, when they have abundant internal funds, they tend to overinvest and acquire other companies unnecessarily (Haji & Eskandar, 2019).

Researchers believe that overconfident managers may attempt to invest in high-risk investments. If these investments succeed (fail), they will suggestively increase (decrease) the operating cash flow. Since investors in the stock market respond to the volume of functioning cash flows, this affects the worth of the firm. Based on the above, the following can be assumed:

(Excessive managerial confidence has a positive effect on the company's value)

3. Methodology

The research is dependent on a hybrid methodology called (Econometric-Machine Learning Methodology) which combines the classical standard approaches and modern machine learning techniques by employing Panel Data Regression Models to identify the degree to which excessive managerial confidence affects the worth of the firm, as well as the use of the Random Forest Algorithm to increase the ability to foresee and classify non-linear associations that integrate the dependent variable with the independent variables. The data is examined through the three longitudinal data regression models (the pooled regression model, the fixed effects model, and the random effects model), and then the Chow Test is used to differentiate between the pooled regression model and the fixed effects model. If the results indicate that the secure effects model outdoes the pooled regression model, the Hausman Test is used to distinguish between the static effects model and the random effects model. Conversely, if the results of the Chow Test display that the pooled regression model is superior, the Breusch-Pagan LM Test is applied to distinguish between the pooled regression model and the random effects model, in addition to using the Wooldridge Test to find the degree of autocorrelation in the longitudinal data (Al-Nuaimi and Hassan, 2022). The random forest is used as one of the machine learning methods to detect non-linear associations and determine the relative essence of the variables which affects the firm's value. The data is separated into two parts, one for training and the other for testing. The rudimentary idea of random forests is to create a set of independent decision trees based on random samples of data, so that a diverse set of variables is tested in each tree (B huaneshwari & Nirmala Sugirtha Rajini, 2024). To attain at the hybrid model that integrates the fixed effects model and the random forest model, the residuals of the static effects model were removed, which represent the difference between the actual worth and the projected value of the firms in the research sample, considering that the residuals represent that part of the value of the firms

that the independent variables could not explain through their linear connection with the value of the firm (Bhuvaneshwari & Nirmala Sugirtha Rajini, 2024). The values of the mean absolute error (MAE), the root mean square error (RMSE), and the coefficient of determination (R^2) were removed as they are the most essential parameters through which presentation can be assessed (El Alami et al., 2026) and a comparison was made between the hybrid model and both the static effects model and the random forest model to regulate how well the hybrid model represents the correlation between the research variables. The worth of the firm was then measured as a dependent variable according to the Tobin's Q ratio, which is one of the most commonly used measures to express that value (Listiani et al., 2024). As for extreme managerial confidence, it was measured via the regression of longitudinal data to find the expected investment size, where total assets are a dependent variable and sales development is an independent variable. If the expected investment is greater than the actual investment size measured by total assets, the manager is overconfident, and vice versa (Trianita & Basuki, 2020). Table (1) displays the research variables and their measurement mechanism.

Table (1)
Research variables and their measurement mechanism

Variable	Type	Measurement mechanism	Significance	Source
Tobin's Q	The dependent variable is a measure of the company's value	The market value of equity, which is equal to the number of outstanding shares at the closing price of the share plus the book value of total debt to assets	The amount of value generated by the company, including management performance in creating value and growth opportunities	(AL-Slehat et al., 2020) (Listiani et al., 2024) (Lonkanl, 2018) (Demirkan et al., 2023) (Trianita & Basuki, 2020)
OC	Independent variable: excessive managerial confidence	Measured by analyzing the regression of total assets on the sales growth rate	If the expected investment is greater than the actual investment, the manager is overconfident, and the dummy variable (1) is used to express this, otherwise (0).	(Dullman et al., 2015) (Listiani et al., 2024) (Shah et al., 2018) (Trianita & Basuki, 2020)
Size	Control variable	The natural logarithm of total assets	It can have a negative or positive impact on the company's value	(George et al., 2011) (Shah et al., 2018) (Trianita & Basuki, 2020)
Age	Control variable	Number of years since the company was established	It can have a negative or positive impact on the company's value	
Operating cash flow ratio	Control variable	Total cash flow to total assets	Has a positive impact on the company's value	
Leverage	Control variable	Total liabilities to total assets	It can have a negative or positive impact on the company's value	(Song, 2018) (Han et al., 2020) (Gao et al., 2021)

Source: Prepared by the researchers based on the mentioned sources

4. Discussion of the results

4.1. Descriptive statistics of the data

Descriptive statistics are used to review the features of the data of the study variables by computing the mean, median, standard deviation, maximum and minimum ideals, as well as the coefficients of skewness and kurtosis. Table (2) shows these characteristics.

Table (2)

<u>Variable</u>	<u>Descriptive statistics</u>						
	<u>Mean</u>	<u>Median</u>	<u>Std.Dev</u>	<u>Min</u>	<u>Max</u>	<u>Skewness</u>	<u>Kurtosis</u>
Tobin Q	1.131	1.272	0.624	0.531	1.87	0.472	2.311
OC	0.560	1.00	0.48	0.00	1.00	-0.330	1.11

SIZE	15.874	15.91	1.221	13.45	18.99	-0.114	2.654
age	18.45	17	6.72	14	37	0.65	2.84
CF	0.084	0.079	0.056	-0.067	0.251	0.41	3.12
LEV	1.428	1.217	0.151	1.11	2.709	0.341	2.231

Descriptive statistics assist recognize the features of the data distribution and the degree of its dispersion from the mean. Table (2) displays that there is a difference in the data for the research variables, as the mean of the value of the firms expressed by the **Tobin Q** ratio was (1.131), which may show that the majority of the management of the firms in the research sample were able to produce value for shareholders because the market value of equity and debt surpasses the total assets. The standard deviation of the same value was (0.624), which designates dispersion around the mean. The value of **Tobin Q** for all firms ranged between (0.531-1.87). It is also clear that the data for the same variable attained a positive skewness. It is also pure that the mean of (**OC**) was (0.560), which designates that more than half of the management of the firms in the research sample suffers from overconfidence. The standard deviation was (0.48), whereas the other variables were diverse.

4.2. Results of the comparison between longitudinal data regression models and the autocorrelation test

The numerous regression models (the pooled regression model, the fixed effects model, and the random effects model) were projected, and an assessment was made between the pooled regression model and the fixed effects model using the Chow Test. The test results exhibited that the fixed effects model outstripped the pooled reversion model to represent the connection between excessive managerial confidence and firm value, as the P-value was less than 0.05. The Hausman test was also applied to compare the fixed effects model and the random effects model. The test results displayed that the P-value was less than the significance level of 0.05, to indicate that the fixed effects model outpaced the random effects model in representing the relationship between excessive managerial confidence and company value. In order to identify the degree of autocorrelation in the data, the Wooldridge test was used. The test results exhibited that there was no first-order autocorrelation in the research data. Table (3) shows the results of those tests.

Table (3)

Results of the comparison between longitudinal data models and the autocorrelation test

<u>Test</u>	<u>Statistic</u>	<u>p-value</u>	<u>Decision</u>
Chow Test	16.427	0.00	Fixed Effects
Hausman Test	11.582	0.021	Fixed Effects
Breusch-Pagan LM	18.631	0.00	Random Effects > Pooled
Wooldridge	2.148	0.146	No Serial Correlation

3.4 Discussion of the results of estimating the fixed effects model: The static effects model was assessed to determine the degree to which excessive managerial confidence affects the value of companies for a sample of industrial firms listed on the Iraq Stock Exchange. Table (4) indicates the results of that estimation.

Table (4)

Results of estimating the fixed effects model

<u>Variable</u>	<u>Coefficient</u>	<u>Std.Error</u>	<u>t-value</u>	<u>p-value</u>
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OC	0.472	0.124	3.860	0.000
SIZE	0.049	0.014	2.130	0.035
AGE	-0.019	0.011	-1.710	0.089
CF	0.450	0.155	4.270	0.000
LEV	-0.331	0.134	-2.920	0.005
0.617	Adjusted R-Squared	0.684	R-Squared	
0.000	Prob (F-statistic)	6.119	F-statistic	
	2.105656		Durbin-Watson	

Table (4) displays that extreme managerial confidence has a numerically significant positive effect on the value of companies, as indicated by the p-value of (0.000) at a significance level of (0.05). The beta coefficient is (0.472), which means that an increase in extreme managerial confidence by one unit leads to an increase in the firm's value by (0.472) units. This can be explained by the fact that the Iraqi economy is going through a transitional phase represented by an attempt to rebuild and differentiate the economy after periods of sanctions, wars, and security and political unrest. The Iraqi industrial sector has historically grieved from a large construction chasm between the demand and local production, as Iraqi markets rely deeply on imported goods. In light of this reality, any extension in production or investment by industrial firms can face comparatively high market demand. Therefore, choices made by overconfident managers with regards the expansion of production capacity, the transformation of creation lines, or the entry into new markets are not inevitably careless choices, but may characterize an operative response to real untapped economic chances, which leads to an increase in future revenues and profits and thus an increase in the company's value. Investment chances in Iraq are often short-term and are quickly affected by economic and regulatory changes. Therefore, an overconfident manager is more able to make planned choices without hesitation, while a conventional manager may lose many chances as a result of overstudying investment alternatives or fear of risk. This is particularly important in industrial sectors, which need a swift response to changes in prices, demand, and production costs.

The Iraqi economy is also considered by the supremacy of recognized associations and informal networks in facilitating business. Therefore, overconfident managers have a greater capability to build relations and exchange with government banks, agencies, and suppliers, which may enable them to get resources and prospects that may not be available to more conservative managers. This leads to improvement of the company performance and worth. Therefore, extreme managerial confidence in the Iraqi context can be viewed as a planned resource and a leadership trait that underwrites to create worth for shareholders, rather than considering it a behavioral deviation that essentially leads to the demolition of value, as assumed by some literature related to progressive markets. The results of this study are steady with the results of the studies by (Gao et al., 2021), (Trianita & Basuki, 2020), (Gao & Kyoung-Hwa, 2020), and (Listiani et al., 2024).

The value of (R-Squared) was roughly (68%), which means that the independent variables explain (68%) of the changes that happen in the value of firms, and the remaining percentage is due to other variables that were not encompassed in the model. The value of Prob (F-statistics), which is (0.000), shows the general significance of the model. The numerical value of (Durbin-Watson), which is (2.105656), designates that there is no autocorrelation between the residuals of the regression model.

4.3. Performance of Random Forest Technology

Machine learning, principally the random forest technique, was engaged as one of the modern approaches based on artificial intelligence to identify the degree to which excessive managerial confidence affects the value of firms. This is because it is capable of capturing the non-linear relationship between the two variables, which may be difficult for traditional regression methods to achieve. The data was separated into two parts: the first for training and the second for testing. The results of the application shown that the value of R² was (0.811), which means that the predictive variables can explain roughly (81%) of the changes that occur in the value of the firm. This percentage is relatively high, representing that the model has a high explanatory capacity and efficacy capable of

capturing patterns and non-linear associations between independent variables and the value of firms. The value of the square root of the mean squared error was (0.268), which is a relatively low value, representing the closeness of the predicted value to the actual value of the firms. This reflects the precision of the random forest model in prediction. The value of the mean absolute error (MAE), which shows the average deviation between the predicted values and the real values, was (0.191), this confirms the steadiness of the model and the dependability of its results.

Table (5)

Random Forest Performance		
Metric	Training	Testing
R ²	0.884	0.811
RMSE	0.201	0.268
MAE	0.149	0.191

4.4. The significance of variables in the random forest model

The essence of the variables in the random forest model reflects the relative importance of each variable and its capability to enhance the predictive power of the model. It is clear from Table (6) that extreme managerial confidence is the most significant variable among the other independent variables comprised in the model in elucidation the value of the firm. In other words, excessive managerial confidence may contribute more than the rest of the variables to enhancing the predictive power of the model, which means that the behavioral features of management are one of the main determinants of the values of industrial firms listed on the Iraq Stock Exchange, as indicated in Table (6).

Table (6)
The significance of variables in the random forest model

Rank	Variable	Importance %
1	OC	31.4
2	CF	26.7
3	LEV	18.7
4	SIZE	12.4
5	AGE	10.8

4.5. Comparison of the results of the hybrid model with other models used in the research

The static effects model was appraised using longitudinal data models that integrate time series with a cross-section, which captures the linear association between the independent variables and the dependent variable. The random forest model was estimated using several machine learning methods that capture the non-linear connection between the research variables. To attain at the hybrid model that combines the two above-mentioned frameworks so that it measures the linear and non-linear connection between the research variables, the remaining of the fixed effects model was extracted, which represents the difference between the real and projected values of the firm's value, as it is the unexplained part of the firm's value. In other words, the part that the independent variables could not explain through their linear connection with the firm's value was additional to the explanatory variables by numerous other explanatory variables. The most significant results through which the quality of the hybrid model can be recognized by comparing it with other models were presented, and Table (7) shows those results.

Table (7)
Comparison of the results of the hybrid model with the rest of the research models

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Metric	Fixed Effects	Random Forest	Hybrid
R ²	0.684	0.811	0.892
RMSE	0.417	0.269	0.181
MAE	0.302	0.191	0.132

Table (7) indicates that there is an essential variation in performance between the models used to explain and predict the value of the firm. The fixed effects model attained an R² value of (0.684), which shows that the independent variables described roughly (68%) of the value of the firms in the research sample through their linear connection with the value of those firms. However, we note that the explanatory power increases to (81%) when using the random forest model, which reflects the model's ability to capture the non-linear connection between the variables better than traditional economic models.

The hybrid model, which integrates the linear and non-linear connection between the variables, achieved the highest explanatory power, reaching approximately (89%), indicating its superiority in explaining the difference in company value compared to the other two models. The hybrid model also recorded the lowest values for the (RMSE, MAE) indicators, representing lower prediction errors and improved model quality.

The results show that the connection between extreme managerial confidence and firm value is not entirely linear, which explains the superior performance of both the hybrid model and the random forest model compared to the fixed effects model. This means that the effect of excessive managerial confidence on firm value varies according to the features of the firms, their internal and external environment, and their operational and financial conditions. This reflects the essence of mixing the features of longitudinal data models that offer an economic explanation of the connections between variables with the abilities of machine learning algorithms to realize complex and non-linear patterns, leading to an improvement in the quality of the overall hybrid model.

5. Conclusions

The findings indicated that extreme managerial confidence has a numerically significant positive effect on the value of industrial firms listed on the Iraq Stock Exchange, which shows that self-confident managers tend to make choices that augment the function and market value of the firms in the research sample. The research results also exhibited that the hybrid model is superior in explaining the modifications caused by autonomous variables in the value of firms, which means that the combination of longitudinal data models that capture linear connections between variables with machine learning models, particularly the random forest algorithm that captures non-linear and complex relationships, is capable of generating a high-quality model in representing the relationship between extreme managerial confidence and firm value without disregarding the control variables. Therefore, the research underwritten to clarify the nature of the connection between excessive managerial confidence and the value of corporations in developing economies, especially Iraq, leaving a fertile research field, which enables the boards of directors of these companies to give greater weight to personal and behavioral characteristics, especially excessive managerial confidence, when selecting between applicants for employment as managers, because of its great essence to generate value for shareholders, and to avoid employing managers who lack confidence, are reserved, and are hesitant in making their decisions. We also endorse that investors direct their investments towards firms that have managers with leadership features and traits, who are able to face all conditions and are able to make their choices without hesitancy.

5.1. Research Limitations

The following are some of the research limitations:

1. The variance in the results of studies on the effect of excessive managerial confidence on the value of firms is due to the variance in the features of firms, their domain, and their financial and operational conditions. This dictates reviewing that connection through numerous transitional variables accomplished of discovering the designs of interactions and their direction according to the conditions and features of firms, which is what our study lacked.
2. The research sample was limited to industrial firms that are registered on the Iraq Stock Exchange.

3. The limited time period of the research, as the research covered the era from 1/1/2016 to 12/31/2025, as that period was categorized by the Iraqi economy going through two successive crises. The first is the political crisis ensuing from the invasion of part of Iraqi territory by the criminal ISIS gangs, and the second is the health crisis resulting from the spread of the COVID-19 pandemic, which may affect the results of the research.
4. The research depend on one indicator to measure extreme managerial confidence.
5. The study was limited to the application of the Random Forest algorithm without other machine learning models.

5.2. Future directions of research

1. Reiterating the research methodology, offered that the study period is steadier.

2. Supplementing intermediary variables through which the features of firms and their financial and operational conditions can be expressed, such as financial restrictions and information irregularity, so that the researcher can discover new patterns in the relationship between excessive managerial confidence and the value of firms.
3. Repetition the same method though making a comparison between developing and developed countries.
4. By means of other models and methods through which excessive managerial confidence can be measured.

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