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RESEARCH PAPER

The Efficiency of Inventory Management and Financial Distress: The Interactive Role of Management Behavioral Strains

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Abstract
The objective of this study was to examine the effect of inventory management on financial distress with respect to the interactive role of management behavioral strains, namely overconfidence, myopia, and narcissism. The data of the study was comprised of 346 year-distressed company and 346 year-healthy company for overconfidence, 356 year-distressed company and 356 year-healthy company for myopia, and 228 year-distressed company and 228 year-Health Company for narcissism, chosen from the companies listed in Tehran Stock Exchange through the years 2009 to 2019. To distinguish the healthy companies from the distressed companies, the model developed by Asquith et al. (1994) was used. Findings of the study showed that the increase of inventory management efficiency leads to decreased financial distress, and the behavioral strains do not have a significant effect on the change of such a relationship.

Keywords: efficiency of inventory management, financial distress, overconfidence, myopia, narcissism

Introduction

Financial distress is the most notable distress for companies. During the past four decades, predicting corporate bankruptcy and financial distress has become a significant concern for the various stakeholders in firms (Salehi et al., 2016). In the present era, companies deal with a variety of challenges, derived from the lack of balance between the supply and demand, in order to survive in the competing markets. Enjoying privilege by a proper demand management requires prediction of the demand trend and proper response of supply to it so that it accompanies reduced warehousing costs and increased income. A company that lacks a proper demand management and fails to adapt itself to the development process of pioneering companies will frequently turn into a distressed company, leading to the bankruptcy stage. Therefore, making a decision concerning the quality of planning and optimal control of the inventory by the manager, which forms the core of decision making in company, is of immense significance (Chalaki et al., 2018).

Every organization requires a particular style of leadership and management in order to attain its goals. The behavior of people depends on their personality traits; thus, the personality traits of managers are the building blocks of their behaviors (Novin Nam et al., 2001). Such traits can be listed as the overconfidence (the willingness of people toward

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future) (BenMohamed et al., 2014), myopia (the tendency of managers toward short-term investment) Chowdhury (2012), and narcissism (the inclusion of personal interests) (Foster et al., 2011).

According to the above-mentioned definitions, managers can both get shares of the market for their sales and impede the company from experiencing undesired financial conditions through making a proper decision concerning the inventory. Therefore, it is expected that the efficiency of inventory management is effective when confronting the financial distress. One of the factors involved in decision-making is the behavioral strains of the decision-maker (manager) which results in choosing a distinguished inventory management policy in company.

Thus, the current study provides answers to the question if the inventory management has a negative and significant effect on the probability of confronting financial distress. In addition, the effect of behavioral strains on the afore-mentioned relationship as the moderating variable is examined. The researchers hope that the findings of the study add to the literature of financial distress and that financial decisions are made more accurately.

Theoretical and Experimental Principles of the Study

Today organizations pursue their goals in a growing and mostly competitive environment, and they have to compete with different factors on national as well as international level and to embark on optimal use of resources in order to keep on their life and avoid financial distress.

One of the tools for evaluating financial power before making investments in companies is using the analysis of financial ratios and obtaining the patterns for predicting the bankruptcy of companies (Salehi & Shiri, 2016). Investors and creditors are highly willing to predict the bankruptcy crisis because the high costs associated with bankruptcy crisis will spoil the economy as a whole. On the other hand, this raises concerns among owners, and they are always seeking to find ways to preserve their capital through prediction of stocks continuing operations in the future (Salehi & Davoudi Pour, 2016)

In the current economic environment, inventory is one of the most important, strategic assets and resources of the company that affects the company's profitability. Therefore, companies seek the optimal level of inventory so that the company does not experience major losses and maintenance costs do not increase (Karimzadeh & Taheri Nia, 2016). Firms' motivation and capabilities are key factors associated with inventory agility (Udenio et al., 2018). Firms that are in financial distress should adjust their sales forecasts early to account for declining demand and to prevent the unnecessary build-up of inventory (Steinker et al., 2016). In order to maximize their returns on inventory investment, manufacturing firms should place a greater emphasis on the efficient management of their inventories that constitute a substantial proportion of their sales. Specifically, a firm that efficiently manages its inventory can potentially create additional funds, which can be invested in profit-maximizing projects, and therefore maximize its shareholder value (Afrifa et al., 2020). Inventory management is a method that companies use to organize, store, and replace inventory with a purpose to minimize goods prices (Deveshwar & Dhawal, 2013). Inventory management is not confined to the warehouse inventory decisions, but is of great importance in management issues such as customer retention and company performance improvement (De Vries, 2005). Zalaghi et al. (2016) stated that increasing the efficiency of inventory management indicates good inventory management and makes the company more profitable. Zamani et al. (2019) concluded in their study that inventory management has a positive and significant effect on the financial performance of companies. Namazi et al. (2012) reported in their research that there is a reverse and significant relationship between changes in inventory

and changes in company value. Therefore, increasing the efficiency of inventory management by reducing costs can improve the company's situation and reduce the likelihood of financial distress confronting.

Financial distress results in the waste of resources and lack of getting privileges from the investment opportunities, followed by serious repercussions (Heidari et al., 2018). Kangogo and Irungu (2020) concluded that high inventory and poor financial performance are more likely to result in the financial distress. In their study, Najafi and Totian Esfahani (2020) indicated that companies with prospector strategy have more financial distress while those with defensive strategy have less financial distress.

Behavioral accounting is one of the accounting trends that draws attention to the relationship between human behavior and accounting systems. Managers with high capabilities have more ability to make optimal decisions (Nikbakht et al., 2017). The efficient use of intellect can provide innovative and competitive ideas for new product development, improve production process, and reduce delivery time and cost by eliminating non-productive activities (Lari Dashtbayaz et al., 2020). Behavioral factors involved in the personality of managers will lead to biased decision-making (Khajavi et al., 2017). Nikbakht et al. (2017) concluded in their research that managers' risk preferences are effective in the decision-making process of the optimal level of order. Therefore, the behavioral strains of managers affect the decisions made by them. Behavioral strains include overconfidence, myopia, and narcissism.

Overconfidence is the managers' exaggeration about their abilities, including their predictive power, information perception, and knowledge (Mashayekh & Behzadpor, 2014). Over-investment generally leads to higher managerial opportunistic behavior and consequently could hinder the growth of companies with high-growth opportunities (Salehi et al., 2017). Mundi and Kaur (2019) stated that more confident executives involve themselves in overinvestment and show better performance to the company. A highly confident CEO can increase the risk of corporate bankruptcy with less conservative accounting (Leng et al., 2021). Wang and Zhou (2017) concluded that overconfidence leads to overinvestment. Therefore, the overconfident manager, relying on the exaggeration of his/her abilities, causes the overestimation of inventory in order to sell by means of the false confidence, in this way, production is done based on it. The underlying result is the increase of costs as well as end-of-period inventory and decrease of competitive power due to more demand, while the company should increase the price of goods in order to cover the costs, resulting in the loss of competitive power and leading the company toward financial distress.

Myopic managers direct their attention to the short-term goals rather the long-term goals. Paying attention to short-term goals is expected to yield quick but temporary returns, but in the long run their status will not be satisfactory (Levinthal & March, 1993). By adopting myopic approaches, managers prefer the current short-term benefits to long-term ones that accompany a decrease in the value of the company (Moradi & Bageri, 2014). Didar et al. (2018) demonstrated that myopic managers reduce the value of the company by reducing costs with a long-term goal, so it is important for the myopic manager to have a favorable short-term situation. As a result, they reduce short-term costs and keep inventory at a lower level to reduce its maintenance costs. Such an attitude can increase the efficiency of inventory management and reduce the likelihood of distress confronting.

Narcissism among managers can have effects on organizational results, This feature is applied by influencing managers' decisions in areas such as choosing organizational structure strategy and hiring employees. (Namazi et al., 2017). Narcissistic managers have concentration in management styles and training systems and are aroused by admiration. Such managers sometimes insist on their wrong decisions and spend a lot of time and money,

which itself is turned into a problem for the company (Gholipor et al., 2009). Thus, narcissistic managers may be optimistic regarding the actions that seem to be impossible for people or have little chance of success, and such managers perform them daringly. One of their measures is to maintain a lower level of inventories and to reduce maintenance costs, and thus increase the efficiency of inventory management, ultimately bringing about reduced financial distress.

The inventory management is a continuous process that, on the one hand, controls and monitors the order and use of components that the company will use in the production of items, and on the other hand, controls and monitors certain quantities of products for sale. In case of improper management, the company will face financial problems and increased costs, followed by resultant financial distress. Among these, one of the influential factors in effective decision-making of the managers is the behavioral strains, which bring about issues concerning the choice of the optimal level and appropriate investment in inventory. Therefore, in the present study, the following hypotheses have been developed to achieve this goal:

- The efficiency of inventory management has a negative and significant effect on financial distress.
- Management overconfidence has a moderating role on the relationship between inventory management and financial distress.
- Management myopia has a moderating role on the association between inventory management and financial distress.
- Management narcissism has a moderating role on the nexus between inventory management and financial distress.

Conceptual Model

The main objective of this study was to examine the effect of inventory management on financial distress with respect to the moderating role of behavioral strains. The fundamental and structural concepts of this study involve the efficiency of inventory management, financial distress, and management behavioral strains. Based on the results of the review of literature and the research questions, the conceptual model of the study is given as follows:

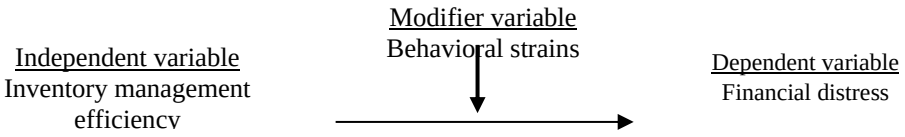

Figure 1. Conceptual Model of the Study

Methodology

The statistical population of the study was composed of all companies listed in Tehran Stock Exchanges and the time range of the study was through the year 2009 to the year 2019. The sampling method of this study was that of the systematic removal. Companies that met the following criteria were chosen as the sample:

1) In order for the information to be comparable, companies' financial year should have ended on March 20.
2) During the fiscal years 2009 to 2019, there was no change in activity or change in fiscal year.

3) The companies studied should have not been among the insurance companies, investment companies, financial and credit institutions, banks, or leasing companies.
4) Information pertaining to the variables chosen in this research should have been available in the research period.

Asquith et al. (1994) introduced a criterion for identifying healthy and distressed companies, based on which a company is chosen as distressed when two consecutive years before profit and interest as well as depreciation of tangible and intangible assets of the company are less than the reported interest costs, or in each year the profit before tax, interest, and depreciation of the company are less than 80% of the cost of interest. According to the study of Aliakbarlou et al. (2020), this criterion has the highest distinguishing power of healthy and distressed companies. In the present study, the aforementioned criterion has been used as a specific sampling criterion for distressed and healthy companies. Having determined the distressed company, a healthy (non-distressed) company, almost the same size, which does not have the characteristics of financial distress, has been chosen from the corresponding industry.

Research Variables

Financial Distress

In this study, financial distress is considered as a dependent variable and is a two-part variable: in case a company meets the distress criteria, number one is assigned to it, otherwise, zero is assigned accordingly.

Efficiency of Inventory Management

In this study, the efficiency of inventory management has been estimated according to the research conducted by Elsayed and Wahba (2013):

$$\text{efficiency of inventory management} = \frac{mean\ of\ inventory}{sale} \qquad \text{Model (1)}$$

The equation above shows if the company is capable of retaining the inventory at low level with respect to its normal sale. In addition, the mean of inventory is estimated using the following equation:

$$\text{mean of inventory management} = \frac{beginning\ of\ period\ goods\ manufactured + ending\ of\ period\ goods\ manufactured}{2} \qquad \text{Model (2)}$$

The equation above represents if the company is capable of retaining its inventory level according to its current sale rate. Since such an equation can be different from one period to another, it can be an indicator for the weak management of inventory; the reversed equation is used to show that the more the value, the better the inventory management (Elsayed & Wahba, 2013).

Moderating Variables

Behavioral Management Strains

Among different strains of management, overconfidence, myopia, and narcissism have been taken into consideration in this study.

Overconfidence

Due to the fact that since 2019 the first predicted earnings per share have not been provided by Iranian companies, the predicted earnings criterion could not be used to identify the overconfident companies. Hence, the following five criteria have been used for companies' overconfidence; if the company has at least three criteria, it is considered as overconfident (Bon Kim & Zhang, 2013). These criteria are as follows.

1) Overinvestment ($overlnv_{i,t}$):

According to the study led by Ahmed and Duellman (2013), it is the investment surplus that is obtained from the regression of asset growth relative to the sales growth at the industry level. If the regression is obtained for each industry, then based on the regression obtained, the remainder of the actual and predicted value is obtained. If the remainder is positive, it means that the company has made too much investment, and for the variable $overlnv_{i,t}$, number one is assigned; otherwise, it is zero (Bon Kim et al., 2013).

$$ASSET.GR_{i,t}=\beta_0+\beta_1 SALES.GR_{i,t}+£_t \quad \text{Model (3)}$$

ASSET.GRi,t: asset growth in year t

$$ASSET.GR_{i,t}= (ASSETS_t/ASSETS_{t-1})-1 \quad \text{Model (4)}$$

SALES.GRi,t: sales growth in year t

$$SALES.GR_{i,t=} (SALES_t/SALES_{t-1})-1 \quad \text{Model (5)}$$

2) Net sum of cash flows:

It is a dummy variable that indicates the management overconfidence if the net cash flow of the company is more than the average of the net cash flow of the same period of the relevant industry companies. If this is the case, then number one is assigned; otherwise, it is zero.

3) Debt to equity ratio:

It is a dummy variable that indicates the management overconfidence if the debt to equity ratio of the company is more than the average of the debt to equity ratio of the same period of the relevant industry companies. If this is the case, number one is assigned; otherwise, it is zero.

4) Dividends sharing policy (DIVYLD):

It is a dummy variable. In case the company has not distributed cash dividends, number one is assigned; otherwise, it is zero.

5) Capital expenditure ratio (CAPEXi,t):

As suggested by the study of Ben-David et al. (2010) and Malmendier and Tate (2005), it is a dummy variable that indicates the management overconfidence if the capital expenditure ratio of the company is more than the average of the capital expenditure of the same period of the relevant industry companies. If this is the case, then number one is assigned; otherwise, it is zero. The capital expenditure ratio is calculated as capital expenditures divided by beginning total assets.

Myopia

Myopia is measured using the method developed by Anderson and Hsiao (1982), which is consistent with the study of Moradi and Bageri (1393). Anderson and Hsiao (1982) performed statistical analysis concerning the time series regression models. Moradi and Bageri (2014) stated that in order to identify and pinpoint the myopic companies, it is necessary to determine three variables, namely the expected level of return on assets, marketing costs, and research and development costs for each company in each time period, because myopic managers draw their attention toward the improvement of short-term performance. Hence, the following model is used to estimate managers' myopic tendencies:

$$ROA_{i,t} = \beta_0 + \beta_1 ROA_{i,t-1} + \varepsilon_{i,t} \quad \text{Model (6)}$$

$$MKTA_{i,t} = \beta_0 + \beta_1 MKT_{i,t-1} + \varepsilon_{i,t} \quad \text{Model (7)}$$

$$R\&D_{i,t} = \beta_0 + \beta_1 R\&D_{i,t-1} + \varepsilon_{i,t} \quad \text{Model (8)}$$

ROA: (expected level of return on assets) equals to the ratio of net profit to total assets

MKTA: (expected level of marketing cost) equals to the ratio of marketing and sales costs to total assets.

R&D: (expected level of research and development cost) equals to the ratio of research and development cost to total assets.

Having calculated the above variables using the mentioned models, the predicted values are compared with the actual values, and the predicted error is calculated. Concerning that most companies lack the element of research and development costs, the administrative and organizational costs were used in lieu of the research and development costs (Heydary Farahany et al., 2019). A company is deemed to be myopic if it has reduced marketing as well as research and development costs according to the positivity of companies' performance. In this study, companies with myopic managers and non-myopic managers were assigned numbers one and zero, respectively.

Narcissism

Jia et al. (2014) provided a method to measure managers' narcissism. In their study, they examined how the CEO tends to represent the masculine behaviors using an inappropriate facial feature from managers' photographs. In so doing, they used testosterone index and its effect on facial behavior and shape. Therefore, the present study makes use of this index to measure the narcissism. To measure this index, the ratio of the width to the height of the CEO's face (fWHR) is measured as the distance between the two temples with respect to the distance between the upper lip and the highest point of the eyelid (upper face height).

If such a ratio is greater than the average ratio of the samples, the manager is deemed to narcissistic and number one is assigned to the variable. Otherwise, zero is assigned to the corresponding variable.

Control Variables

These variables include financial performance scales, i.e., the ratio of net operating cash flow to total liabilities, the ratio of net financing cash flow to total liabilities, ratio of net cash flow of investment to total liabilities, a financial leverage scale emphasizing the ratio of total

liabilities to total assets, a cash ratio indicating the current ratio, and the size of the company revealing the natural logarithm of the total assets of the company (Mansourfar et al., 2015).

Research Models

The following models are used to test the hypotheses.

Hypothesis 1: The efficiency of inventory management has a negative and significant effect on financial distress

$$P_{i,t}\left(Distress_{i,t}\right)=\{1+exp[-(\beta_0+\beta_1 EIM+\beta_2*Size_{i,t}+\beta_3*OCFTL_{i,t}+\beta_4*FCFTL_{i,t}+\beta_5*ICFTL_{i,t}+\beta_6*TLTA_{i,t}+\beta_7*CR_{i,t})]\} \quad \text{Model (9)}$$

Hypothesis 2: Management overconfidence has a moderating effect on the relationship between the efficiency of inventory management and financial distress.

$$P_{i,t}\left(Distress_{Overcon}\right)=\{1+exp[-(\beta_0+\beta_1*EIM_{i,t}+\beta_2*EIM*Overcon+\beta_3*+\beta_4*OCFTL_{i,t}+\beta_5*FCFTL_{i,t}+\beta_6*ICFTL_{i,t}+\beta_7*TLTA_{i,t}+\beta_8*CR_{i,t}+\varepsilon)]\} \quad \text{Model (10)}$$

Hypothesis 3: Management myopia has a moderating effect on the relationship between the efficiency of inventory management and financial distress.

$$P_{i,t}\left(Distress_{MYP}\right)=\{1+exp[-(\beta_0+\beta_1*EIM_{i,t}+\beta_2*EIM*MYP+\beta_3*Size_{i,t}+\beta_4*OCFTL_{i,t}+\beta_5*FCFTL_{i,t}+\beta_6*ICFTL_{i,t}+\beta_7*TLTA_{i,t}+\beta_8*CR_{i,t}+\varepsilon)]\} \quad \text{Model (11)}$$

Hypothesis 4: Management narcissism has a moderating effect on the relationship between the efficiency of inventory management and financial distress.

$$P_{i,t}\left(Distress_{Narcissm}\right)=\{1+exp[-(\beta_0+\beta_1*EIM_{i,t}+\beta_2*EIM*Narcissm+\beta_3*Size_{i,t}+\beta_4*OCFTL_{i,t}+\beta_5*FCFTL_{i,t}+\beta_6*ICFTL_{i,t}+\beta_7*TLTA_{i,t}+\beta_8*CR_{i,t}+\varepsilon)]\} \quad \text{Model (12)}$$

where P (Distress) is the likelihood of companies' financial distress, Distress is a two-part variable, which equals to one if the company is financially distressed and zero if not financially distressed, Exp is the exponential function, EIM is the efficiency of inventory management, Overcon is the management overconfidence, MYP is the management myopia, Narcissism is management narcissism, Size is the size of company, OCFTL is the net operating cash flow to total liabilities, FCFTL is the ratio of net financing cash flow to total liabilities, ICFTL is the ratio of investment net cash flow to total liabilities, TLTA is the ratio of liabilities to total assets, and CR is the current ratio (current assets divided by current liabilities).

Data Analysis and Hypotheses Testing

Having examined all companies, 178 year-company met at least one of the criteria of distress, and sufficient information concerning the efficiency of inventory management was attained. Accordingly, 178 year-healthy company cases from the year-company cases under study were chosen. In the overconfidence hypothesis, 5 year-distressed company, and in the narcissism hypothesis, 66 year-distressed companies lacked thorough information. These were excluded from the data under examination. The statistical population of the study is summarized as follows.

Table 1. Table of Research Samples

Number of companies surveyed	2156 Year – Company
Number of distressed companies based on the criterion of 80% interest rate	183 Year – Company
Number of distressed companies based on interest> Net profit	106 Year – Company
Number of companies with at least one criterion of distressed	193 Year – Company
Number of companies lacking sufficient information inventory management efficiency	15 Year – Company
Number of eligible distressed companies	178 Year – Company

	Overconfidence	**Myopia**	**Narcissism**
Number of year-distressed companies	178	178	178
Number of year-companies without complete information	(5)	0	(66)
Number of year-distressed companies accessible to information	173	178	112
Number of year-healthy companies selected	173	178	112
The whole year-companies under review	346	356	224

Descriptive statistics include a set of methods used to collect, summarize, classify, and describe data. In this study, management behavioral strains were measured as nominal and two-way moderating variables. Therefore, the interpretation of the results pertaining to average and median did properly describe the variables, and the best way was to use the percentage and number of years of companies belonging to a particular group. The following figure summarizes these results:

Table 2. Descriptive Statistics of Two-Way Variables

	Company type	**Percentage of behavioral strain parameter**	**Number of companies**
Overconfidence	Distressed companies	0.32	56
	Healthy companies	0.39	68
Myopia	Distressed companies	0.09	17
	Healthy companies	0.16	29
Narcissism	Distressed companies	0.53	60
	Healthy companies	0.46	52

According to the table above, 0.32 of distressed companies and 0.39 of healthy companies have overconfident managers. According to the results, there are more overconfident managers in healthy companies. Due to the low difference between these two percentages, it is likely that overconfidence has no effect on the financial distress confronting in the sample companies. The myopia variable has been observed in 0.09 of distressed companies and in 0.16 of healthy companies. The aforementioned index has a low value in both types of companies (healthy and distressed) and is less in distressed companies when compared to the healthy companies. Therefore, one can say regarding the sample companies that such an index probably does not have much effect on the financial distress confronting. Narcissism is observed in 0.53 of distressed companies and in 0.46 of healthy companies. Such a behavioral strain includes half of the companies in both types of companies, namely the healthy and the distressed ones. This value is shared more in distressed companies than the healthy companies. Thus, narcissism is not effective when financial distress confronting is the core of attention due to the low difference between these two percentages.

The following figure shows descriptive statistics pertaining to the inventory management variable (as the independent variable) and the control variables. Given that the number of companies under study is equal to the number of companies in the third hypothesis (myopia), the descriptive statistics in the first and third hypotheses are the same and only one of them is illustrated in the table below. Considering that each hypothesis has a different number of

observations and the mean as well as median are different in each hypothesis, the data in the table show that the mean and median are close to each other in each hypothesis, and no big difference exists in each hypothesis.

Table 3. Descriptive Statistics Concerning the Efficiency of Inventory Management and Control Variables

	Variable name	Variable	Mean	Median	Maximum	Minimum
Overconfidence	Inventory management efficiency	EIM	4.10	3.25	11.46	0.71
	Current ratio	CR	1.25	1.12	2.74	0.44
	Net cash flow of financing / total debt	FCFTL	0.02	0.01	0.23	-0.17
	Net investment cash flow / total debt	ICFTL	-0.03	-0.01	0.13	-0.32
	Net operating cash flow / total debt	OCFTL	0.13	0.08	0.65	-0.12
	Size of the company	Size	13.67	13.47	19.31	10.35
	Financial leverage	TLTA	0.70	0.69	1.32	0.26
Myopia	Inventory management efficiency	EIM	4.11	3.26	11.33	0.76
	Current ratio	CR	1.24	1.12	2.68	0.43
	Net cash flow of financing / total debt	FCFTL	0.02	0.01	0.24	-0.17
	Net investment cash flow / total debt	ICFTL	-0.03	-0.02	0.12	-0.32
	Net operating cash flow / total debt	OCFTL	0.13	0.08	0.63	-0.12
	Size of the company	Size	13.70	13.53	18.17	10.35
	Financial leverage	TLTA	0.70	0.69	1.34	0.26
Narcissism	Inventory management efficiency	EIM	4.33	3.56	11.08	0.92
	Current ratio	CR	1.20	1.09	2.59	0.42
	Net cash flow of financing / total debt	FCFTL	0.02	0.01	0.23	-0.15
	Net investment cash flow / total debt	ICFTL	-0.04	-0.02	0.11	-0.34
	Net operating cash flow / total debt	OCFTL	0.12	0.07	0.62	-0.12
	Size of the company	Size	14.15	13.87	18.99	10.50
	Financial leverage	TLTA	0.73	0.72	1.50	0.29

The present study was performed using the logistic regression. The most important feature of the logistic regression method is that there is no need to make assumptions about the normality and homogeneity of covariance matrices. Prior to testing the hypotheses, the correlation of research variables was examined using Spearman correlation coefficient for each hypothesis and the results showed that there is no strong correlation between research variables in each hypothesis.

Testing the First Hypothesis

Hypothesis: The efficiency of inventory management has a negative and significant effect on financial distress.

According to the multicollinearity test performed for the research variables, there is no strong collinearity between the research variables. The statistic value of the likelihood ratio is 183.96 and considering that the significance level is less than 0.05, the overall regression model is significant. It is revealed through examining the statistic related to the efficiency of inventory management variable and its probability that since the probability level of the mentioned statistic is less than 0.05, one cannot reject the research hypothesis at 0.95 confidence level, indicating that the efficiency of inventory management has a negative and significant effect on the financial distress confronting. McFadden's determination coefficient, which is equal to 0.37, shows that the efficiency of inventory management along with control variables in total can justify 0.37 of the probability of financial distress.

Table 4. Testing the First Hypothesis

Variable	Coefficient	Statistics Z	Probability	VIF
C	2.89	1.69	0.08	-
Inventory management efficiency	-0.13	-2.65	0.00	1.06
Current ratio	-1.65	-3.84	0.00	2.12
Net cash flow of financing / total debt	-0.40	-0.21	0.82	1.57
Net investment cash flow / total debt	5.65	2.33	0.01	1.45
Net operating cash flow / total debt	-4.84	-3.50	0.00	1.98
Size of the company	-0.13	-1.41	0.15	1.09
Financial leverage	3.13	3.80	0.00	2.09
McFadden R-squared	0.37	LR statistic		183.96
Probability (LR statistic)		0.00		

Testing the Second Hypothesis

Hypothesis: Management overconfidence has a moderating effect on the relationship between the efficiency of inventory management and financial distress.

According to the multicollinearity test performed, there is no strong collinearity between the research variables. The statistic value of the likelihood ratio is 170.65 and considering that the significance level is less than 0.05, the overall regression model is significant. It is revealed through examining the statistic related to the efficiency of inventory management variable and overconfidence as well as its probability that since the probability level of the mentioned statistic is more than 0.05, there are no sufficient evidences for the lack of hypothesis rejection at 0.95 confidence level. Therefore, the research hypothesis is rejected, indicating that the management overconfidence does not have a moderating effect on the relationship between the efficiency of inventory management and financial distress confronting. McFadden's determination coefficient, which is equal to 0.35, shows that the research variables in total can justify 0.35 of the probability of financial distress.

Table 5. Testing the Second Hypothesis

Variable	Coefficient	Statistics Z	Probability	VIF
C	3.49	2.07	0.03	-
Inventory management efficiency	-0.11	-1.82	0.06	1.57
Inventory management efficiency * overconfidence	-0.00	-0.10	0.91	1.54
Current ratio	1.58	-3.69	0.00	2.23
Net cash flow of financing / total debt	-0.65	-0.34	0.73	1.56
Net investment cash flow / total debt	4.73	2.01	0.04	1.45
Net operating cash flow / total debt	-4.65	-3.41	0.00	1.99
size of the company	-0.18	-1.91	0.05	1.09
Financial leverage	2.94	-3.58	0.00	2.20
McFadden R-squared	0.355	LR statistic		170.65
Probability (LR statistic)		0.00		

Testing the Third Hypothesis

Hypothesis: Management myopia has a moderating effect on the relationship between the efficiency of inventory management and financial distress.

According to the multicollinearity test performed, there is no strong collinearity between the research variables. The statistic value of the likelihood ratio is 186.62 and considering that the significance level is less than 0.05, the overall regression model is significant. It is revealed through examining the statistic related to the efficiency of inventory management variable and myopia as well as its probability that since the probability level of the mentioned statistic is more than 0.05, there are no sufficient evidences for the lack of hypothesis

rejection at 0.95 confidence level. Therefore, the research hypothesis is rejected, indicating that the management myopia does not have a moderating effect on the relationship between the efficiency of inventory management and financial distress confronting. McFadden's determination coefficient, which is equal to 0.37, shows that the research variables in total can justify 0.37 of the probability of financial distress.

Table 6. Testing the Third Hypothesis

Variable	Coefficient	Statistics Z	Probability	VIF
intercept	2.70	1.57	0.11	-
Inventory management efficiency	-0.11	-2.23	0.02	1.13
Inventory management efficiency * myopia	-0.18	-1.61	0.10	1.07
Current ratio	-1.59	-3.69	0.00	2.16
Net cash flow of financing / total debt	-0.41	-0.21	0.83	1.57
Net investment cash flow / total debt	5.35	2.20	0.02	1.45
Net operating cash flow / total debt	-4.88	-3.35	0.00	1.98
size of the company	-0.13	-1.38	0.16	1.09
Financial leverage	3.25	3.91	0.00	2.11
McFadden R-squared	0.37	LR statistic		186.62
Probability (LR statistic)		0.00		

Testing the Fourth Hypothesis

Hypothesis: Management narcissism has a moderating effect on the relationship between the efficiency of inventory management and financial distress.

According to the multicollinearity test performed, there is no strong collinearity between the research variables. The statistic value of the likelihood ratio is 117.80 and considering that the significance level is more than 0.05, the overall regression model is significant. It is revealed through examining the statistic related to the efficiency of inventory management variable and narcissism as well as its probability that since the probability level of the mentioned statistic is more than 0.05, there are no sufficient evidences for the lack of hypothesis rejection at 0.95 confidence level. Therefore, the research hypothesis is rejected, indicating that the management narcissism does not have a moderating effect on the relationship between the efficiency of inventory management and financial distress confronting. McFadden's determination coefficient, which is equal to 0.37, shows that the research variables in total can justify 0.37 of the probability of financial distress.

Table 7. Testing the Fourth Hypothesis

Variable	Coefficient	Statistics Z	Probability	VIF
intercept	-0.61	-0.26	0.78	-
Inventory management efficiency	-0.16	-2.14	0.03	1.36
Inventory management efficiency * narcissism	0.04	0.67	0.49	1.35
Current ratio	-1.49	-2.77	0.00	1.93
Net cash flow of financing / total debt	-0.84	-0.31	0.75	1.76
Net investment cash flow / total debt	5.77	1.84	0.06	1.58
Net operating cash flow / total debt	-4.86	-2.52	0.01	2.14
size of the company	0.05	0.41	0.68	1.11
Financial leverage	3.92	3.64	0.00	1.96
McFadden R-squared	0.37	LR statistic		117.80
Probability (LR statistic)		0.00		

Conclusion and Discussion

Today, organizations perform in an environment that is growing and very competitive, and companies have to compete with many factors nationally and internationally to survive in order to improve the company's operations and avoid the financial distress. In the current economic environment, inventories are one of the most important and strategic assets and resources of any company. These have always been a large part of companies' investments and consumption of resources, and are very important in terms of the quantity, thereby significantly affecting companies' profitability. As the core of decision making in companies, managers have different behavioral characteristics that are influential on making decisions about the inventory. Therefore, the present study aimed to investigate the effect of inventory management efficiency on financial distress and the moderating effect of behavioral strains, including overconfidence, short-sightedness, and narcissism on the afore-mentioned relationship.

The first hypothesis examined the effect of inventory management efficiency on the likelihood of financial distress. The results showed that inventory management efficiency has a negative and significant effect on the likelihood of financial distress confronting. The results of this study are consistent with the findings of Namazi et al. (2012). However, our findings are different from the results reported by Zamani et al. (2019), because in the afore-mentioned study, the adverse effect of inventory management on distressed companies was examined, while in the present study the efficiency of inventory management on the probability of financial distress confronting has been addressed. Accordingly, reducing the level of inventory and costs, successful inventory management improves the financial conditions of the company and prevents wastage of resources and lack of getting benefit from the investment opportunities.

The second hypothesis investigated the moderating effect of management overconfidence on the relationship between inventory management efficiency and the likelihood of financial distress. The results showed that overconfidence as a moderator reduces the efficiency of inventory management and leads the company toward distress, but such a relationship is not statistically significant. The results of this study are consistent with the findings of Wang and Zhou (2017). One of the characteristics of overconfident managers is the nature of their future-oriented overconfidence, where they maintain more inventory than usual. With this increase in inventory and costs, they reduce the efficiency of inventory management and increase financial distress.

The third hypothesis examined the moderating effect of management myopia on the relationship between inventory management efficiency and the likelihood of financial distress confronting, and the results emphasized that management myopia reduces the likelihood of financial distress by increasing the efficiency of inventory management, which is not statistically significant. The findings of the current study do not correspond to the ones reported by Didar et al. (2018). In that study, companies were found to reduce the value of the company by not directing their attention toward the long-term costs, while in the present study it was found that managers' attention to short-term costs, inventories reduction, and warehousing cost decrease reduces the likelihood of financial distress confronting.

The fourth hypothesis examined the moderating effect of management narcissism on the relationship between inventory management efficiency and the likelihood of financial distress confronting. The outcomes illustrated that management narcissism increases the likelihood of financial distress by reducing inventory management efficiency; however, this relationship was not statistically significant.The results obtained from the present study do not correspond

to the findings reported by Gholipor et al. (2009) in which reducing the efficiency of inventory management causes problems for the organization, but it isn't visible.

Selfish managers may be optimistic regarding taking actions that people find impossible or unlikely to succeed, thus maintaining a higher level of inventory, which causes the reduction pertaining to the efficiency of inventory management.

A possible reason for the ineffectiveness of management behavioral strains on the relationship between inventory management efficiency and financial distress can be due to the financial distress criterion, which leads to the selection of companies, as mentioned in the descriptive statistics section. The behavioral strains are not highly different in healthy and distressed companies; therefore, they cannot affect financial distress or the relationship between inventory management efficiency and financial distress.

Based on the results of the study, the policy makers of manufacturing and stock exchange companies are suggested to consider the efficiency of inventory management and inventory management decisions as effective factors in the company's performance to prevent the occurrence of financial crisis. Before any decision is made, shareholders and creditors are also advised to examine the ratios of inventory as well as its efficiency, and obtain information about the company's performance and the possibility of future profitability before investing their capital in companies with financial distress.

Researchers are also encouraged to conduct the present study using other criteria to determine the financial distress, such as Article 141 of the Commercial Code of Iran, and compare their findings with the results of this study. In addition, they can use the management abilities or other behavioral strains of management variables.

Every study faces limitations that appear in the path of realization and cause problems that make it difficult to generalize the results. In the present study, due to the lack of access to the photos of all CEOs of companies, the number of narcissistic sample companies was limited to companies where the CEO's photo was available.

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