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Cash Holding and Bankruptcy Risk with The Role of Moderator of Corporate Social Responsibility

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Abstract

Bankruptcy is a severe issue for the economic life of countries, and the prediction of bankruptcy is of great importance for different groups, including managers, banks, investors, policymakers, and auditors; therefore, the purpose of this research is to investigate the effect of Cash Holdings (CHs) and bankruptcy risk with the role of the moderator of Corporate Social Responsibility (CSR). For this purpose, information on companies over a 9 year period from 2014 to 2022 was reviewed and 112 companies were selected. A multivariate regression method was used based on the combined data analysis method using Eviews software to test the research hypotheses. The results indicate that CH has a positive and significant effect on the bankruptcy risk and that the intensity of CSR moderates the impact of CH on the bankruptcy risk.

Keywords: Cash holding, Bankruptcy risk, Corporate social responsibility.

1 | Introduction

Increased competition and drastic technological changes in the commercial arena have exposed commercial enterprises to various operational and commercial risks. In such a situation, companies do not have enough knowledge about the possibility of different decision conditions in the future, and business unit managers try to take measures to reduce somehow or eliminate the risk caused by the uncertainty in their business environment. One of the most important measures is CH. Maintaining cash is the main source of any company that wants to improve its liquidity and increase its investment. However, most companies worldwide have faced liquidity shortage problems and have gone bankrupt. Their capital position has also decreased, especially after the last global financial crisis, and some of them have gone into liquidation [1]. Accordingly, the management of financial crises is based on the level of CHs. Therefore, the decline in market demand and the economic recession, together with the intense circulation of capital, will lead to a decrease in the company's CHs over time. Companies should try to maintain a higher level of cash to avoid unexpected

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consequences of unstable economic conditions. For example, Aflatooni [2] states that there are several motives behind firm's higher CH levels. Protective or defensive motivations for CH are important to ensure that companies can face any financial crisis and manage the resulting financial shortfall. As a precautionary measure, companies always keep some assets in cash to deal with unexpected financial crises and the accompanying uncertainties.

Cash is one of the most important liquid assets on a company's balance sheet. Static equilibrium theory shows that the optimal level of CHs is determined by the balance between the benefits and marginal costs of CH to maximize shareholder wealth [3].

According to liquidity preference theory, the benefits of CH derive from the incentives of liquid assets: the transaction cost incentive, the precautionary incentive, and the speculative incentive. Consistent with the transaction cost incentive, CH allows firms to reduce transaction costs and the cost of debt financing. The precautionary motive refers to CH as a safety margin to protect against unexpected volatility and future cash flow deficits [4]. In addition, the speculative motive argues that economic agents hold cash or marketable securities to benefit from rising interest rates in the long run. In contrast, hierarchy theory shows no optimal level of CHs [5].

According to [6], firms make several decisions about the type of money they will use to finance their investments in a particular order. First, companies prefer to use internal funds. Second, they tend to sell off their liquid assets and may eventually turn to external sources of finance. Based on the theory of free cash flow, managers may depend on cash to achieve various benefits [7]. Investors, therefore, undervalue CHs when they expect managers to use them for their benefit, especially when there is a conflict of interest regarding dividend policy. In this regard, previous studies such as Dittmar et al. [3] and Al-Najjar [8] confirmed that firms operating in countries with low shareholder support tend to hoard more cash due to higher managerial discretion exercised by top management compared to firms operating in countries with high shareholder support.

Moreover, [9] find that the relationship between CHs and firm value could be more robust in poor countries with weak shareholder rights. In contrast, substantial, large shareholders support governance and monitoring and thus improve the market value of CHs [10]. On the other hand, the financial bankruptcy of a company is a frequent topic in the financial literature. The importance of bankruptcy is that its complications and negative effects affect not only the bankrupt entrepreneur or company but, depending on the extent of the business activity of the entrepreneur or company, third parties, and creditors. Moreover, the parties to the transaction with the businessman or company are also affected by it, and sometimes, if the activity of the company is extensive, it leads to other bankruptcies and unemployment of their workers and employees, and it brings unfortunate consequences for the country's economy [11].

Like other capital markets worldwide, the Iranian capital market has many companies operating; as a rule, some companies perform well, and some perform poorly. Those who are interested in investing on the stock market (whether at the level of small investors or institutional investors) must have information on the not-too-distant future of these companies, in addition to the current state of the company (in terms of financial and economic indicators), in order to select suitable companies for investment. Because there are a large number of companies that are operating and showing good performance, but if the routine of these companies is studied for several years and a simple estimate of the future is made, these companies may be placed in the category of companies that are not financially healthy and in the verge of bankruptcy. For this reason, owners of capital are looking for appropriate decision-making tools. Therefore, bankruptcy prediction can have an important impact on decisions related to granting facilities and the profitability of financial firms [12].

2 | Literature and Hypotheses

2.1 | Cash Holding

Cash management encompasses a wide range of activities related to the collection, maintenance, and disbursement of cash to determine the business unit's liquidity requirements and manage cash and short-term investments. Economists have put forward various reasons to justify CH within the firm, the most famous of which is Keynes's motive for CH. According to Keynes, the theory of the demand for money, which he called the liquidity preference theory, begs the question: why do firms cash hold? In answering this question, he considered three types of motivations for the demand for money, i.e., trading motivation, precautionary motivation, and speculative motivation, in contrast to the classics, which relied only on the transactional demand for money.

Based on the trading motivation, people often prefer to cash hold to secure their transactions. Based on precautionary motives, people prefer to hold some cash to deal with unexpected situations that lead to unusual expenses. Finally, the speculative demand for money means that money is held with the intention and hope of making profitable transactions and taking advantage of opportunities that will arise in the future. The amount of cash a company holds is influenced by several factors, including transaction costs, opportunity costs, and information asymmetry. Transaction costs are always present in financial markets. These costs and the cost of lost opportunities ensure that firms maintain an optimal level of cash.

The problem of information asymmetry also creates a precautionary demand for cash balances; because information asymmetry increases the problems and costs of external financing, information asymmetry between firms and the capital market is a precautionary motive for firms' liquidity demand. CH has its costs. Holding large amounts of cash by companies can lead to a conflict of agency between managers and shareholders, which can strengthen management's authority and harm shareholders' interests. In other words, holding large amounts of cash creates an opportunity cost for the company because cash has a low rate of return and affects the market return as well as the operational performance of companies.

On the other hand, the failure to hold enough cash for firms facing financing constraints may lead to the loss of future investment opportunities and, therefore, hurt the future performance and profitability of firms; nevertheless, some theories talk about the benefits of cash-holding and believe that firms hold high levels of cash to take advantage of possible future investment opportunities, in which case, ignoring the agency conflict theory, they expect to increase the efficiency and future performance of firms.

2.2 | Risk of Bankruptcy

The risk of bankruptcy (financial insolvency), caused by the inability of companies to meet their obligations and debts to investors, occurs when the company cannot control and manage liquidity risk, loses its liquidity reserve, and decides to sell its liquid assets. Alternatively, to borrow money from the market. In particular, the risk of financial insolvency creates conditions in which the firm's liabilities exceed its assets and, as a result, the net value of the firm's balance sheet becomes negative. According to Altman's [13] definition, bankruptcy occurs when the firm cannot pay its debts and ceases to operate. The causes of bankruptcy can generally be divided into internal and external causes. External causes include economic system characteristics, competition, changes in trade and improvements and shifts in public demand, trade fluctuations, financing, and accidents.

Internal causes of business failure are factors the business unit can prevent by taking appropriate measures. Most of these factors are caused by wrong decisions, and responsibility should be placed directly on the business unit. These factors include giving too much credit, inefficient management, insufficient capital, betrayal, and fraud [14].

2.3 | Corporate Social Responsibility (CSR)

Conventional accounting, which emphasizes the measurement and reporting of transactions and economic events, ignores the social transactions of business units with the community around them. The consequences of these social transactions are social costs, which are reductions in social resources, and social benefits, which are increases and improvements in social resources. The ultimate goal of social accounting is to measure and report these resources, costs, and social benefits [15]. The organization's social responsibility is the connection and unity between the organization's activities and values in such a way that the interests of all stakeholders, including shareholders, customers, employees, investors, and society at large, are reflected in the organization's policies and performance. In other words, the organization should always see itself as a part of society, feel responsible for society, and strive to improve the public good independently of the direct interests of the company. The means of informing society about the fulfillment of the organization's social responsibility is the organization's social reporting [16].

Corporate Social Responsibility CSR has four dimensions: 1) Economic dimension-the most important dimension of organizations' social responsibility is the economic dimension, in which economic activities and actions are considered, 2) Legal dimension-the second dimension of social responsibility is the legal dimension, and organizations must act within the framework of public laws and regulations, 3) Ethical dimension-the ethical dimension of organizational social responsibility is the third dimension. Like other members of society, organizations are expected to respect people's values, norms, and beliefs and be sensitive to ethical issues, and 4) General and national dimension-the fourth dimension of social responsibility is the national dimension, which includes top managers' expectations, desires, and policies at the macro level.

Hypothesis 1. CHs have a significant effect on bankruptcy risk.

About the first hypothesis of the research, the null hypothesis and the opposite hypothesis are as follows:

H0: CH has no significant effect on the risk of bankruptcy.

H1: CH has a significant effect on the risk of bankruptcy.

Regarding the second hypothesis of the research, the null hypothesis and the opposite hypothesis are as follows:

H0: CH has no significant effect on bankruptcy risk with the role of CSR moderator.

H1: CH significantly affects the risk of bankruptcy with the role of CSR moderator.

3 | Research Methodology

3.1 | Statistical Sample

The statistical population of this research includes companies admitted to the Tehran Stock Exchange. The study's time domain is from the beginning of 2014 to the end of 2022, for nine years. Also, according to the conditions and restrictions, 112 companies were selected from the companies admitted to the Tehran Stock Exchange. Taking into account the following conditions, a limited and targeted research community is obtained from the companies listed on the Tehran Stock Exchange, and this community is used as a sample.

I. To maintain comparability, the financial year should be the same for all companies and the end of the year.

II. The companies did not change their financial period during the period examined (2014-2022).

III. The companies have not changed their type of activity during the investigated time range (2014-2022).

IV. Companies should not be part of investment and brokerage firms, banks, or insurance companies.

V. Its data is available.

A sample of 112 companies from the Tehran Stock Exchange was examined according to the restrictions applied.

2.3 | Model and Variables

This study used the following regression model to test the hypothesis. It was taken from the survey of Seyed and Khalil [17]:

$$Z-score_{it}=\beta_1+\beta_2 CH_{it}+\beta_3 CSR_{it}+\beta_4 SIZE_{it}+\beta_5 LIQ_{it}+\beta_6 BIG_{it}+\beta_7 LEV_{it}+\beta_8 SALGROW_{it}+\varepsilon_{it} \quad (1)$$

$$Z-score_{it}=\beta_1+\beta_2 CH_{it}+\beta_3 CSR_{it}+\beta_4 CSR_{it}*CH_{it}+\beta_5 SIZE_{it}+\beta_6 LIQ_{it}+\beta_7 BIG_{it}+\beta_8 LEV_{it}+\beta_9 SALGROW_{it}+\varepsilon_{it} \quad (2)$$

Dependent variables

Z-score, bankruptcy risk: in this study, Altman's modified Z-criterion was used to calculate bankruptcy risk in financial statements:

$$Z=1.2X_1+1.4X_2+3.3X_3+0.6X_4+1.0X_5.$$

X_1: ratio of working capital to total assets.

X_2: ratio of retained earnings to total assets.

X_3: ratio of earnings before interest and taxes to total assets.

X_4: ratio of book value of liabilities to market value of equity.

X_5: ratio of total assets to sales.

CH: cash and cash equivalents held/total assets.

Modifier variable

CSR: social responsibility of the company.

The variable of the current research is social responsibility.

In the study mentioned above, the authors used the measurement criteria of the famous American institute called KLD, which ranks organizations every year based on social and environmental criteria, as well as the criteria according to the Iranian standard, which is used in the reports of the Board of Directors, based on the nature of the disclosure. Social responsibility in the above research has four dimensions, each with strengths and weaknesses. By differentiating the strengths from the respective weaknesses, the score for that dimension is obtained. Finally, an overall social responsibility score is obtained by summing all the above dimensions. It should be noted that if there are any relevant strengths or weaknesses, the score is considered one; if there are none, it is considered zero.

The necessary information for these variables is disclosed in the report of the company's board of directors, and in this research introduces each of the dimensions, according to the nature of disclosure in Iran, from social responsibility indicators in Iran and also from ISO 9001 quality management system certificates, ISO 14001 environmental management, OHSAS 18001 health and safety standards are used. The current model is a well-known objective and quantitative model used by official institutions in many countries to measure CSR. The model is calculated using the following relationship:

$$CSR-S=CSR-COM-S+CSR-EMP-S+CSR-ENV-S+CSR-PRO-S.$$

That,

CSR-s: social responsibility score.

CSR-COM-S: the disclosure score for social participation, which is calculated from the difference between its specific strengths and weaknesses as follows:

$$\text{CSR–COM–S} = \sum \text{Strengths} - \sum \text{Concern.}$$

These can be the scores of other dimensions of social responsibility, such as CSR-EMP-S (employee relations disclosure score), CSR-ENV-S (environmental disclosure score), and CSR-PRO-S (product characteristics disclosure score) by mentioning the scores calculated above.

Control variables

BIG is the size of the audit firm; if the audit organization is responsible for the audit of the enterprise, the number is one; otherwise, it is zero.

SIZE: company size, logarithm of the total book value of assets.

LEV: financial leverage, the ratio of debt to total assets.

LIQ: liquidity ratio, current assets divided by current liabilities.

Salgrow: growth of the company, the difference between the current income and the previous year's income, and the company's current income.

4 | Research results

4.1 | Descriptive Statistics of the Data

This section discusses and examines descriptive statistical indicators, including central indicators (maximum, minimum, mean) and dispersion indicators, including variance and standard deviation, as well as skewness and stretching indicators. *Table 1* indicates descriptive statistics of variables.

Table 1. Statistic variables.

Variable	Symbol	Mean	Median	Max	Min	SD.
Bankruptcy risk	Z	2.38	2.32	8.25	-4.87	1.86
CH	CH	0.09	0.04	0.86	0.0003	0.12
CSR	CSR	0.49	0.00	1	0.00	0.50
Company size	SIZE	14.66	14.55	20.46	10.53	1.58
Liquidity ratio	LIQ	1.51	1.31	6.88	0.07	0.91
The size of the auditor firm	BIG	0.20	0.00	1	0.00	0.40
Financial leverage	LEV	0.62	0.58	3.97	0.04	0.40
Sales growth	SALE	0.16	0.18	0.99	-1.10	0.32

The average is the most important and most used central indicator. The average value lies precisely at the data's equilibrium point and center of gravity. Variables of suitable quality do not differ significantly between their mean and median.

4.2 | Findings

In this section, panel analysis one has been used to evaluate and estimate the overall model. The reason for using this method is due to the nature of the data. In panel analysis, the data are collected cross-sectionally. In the data collected in this way, the independence of the observations is not maintained because there are several observations from each company in different years, and these observations are related to each other. In other words, the amount of data in this analysis is equal to the number of companies multiplied by the number of years. *Table 2* indicates the results of the first hypotheses test.

Table 2. Test results for the first model.

Variable	Coeff.	T Stat.	P-Value
C	1.91	2.44	0.014
CH	0.81	3.36	0.0008
CSR	-0.03	-1.89	0.0471
SIZE	-0.05	-1.34	0.177
LIQ	1.26	21.20	0.000
BIG	-0.06	-2.14	0.032
LEV	-1.22	-4.47	0.000
SALE	0.76	9.61	0.000
R2	0.90	F stat.	70.97
R2 Adjusted	0.89	P-Value	0.0000
		Durbin-Watson	1.65

According to *Table 2*, the significance level between two variables is equal to 0.0008, which is lower than the significance level considered in the present study (5%), as well as the absolute value of the t-statistic, which is equal to 3.36 of 1.96, which corresponds to the distribution The normal standard is 0.95, it is more; therefore, at the 95% confidence level, therefore, holding cash does not have a significant effect on the risk of bankruptcy, it is not confirmed and the main hypothesis is confirmed.

Table 3 indicates the results of the second hypotheses test. Meanwhile, CH significantly affects the risk of bankruptcy with the role of CSR moderator.

Table 3. The result of the second model test.

Variable	Coeff.	T Stat.	P-Value
C	0.78	0.91	0.359
CH	1.15	2.61	0.0090
CSR	0.05	0.61	0.536
CSR* CH	-1.44	-2.42	0.0154
SIZE	-0.02	-0.35	0.722
LIQ	1.26	20.47	0.000
BIG	-0.38	-1.91	0.0561
LEV	-0.16	-1.14	0.252
SALE	0.36	3.56	0.000
R2	0.90	F stat.	23.67
R2 Adjusted	0.88	(P-Value)	0.0000
		Durbin-Watson	2.06

According to *Table 3*, the significance level between two variables is equal to 0.0154, which is lower than the significance level considered in the current research (5%), as well as the absolute value of the t-statistic, which is equal to 2.42 of 1.96, which is equivalent to The standard normal distribution is 0.95, it is more; therefore, at the 95% confidence level, CH does not have a significant effect on bankruptcy risk with the role of CSR moderator, it is not confirmed and the main hypothesis is confirmed.

5 | Discussion and Recommendations, and Limitations

First hypothesis discussion and conclusion; CH has a significant impact on the risk of bankruptcy.

The results of the first hypothesis of the research show that CH has a positive and significant effect on the risk of bankruptcy. In explaining the reason for this, it can be pointed out that agency theory shows that cash or cash equivalents are more misused than other assets, so higher CHs may lead to the aggravation of agency problems. Agency theory predicts that improving CHs will not reduce credit risk and may even increase the firm's credit risk due to serious misappropriation. Accordingly, changes in the level of cash indicate changes in the company's assets and liabilities. However, a high level of cash does not necessarily imply a safe company. In this respect, the free cash flow theory argues that managers prefer to hold free cash to maximize their benefits, to the detriment of shareholder wealth.

Second hypothesis discussion and conclusion: CHs have a significant impact on the risk of bankruptcy, with the role of CSR being a moderator.

The results obtained from the second hypothesis of the research show that CH has a negative and significant effect on bankruptcy risk with the role of social responsibility moderator. In other words, CSR reduces the impact of CHs on firm risk. The reason for this can be explained by the fact that companies that participate in CSR can better manage the company's risk, which leads to a reduction in cash flow fluctuations and a decrease in unforeseen costs, ultimately reducing the risk of bankruptcy.

The following limitations existed in this research and should be considered in the interpretation and application of the research findings and their generalisability. The country's political and economic conditions and the psychological atmosphere of the Tehran Stock Exchange market are among the factors that may affect the variables of this research, but they are not controlled in the current research.

This research is affected by macro factors, such as inflation rate, interest rate of received facilities, and exchange rate, which are assumed to have the same effect for all companies and observations. At the same time, this may not be the case. Therefore, such factors may affect the results of the current research. The statistical community of this study does not include financial institutions and banks; thus, it is impossible to generalize the results to the banking and financial services industry with the benefit of this study.

Shareholders, investors, and creditors are encouraged to pay close attention to auditors' reports, financial statements, and financial statement analyses by stock market analysts so that they can identify companies that implement various dimensions of social responsibility and take them into account in their investment decisions. Invest in these companies to encourage other companies to implement these dimensions, which ultimately leads to an increase in their profits. In addition, it is suggested that the shareholders, investors, and creditors calculate the risk of the companies they are considering using risk calculation methods suitable for the Iranian capital market (provided by domestic researchers) so that they can have a safe and profitable investment.

Suggestions for future research:

I. Based on the results of this research, the following are suggested for future research.

II. Comparative evaluation of the factors influencing CH in high technology industries.

III. Examine the patterns of determining the optimal CH level in different sectors.

Author Contributions

Zahra Arefi conducted the research, including the collection and analysis of data. She also developed the study's framework and wrote the manuscript.

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Data Availability

The data supporting the findings of this study are available from the corresponding author upon request.

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