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Investigation of the Effect of Business Risk on the Value of Cash Holdings with the Moderating Role of Corporate Social Responsibility

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Abstract

This research examines the impact of business risk on the value of cash holdings, with the moderating role of Corporate Social Responsibility (CSR). This research method is applied and descriptive-correlational in terms of purpose, and the statistical population of this research is the companies listed on the Tehran Stock Exchange. In this regard, 119 companies were selected for the 10-year research period in 2014-2023. To test the hypotheses in this research, multivariate regression, and Eviews10 software were used for data analysis. The hypotheses' results show a positive and significant relationship between business risk and cash holding value. Also, CSR negatively and significantly affects the relationship between business risk and cash-holding value.

Keywords: Business risk, Value of cash holding, Corporate social responsibility.

1 | Introduction

The purpose of companies is to maximize the wealth of shareholders. In the current economic environment, where we see major changes in the business environment every day, such as the globalization of business and the high speed of technology change, this has increased competition and the difficulty of managing organizations. These changes have exposed management to various risks. Proper management of these risks will lead to the survival of the business unit [1]. Business risk identification and management is one of the new approaches used to strengthen and improve the effectiveness of business units. Due to the nature of the financial services business, risk identification is particularly important for this type of business. The researchers have also found a direct link between risk and cash because, according to the precautionary motive, firms cash hold in difficult times to reduce the likelihood of a financial crisis.

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The precautionary motive to cash hold increases when firms' cash flows are at risk [2]. Cash is one of any economic unit's most vital resources. In addition, historical information about cash flows can be useful in checking the accuracy of past estimates and showing the relationship between the business's activities and future receipts and payments. Business holds a certain percentage of their assets in cash. Given the importance of cash, managers decide whether to distribute cash to shareholders, spend it on internal expenses, or keep it, and they should always evaluate the benefits and costs of their decisions. In addition, managers' interests may require them to hold a lot of cash at the expense of shareholders' interests. Of course, cash holding can also protect companies from needing expensive external financing for future investment opportunities.

The cost of the wrong choice of external funding, or the cost of financial crises, can be very high. Companies will try to maintain high levels of liquidity to deal with unexpected cash shortages and finance investments with a positive net value. There are also problems associated with holding cash, the most important of which are representation problems between shareholders and managers. Managers can pursue their interests at the cost of losing the interests of shareholders, and in this sense, cash holding fulfills the interests of managers more than shareholders [3]. Corporate Social Responsibility (CSR) refers to the emergence of a movement that seeks to integrate environmental and social factors into companies' business decisions and business and accounting strategies to improve social and environmental performance alongside economic dimensions. Social responsibility reports inform investors about the company's current and future costs and benefits. Social responsibility reduces information asymmetry, increases investor monitoring, and ultimately reduces the opportunities for managers to misuse plan funds, which will increase cash retention. CSR increases the accuracy of the company's financial performance.

On the other hand, reducing the monitoring of the company's financial performance reduces the company's liquidity. As a result, increasing the quality of information and monitoring will increase the value of cash [4]. In line with what has been said, CSR is expected to be effective in conserving cash due to its impact on the company's risk.

The main question of this research is whether, despite the moderating role of CSR, the business risk affects the cash holding value.

2 | Theoretical Literature

2.1 | Business Risk

To understand the nature of risk, it is important to begin with its definition. Although there are many different ways of defining risk, the following definition briefly illustrates its nature: risk is the possibility of incurring a loss.

This definition includes two main aspects of risk:

I. The amount of loss must be possible.

II. Uncertainty about that loss must also exist.

Most definitions of risk refer to two aspects, namely loss and uncertainty. However, the third aspect, choice, is usually mentioned implicitly, which means how to pay attention to it. These three conditions are the basic foundation of risk and the basis for its deeper consideration [5].

The measurable potential loss of an investment is called risk. In culture and context, risk is defined as the chance and probability of damage or loss, and the financial definition and amount of risk are the probability distribution of the return on an investment. Risk is anything that threatens the present or future of assets or the ability to earn an income of a company, institution or organization.

The phenomenon of risk is one of the key characteristics of decision-making in the field of investment, financial markets, and all types of economic activity. In most economics' books, the three factors of labor, land, and capital are mentioned as the main inputs of production. However, with some reflection, three factors

are necessary for production, but sufficient conditions in the production process are nothing but risk factors. In other words, if there are three factors, but the producer does not accept the possible losses of this process, production will never occur. Therefore, some studies mention the risk factor as the fourth factor in the production process [5].

2.2 | Cash Holding Value

Efficiency expresses how much an organization has used its resources towards the production of the best performance at a given time [6]. Operational efficiency is derived from the ratio of outputs to inputs in the value-creation process and from two dimensions: cost-based efficiency and time-based efficiency. Cost-based efficiency relates to quality costs, engineering change costs, and production costs. Time-based efficiency is related to delivery speed and reliability and a production leader, which in this study is interpreted as excellent delivery speed and reliability, very short production delay time, and excellent production cycle. Rapid, responsive manufacturing is an organization-wide strategy that aims to reduce lead times in all aspects of an organization's operations. In terms of its processes and operations, the rapidly responsive manufacturing organization focuses on reducing procurement time across the organization, which improves quality, reduces costs, and, of course, enables rapid response.

Cost is part of the lost profit. When an organization implements world-class operational processes, it grows across multiple metrics, including cost, inventory turns, and customer service. Improving business processes impacts costs and other operational metrics. Today, most manufactured products are produced with direct labor costs of less than 20% or even less than 10%. While material costs account for more than half of the total cost, and the rest is related to overheads because labor costs are fixed, effectively utilizing these resources can reduce unplanned production overtime and unnecessary outsourcing. A good way to reduce overheads is to use automation to simplify business processes and make them more efficient. In addition, the cost of filling is one of the costs that usually needs to be considered. These costs include the cost of inventory, the cost of transporting goods, and the cost of storing them. Three indicators, including quality costs, total engineering changes in the production stage, and production unit costs, which refer to all unit costs or the total cost of each production, are considered cost-related operational efficiency components.

Cash management is a process that helps the company make the best use of its cash. It involves managing the company's funds to maximize their availability and the interest earned on unused funds. The two theories that dominate the discussion of cash holdings are the exchange theory and the hierarchy theory. According to the trade-off theory, companies determine the optimal level of cash holding based on a balance of benefits and costs of cash holding.

2.3 | Corporate Social Responsibility

CSR has recently attracted the global community's attention, which can be described as managing potential conflicts of interest between stakeholders about economic, environmental, social, and ethical issues. Asian capital markets are relatively non-monetary compared to Western markets. The traditional agency problem only applies in Asia because ownership and management are rarely separated. In joint stock companies, the CEO is usually the board's chairman. In addition, market regulation mechanisms cannot function properly because of the concentration of ownership. These factors have led to a slow start for CSR in Asia.

The current trend of globalization and the increasing demand from stakeholders for companies to be socially responsible encourages companies to engage in CSR. As a result of globalization, companies in developing countries are willing to enter global markets. Therefore, to be accepted in international markets, they must show they are fulfilling their social responsibilities.

CSR means clear and transparent business practices, methods based on moral values, and respect for employees, society, and the environment. CSR is planned to create sustainable value for society as a whole and for shareholders. Today, managers are responsible for planning, organizing, controlling, and responding

to society's needs and the specific needs of citizens and internal and external customers of their organizations. Social responsibility goes beyond the minimum legal requirements within which the organization operates.

CSR provides methods for organizations to act in their business environment and to respond to society's commercial, legal, and social-ethical expectations. Organizations have significant social, economic, and environmental responsibilities to their employees, shareholders, customers, governments, suppliers, and all other stakeholders. Undoubtedly, suppose people, groups, organizations, and various institutions of society consider themselves responsible for multiple events, occurrences, and crises, and each of them tries to solve the crises mentioned above within the limits of their responsibility and scope. In that case, many problems will be reduced, and a healthy society will emerge, which will happen slowly. In other words, no matter how the organization acts, its performance affects society. Therefore, organizations should do things accepted by society that align with their values. Organizations that cannot adapt to this task will not be successful in practice. In other words, for organizations to maintain or improve their position in society in a way that causes their continued survival and success in their work, it is necessary to attach special importance to social responsibility.

2.4 | Development of Hypotheses

2.4.1 | Linking business risk, cash holding, and CSR

Cash is a vital resource in any business and, the most important component of liquidity. It makes it easy and possible to continue operations and achieve goals. The increasing attention to cash levels is due to companies showing significant amounts of cash on their balance sheets. However, they should be maintained at a level that balances the cost of maintaining cash with the cost of not having enough cash. Therefore, it is very important to study the factors that influence the level of cash holdings. In the existing literature, no attention has been paid to the non-financial factors affecting the level of cash holdings. One of the most important non-financial factors affecting companies' liquidity is their level of social responsibility, and today, we see those shareholders and creditors, in addition to the financial dimensions, are paying more attention to the social responsibility obligations of companies and their disclosure.

In other words, CSR plays an important role in how investors respond to the company and, therefore, affects the financial performance of companies and the level of cash retention. Also, by participating in social responsibility activities, companies maintain or strengthen their relationships with internal and external stakeholders in the form of creating credibility among customers, creating desirability and confidence in investors, creating trust in suppliers, increasing the commitment of employees, and finally, creating legitimacy and social capital act. Also, their credit and market share increase in the atmosphere of competition. This issue has led responsible companies to be more resilient and flexible in the face of unexpected events and external and internal crises, and, as a result, they face fewer fluctuations in supply and demand. Therefore, social responsibility is expected to be an influential factor in risk and cash holding levels, affecting supply and demand fluctuations and future cash flow fluctuations.

The contradiction in the policy of cash holding over time has led managers to search for the optimal level of cash; in other words, managers plan for the level of liquidity at the end of a period and try to achieve it. The literature on cash holdings also focuses more on the two motivations of transactions and reserves. According to the transaction motivation, companies facing a decline in internal resources raise funds by selling assets, issuing new shares, borrowing, or reducing dividends, but these strategies come at a cost. As a result, firms that face high transaction costs for their payments hold more cash. The precautionary motive also arises in cases of managing the risk of lack of liquidity, taking advantage of business opportunities, and avoiding bankruptcy. On this basis, companies hold cash balances to deal with unforeseen events, and when the cost of other sources of finance is too high, they use the cash balances held to finance their investments.

Hypothesis 1. Business risk has a positive and significant effect on the value of cash holdings.

Hypothesis 2. CSR has a positive and significant effect on the relationship between business risk and cash holdings.

3 | Methodology

3.1 | Statistical Population

The statistical population of this research is all the companies listed on the Tehran Stock Exchange during the period 2014-2023, which was determined by the systematic elimination method based on the following criteria:

I. To improve comparability, their financial year should end in March.

II. Be listed on the stock exchange before 2014.

III. Not be part of financial companies (such as banks financial institutions) and investment companies or financial intermediaries.

IV. Their financial information is available.

Table 1. Sample selection process.

Total number of listed companies by end of 2023	485
Number of firms whose financial year does not end in 29/12.	97
Several companies listed to the stock exchange after 2014.	43
The number of enterprises other than financial corporations (e.g. banks, financial institutions) and investment corporations or financial intermediaries.	65
The number of companies for which information is unavailable in the research period.	142
Number of companies not traded for at least three months.	19
Number of sample companies	119

3.2 | Model and Research Variables

The following regression models are used in the current research to test the hypotheses [7].

$$CASHi,t = \beta0 + \beta1\ Risk\ takingi,t + \beta2\ Leverage\ i,t + \beta3\ SIZE\ i,t + \beta4EBITDAi,t + \beta5Cflowi,t + \varepsilon i,t \quad (1)$$

$$CASHi,t = \beta0 + \beta1\ Risk\ takingi,t + \beta2\ CSRi,t + \beta3\ (Risk\ takingi,t * CSRi,t) + \beta4Leveragei,t + \beta5\ SIZEi,t + \beta6\ EBITDAi,t + \beta7\ Cflow\ i,t + \varepsilon i,t \quad (2)$$

In which

CASH: cash holding value.

Risk taking: entrepreneurial risk.

CSR: corporate social responsibility.

Leverage: financial leverage.

Size: the size of the company.

EBITDA: earnings before interest and taxes.

Cflow: cash flow.

ε_{it} : error.

Independent variable: enterprise risk (risk taking)

It is equivalent to total risk, calculated as the sum of systematic and unsystematic risk. Systematic risk is equal to the coefficient of market risk, and unsystematic risk is equal to the standard deviation of the residuals in the following regression model.

$$(Rit - RFt) = \alpha j + \beta j \times (Rmt - RFt) + \varepsilon i, t$$

Rit: yield on the company's stock in month t.

RFt: risk-free rate of return in month t.

Rmt: market return in month t.

The above equation is fitted for each company year using the monthly return information for the last three years of each company. The return on the companies' shares is extracted from the Rahavard Navin software. The total index is used to calculate the market return, including income (in this case, all capital increases and subscription and pre-emptive rights payments are considered). For each month, the index at the beginning of the month is subtracted from the index at the end of the month and divided by the index at the beginning of the month to obtain the monthly market return [7].

Dependent variable: cash holding value (CASH)

For the calculation of this variable, cash and short-term deposits are divided by total assets [7].

Moderator variable: CSR

A checklist of 39 items compatible with the company's reporting environment is prepared to measure social responsibility disclosure. The presence or absence of the items on the checklist is then checked by reviewing the sample companies' financial statements, explanatory notes, and board activity reports. Finally, the Social Responsibility Disclosure index for each company is calculated by dividing the sum of the disclosed items by the total number of disclosable items:

$$CSRi, t = \frac{\sum_{i=1}^{n} Yi}{\sum_{i=1}^{m} Ti}.$$

In which:

CSR I, t: social responsibility disclosure index of the company i in year t.

$\sum_{i=1}^{n} Y\,i$: all disclosure cases in which the company received a score of one.

$\sum_{i=1}^{m} T\,i$: all cases can be disclosed.

The result is a number between zero and one. Companies above the median are given one and otherwise zero.

Control variables

Size of the company (Size): this study measures company size by the natural logarithm of company assets.

Cash Flow (Cflow): it is calculated by dividing operating cash flow by total assets.

Financial leverage (Leverage): it is equal to the company's total liabilities at the end of the financial year divided by the company's total assets.

Profit before interest and tax (EBITDA): it is obtained by dividing the company's profit, from which interest and taxes are deducted, by the total market value of equity [7].

4 | Findings of the Research

4.1 | Descriptive Statistics of the Data

The descriptive statistics discuss the status of the data using key indicators. *Table 2* shows the status of the data as follows.

Table 2. Descriptive statistics.

Index	CASH	CFLOW	CSR	EBITDA	SIZE	RISK_TAKING	LEV
Average	0.080693	0.141662	0.671312	0.237370	6.588275	0.293539	0.533349
Median	0.044831	0.116303	0.666667	0.377514	6.492298	0.293561	0.523122
Max	0.821668	0.726654	0.948718	5.362480	9.145192	0.314026	1.579419
Min	0.000266	-0.384976	0.384615	-125.3040	4.574402	0.065490	0.031431
SD.	0.098828	0.139566	0.169461	4.085360	0.786837	0.022816	0.226990

I. CASH has an average of 0.081, a standard deviation of 0.099, and a median of 0.045. The average and the median are central indicators, so the numbers are clustered around 0.081. The standard deviation is one of the dispersion indices. The dispersion means that the average distance of the data changes is 0.099 from 0.081.

II. LEV has a mean of 0.53, a standard deviation of 0.031, and a median of 0.52. The mean and the median are central indicators, so the numbers are around 0.053. The standard deviation is one of the dispersion indices. The dispersion means that the average distance of the data changes is 0.031 from 0.53.

III. CFLOW has a mean of 0.142, a standard deviation of 0.226, and a median of 6.689. The mean and the median are central indicators, so the numbers are around 0.142. The standard deviation is one of the dispersion indices. The dispersion means that the average distance of data changes is 0.226 from 0.142.

IV. CSR averages 0.67, a standard deviation of 0.14, and a median of 0.67. The average and the median are central indicators, so the numbers are clustered around 0.67. The standard deviation is a dispersion indicator. The dispersion means that the average distance of the data changes is 0.14 from 0.67.

V. SIZE has a mean of 6.588, a standard deviation of 0.788, and a median of 6.422. The mean and median are central indicators, so the numbers are clustered around 6.588. The standard deviation is one of the dispersion indices. The dispersion means that the average distance of the data changes is 0.788 from 6.588.

VI. EBITDA has an average of 0.237, a standard deviation of 4.085, and a median of 0.789. The average and median are central indicators, so the figures are clustered around 0.934. The standard deviation is one of the dispersion indices. The dispersion means that the average distance of the data changes equals 4.085 from 0.237.

VII. RISK_TAKING has an average of 0.294, a standard deviation of 0.023, and a median of 0.295. The average and the median are central indicators, so the numbers are clustered around 0.294. The standard deviation is one of the dispersion indices. The dispersion means that the average distance of the data changes is 0.295 from 0.294.

4.2 | Results

The results of the first and second hypotheses were tested by regression. The results of this test are shown in *Table 3* and *Table 4*.

Table 3. Results of regression the first hypothsis.

Variable	β	S.d	t. Stat.	P-Value
RISK_TAKING	-0.760937	0.282471	-2.693856	0.0072
LEV	-0.017376	0.009120	-1.905266	0.0571
SIZE	0.028514	0.003400	8.387076	0.0000
EBITDA	9.6405	0.000230	0.418920	0.6754
CFLOW	0.165708	0.013170	12.58212	0.0000
C	0.101970	0.086775	1.175109	0.2403
R2	57%	Durbin-Watson	1.567	
F stat.	10.972	(P-value) = 0.000		

According to the statistical value, a significant number and significance level have been obtained. If the significance level is less than 0.05, the coefficient of the independent variable will be significant. Therefore, if

the absolute value of the significant statistical value calculated by the statistical software is greater than 1.96 (the standard value of the normal distribution with a confidence level of 0.95), the null hypothesis is rejected. The rejection of the null hypothesis means that the effect of the independent variable on the dependent variable is significant.

Table 4. Results of regression the second hypothesis.

Variable	β	S.d	t. Stat.	P-Value
RISK_TAKING	-6.518377	3.308942	-1.969928	0.0516
CSR	1.530179	0.693560	2.206269	0.0297
CSR_RISK_TAKING	-5.214233	2.450965	2.450965	0.0359
LEV	-0.218708	0.193665	-1.129313	0.2615
SIZE	0.323224	0.071376	4.528462	0.0000
EBITDA	0.000242	0.000852	0.283754	0.7772
CFLOW	2.029718	0.220921	9.187523	0.0000
C	-3.027934	0.965855	-3.134978	0.0023
R2	67%	Durbin-Watson	1.562	
F stat.	17.137	(P-value) = 0.000		

According to the statistical value, a significant number and significance level have been obtained. If the significance level is less than 0.05, the coefficient of the independent variable will be significant. Therefore, if the absolute value of the significant statistical value calculated by the statistical software is greater than 1.96 (the standard value of the normal distribution with a confidence level of 0.95), the null hypothesis is rejected. The rejection of the null hypothesis means that the effect of the independent variable on the dependent variable is significant.

5 | Discussion and Recommendations

According to the results obtained from the model estimation, this study's main hypotheses were investigated, which are as follows *Table 5*.

Table 5. The summary of hypothesis test results.

Hypothesis	Test Result		
	Absolute Value of the Test Statistic	Sig.	Direction of Relation
The risk of the business has a positive and significant effect on the cash holding value.	2.693	0.007	Reverse
CSR positively and significantly affects the relationship between business risk and cash value.	2.127	0.035	Reverse

Discussion and conclusion of the *Hypothesis 1*, the risk of the business has a positive and significant effect on the cash holding value.

Since the significance level obtained for this variable is 0.007, less than 0.05, the absolute value of the significant number statistic, which is 2.693, is also greater than 1.96. Therefore, the opposite hypothesis that the company's risk does not have a positive and significant effect on the cash holding value is rejected, and the *Hypothesis 1* of the research is confirmed. The results of the above research, the sensitive research of Hasas Yeganeh et al. [8], Ramezannia and Rezaei [9], Foroghi et al. [10], Delpasand et al. [11], Eghdami et al. [12], Jafari [13], Chen et al. [14], Acharya et al. [4], Del Bosco and Misani [15] and Ho et al. [7].

The hypothesis that business risk has a positive and significant effect on the value of cash holdings concerns the relationship between a firm's various risks and financial decisions, particularly regarding cash holdings.

Discussion and conclusion of the *Hypothesis 2*: CSR positively and significantly affects the relationship between firm risk and cash holdings.

Since the significance level obtained for this variable is 0.035, less than 0.05, the absolute value of the significant number statistic, 2.127, is also greater than 1.96. Therefore, the counter-hypothesis that CSR does not have a positive and significant effect on the relationship between business risk and cash holding value is rejected and the *hypothesis 2* of the research is confirmed. The results of the above research, the sensitive research of Hasas Yeganeh et al. [8], Ramezannia and Rezaei [9], Foroghi et al. [10], Delpasand et al. [11], Eghdami et al. [12], Jafari [13], Chen et al. [14], Acharya et al. [4], Del Bosco and Misani [15] and Ho et al. [7].

The hypothesis that "CSR has a positive and significant effect on the relationship between corporate risk and cash holding value" deals with how a company's social responsibility commitments and actions can influence its financial decisions, particularly the relationship with cash holdings. In this hypothesis, CSR is considered a mediating variable that moderates the effect of business risk on cash holding value.

To provide the necessary suggestions regarding the impact of corporate risk on the value of cash holdings with the moderating role of CSR in Iranian capital market companies, it is necessary to pay attention to several important aspects in the field of financial management, business strategies, and CSR policies. These suggestions can help companies reduce the negative impact of risks on their cash-holding value and significantly improve their financial and social performance through CSR.

Author Contributions

Abbasali Daryaei designed the study, collected and analyzed the data, and authored the manuscript.

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Data Availability

The data used in this research were obtained from publicly available financial statements of companies listed on the Tehran Stock Exchange. Additional data may be available from the author upon request.

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