Factors affecting financial risks: Evidence from steel enterprises listed on Vietnam's stock market

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A R T I C L E   I N F O

A B S T R A C T

The purpose of this article is to analyze and determine the influence of factors on the financial risks of enterprises in the steel industry listed on Vietnam's stock market. The data of the article are collected and calculated from the financial statements of 26 steel companies listed on the Vietnamese stock market from 2013 to 2020. With the application of E-view software in quantitative analysis to build a panel data regression model, the article has built a regression model to determine the relationship of internal factors affecting the financial risks of steel industry enterprises listed on the Vietnamese stock market. The results indicate that short-term payment ratio, return on assets, asset turnover ratio, working capital turnover, receivables turnover, debt maturity structure, and the ratio of long-term assets have a negative effect on financial risks, while debt ratio has a positive effect on financial risks of steel companies listed on Vietnam's stock market. The findings of this article are considered to be useful for business managers in helping them to make the right financial decisions to control risks and increase corporate value in their condition.

1. Introduction

Nowadays, for all businesses, stringencies and high-impact and unpredictable events increasingly dominate the world (Masys et al., 2014). In addition, the development of information technology and the process of globalization are turning the world into a complex system with overlapping relationships (Roztocki et al., 2019). This complexity makes it difficult to predict events that used to be normal for a business. The financial crisis characterized by the insolvency of a series of huge financial and non-financial institutions has clearly revealed the weakness in financial risk management in enterprises, which requires regard of financial risk management as an extremely urgent issue (Blome and Schoenherr, 2011). Financial risk is one of the major concerns of every business across sectors and geographical regions. The study of financial risks has attracted the attention of many analysts from many

countries. In particular, in a globalized world, identifying, managing, and uncovering risks in organizations is becoming increasingly important for business success and longevity (Rahmi et al., 2016). Businesses in Vietnam are no exception. The volatility of the business environment and the inevitable conflicts arising in the growth process require Vietnamese enterprises to pay more and more attention to risk management. In Vietnam, in recent years, steel enterprises have made extremely important contributions to the economy, but market fluctuations also make it difficult for these enterprises to manage financial risks to maintain their existence and development. Steel enterprises often face financial risks that are increasingly diverse in types and levels. Financial risk occurs means financial loss or the financial goals of the business are affected. Therefore, financial risk management has always been the top concern of steel enterprises, but its effectiveness has not been as expected (Gordon et al., 2009). The inevitable consequences are socio-economic losses and deviations from the enterprise's expectations. For the purpose of sustainable development, and maximizing the financial value of the owners, financial risk management needs to be improved in more comprehensive and strict ways. In order to manage financial risks effectively, a prerequisite is to

identify the factors that affect financial risks and the extent of their influence. Therefore, studying the factors affecting the financial risks of steel industry enterprises in Vietnam in the current context is an urgent issue, which provides necessary information for the management in the process of implementing financial risk management to maximize corporate value.

2. Review of literature

In the world, there have been many studies on the financial risks of enterprises. Financial risk is defined as the uncertainty of fluctuations in factors such as interest rates, exchange rates, stock prices, and commodity prices (Li, 2003). Zhe et al. (2012) argued that financial risk is the probability of capital loss when using financing methods, which can reduce the ability of enterprises to resume operations.

From the above points of view, it can be said that financial risks are risks arising from fluctuations in the external environment and risks arising from the selection and implementation of financial decisions in enterprises. These risks affect the profitability and solvency of a business.

The studies on the factors affecting the financial risks of enterprises are also very diverse. Beaver (1966) used the method of discrimination analysis to find out the relationship between financial ratios and the probability of bankruptcy of enterprises. With the empirical research of 79 failed businesses and an equivalent number of successful enterprises for the period of 1954-1964, his study analyzed and evaluated each financial ratio in order to provide criteria for predicting corporate bankruptcy through the observation of these financial ratios. A total of 30 financial ratios have been divided into five groups (cash flow ratios, net sales ratios, total-debt-to-total-assets ratios, liquid-to-total-assets ratios, quick ratios, and turnover ratios) were used. The results show that businesses in danger of financial crisis are those that have a small amount of cash and inventory, but a lot of account receivables. Beaver's (1966) research also showed that the ratio of net cash flow to total liabilities is the most important indicator in predicting signs of crisis and corporate bankruptcy. This indicator reflects the balance between the cash-generating ability of the enterprise and the debts that the enterprise has to pay so it most clearly shows the solvency of the enterprise. In addition, the profitability of assets (net income/total assets) and Debt Ratio (total liabilities/total assets) are also important indicators in detecting signs of crisis and bankruptcy because these indicators reflect the operation performance of the enterprise and the level of financial risk that the enterprise is facing.

Westgaard and Van der Wijst's (2001) study was based on Logistic regression analysis, using financial variables in combination with other variables that represent the characteristics of firms to estimate the probability of bankruptcy. The samples of the study are limited liability companies in Norway operating in the period of 1995-1999, the independent variables accepted by the model are Cash flow/total debt; EBIT/interest cost; Current assets/current liabilities; Share capital/total capital; The company's number of years of operation; and Company Size. In addition, to demonstrate the influence of industry and geographic region in the model, four dummy variables are also used: The real estate industry; the Hotel and restaurant industry; and Central Norway and Northern Norway. The model results also show good predictors for the solvency of Norwegian companies.

Altman and Sabato (2007) studied the factors affecting the bankruptcy probability of small and medium enterprises in the US market and showed the need to build a separate model to evaluate the credit risk of this group of small and medium enterprises. The authors use the Logistic regression technique with financial data taken from 2000 US companies between 1994 and 2002. The research results show that there are five independent variables (financial ratios) that are likely the best predictor for the probability of a business bankruptcy including Profit before tax, interest, and depreciation/total assets; Short-term debt/book value of equity; Retained earnings/total assets; Cash/total assets; and Profit before tax, interest, and depreciation/interest cost.

Masnoon and Saeed (2014) also studied financial risks and argued that the debt ratio has a negative relationship with the solvency of the enterprise, that is, the debt ratio is positively related, and oriented towards financial risk. Bhunia and Mukhuti (2012) studied financial risks based on secondary data collected from financial statements of 513 companies listed at the Bombay Stock Exchange, India for the period 2010-2011. Research results showed that financial risk is significantly correlated with the current ratio, return on sales, fixed capital, and self-financing; low correlation with fixed asset turnover over total asset turnover; and has no correlation with debt structure, inventory turnover, or receivable turnover. Gang and Liu (2012) studied financial risks using financial statement data of 216 companies listed on the Shenzhen Stock Exchange, China in 2010 and also had similar research results as Bhunia and Mukhuti (2012).

Therefore, both theories as well as empirical research suggest that: Financial risk is affected by many factors and it affects the operation and corporate value. This is an important basis for the article to propose a research model on a number of factors affecting the financial risks of listed steel enterprises on the Vietnamese stock market in order to add more scientific evidence to the factors affecting financial risk as well as help managers have a scientific basis to come up with solutions to minimize financial risks to improve efficiency, corporate value and stability for development.

From theoretical and practical research, the author proposes the following hypotheses for steel

industry companies listed on the Vietnamese stock market:

H₁: Short-term payment ratio has a negative effect on financial risk.
H₂: Quick payment ratio has a negative effect on financial risk.
H₃: Overall payment ratio has a negative effect on financial risk.
H₄: Return on sales has a negative impact on financial risk.
H₅: Return on assets has a negative effect on financial risk.
H₆: Asset turnover ratio has a negative effect on financial risk.
H₇: Working capital turnover has a negative effect on financial risk.
H₈: Average inventory maturity has a positive effect on financial risk.
H₉: Receivables turnover has a negative effect on financial risk.
H₁₀: Debt-term structure has a negative effect on financial risk.
H₁₁: Debt ratio has a positive effect on financial risk.
H₁₂: Long-term asset ratio has a negative impact on financial risk.

3. Research methods

3.1. Research data

The research sample includes data over a period of 8 years (from 2013 to 2020) from 26 steel companies in Vietnam. The source of data collected is information on stock exchanges, securities companies, and data collected directly from companies. These are sources of information that, according to the author, are reliable.

The data used in the study are built from the financial statements and financial information of enterprises in the steel industry. The financial statements of these enterprises are prepared on the basis of compliance with the Vietnamese accounting standard system and have been audited.

The study uses table data regression with three methods: Pooled Ordinary Least Squares (POLS), Random Effects Model (REM), and Fixed Effects Model (FEM).

POLS method: A regression method that combines all observations, ignoring the time factor and the difference between cross-units of table data. With this limitation, the POLS estimate can lead to a misleading estimate because in fact each firm has its own characteristics and it is possible that these characteristics affect the explanatory variables in the model.

REM method: In the case of fluctuations between cross units and the impact is correlated with the independent variables of the model, the REM model is used. In the REM model, the variation between the cross-units is assumed to be random and not correlated with the explanatory variables.

FEM method: It is assumed that each firm has its own characteristics and can affect independent variables in the model. Thereby, FEM analyzes this correlation between the error of each unit and the explanatory variables, thereby controlling and separating the effects of the individual characteristics (constant over time) from the explanatory variables to have it possible to estimate the real effects of the explanatory variable on the dependent variable. However, FEM is limited when firms have volatility that is correlated with independent variables in the model.

The article runs the model with E-view software and uses the least squares method (OLS) to determine the regression coefficient β_i. On the basis of the results obtained when running the program, we will write equations of the factors affecting the business performance of the enterprise. Then test the fit of the model, that is, test β_i to know if the independent variable can explain the dependent variable or not. Evaluate the fit of the model through the adjusted coefficient of determination R^2 (Adjusted R Square) to determine the explanatory ability of the model in practice.

3.2. Research model

The econometric model selected to test the impact of internal factors on the financial risks of steel industry enterprises listed on Vietnam's stock market is:

• Overall regression model:

$$Y = \beta_0 + \beta_t X_t + u_i \tag{1}$$

where, Y: Dependent variable; X_t: The independent variable affects the dependent variable (t = 1/n); β_0: Free coefficient; β_t: Regression coefficient (t = 1/n); u_i: Random error.

• Building and testing models:

The regression model parameters were estimated by E-view software.

• Overall regression model:

$$FR_i = \beta_0 + \beta_1 SPR_i + \beta_2 QPR_i + \beta_3 OPR_i + \beta_4 ROS_i + \beta_5 ROA_i + \beta_6 ATR_i + \beta_7 WCT_i + \beta_8 DAI_i + \beta_9 RT_i + \beta_{10} DMS_i + \beta_{11} DR_i + \beta_{12} RLA_i + u_i \tag{2}$$

• Overall regression function:

$$FR_i = \beta_0 + \beta_1 SPR_i + \beta_2 QPR_i + \beta_3 OPR_i + \beta_4 ROS_i + \beta_5 ROA_i + \beta_6 ATR_i + \beta_7 WCT_i + \beta_8 DAI_i + \beta_9 RT_i + \beta_{10} DMS_i + \beta_{11} DR_i + \beta_{12} RLA_i. \tag{3}$$

In which:

1. Dependent variable FR_i: Financial risks of each enterprise in 26 steel industry enterprises in Vietnam in the period of 2013-2020.

In the specific regression model of the study, the dependent variable is the financial risk of the enterprise (FR), determined by the following formula:

$$Financial\ Ricks\ (FR) = \frac{Profit\ before\ tax + Depreciation\ of\ fixed\ assets + Deferred\ corporate\ income\ tax}{Short-term\ liabilities} \quad (4)$$

2. The group of independent variables reflecting the factors for which the statistics are taken from the financial statements of 26 Vietnamese steel enterprises from 2013 to 2020 includes 12 variables. The way to determine the independent variables in the model is shown in Table 1. The statistics are presented in Table 2.

Table 1: Independent variables of the model

No.	Variables	Code	Formula
1	Short-term payment ratio of enterprise i	SPR_i	Current assets/current liabilities
2	Quick payment ratio of enterprise i	QPR_i	(Current Assets–Inventories)/Current liabilities
3	Overall payment ratio of enterprise i	OPR_i	Total assets/Total liabilities
4	Return on sales of enterprise i	ROS_i	Profit after tax/Net revenue
5	Return on assets of enterprise i	ROA_i	Profit after tax/Average assets
6	Asset turnover ratio of enterprise i	ATR_i	Net sales/Average total assets
7	Working capital turnover of enterprise i	WCT_i	Net Sales/Average working capital
8	Days of average inventories of enterprise i	DAI_i	360×Average inventories/Cost of goods sold
9	Receivables turnover of enterprise i	RT_i	Net sales/Average receivables
10	Debt maturity structure of enterprise i.	DMS_i	Long-term debt/Short-term debt
11	Debt ratio of enterprise i	DR_i	Liabilities/Total assets
12	Ratio of long-term assets of enterprise i	RLA_i	Long-term assets/Total assets

Table 2: Descriptive statistics

	N	Minimum	Maximum	Mean	Std. deviation
FR	208	−1.9328	9.8045	0.1138	0.7541
SPR	208	0.0359	4.0296	1.1632	0.5847
QPR	208	0.0235	1.7980	0.5558	0.3350
OPR	208	0.1466	5.3787	1.6843	0.7213
ROS	208	−22.7083	0.1949	−0.3527	2.2385
ROA	208	−1.6761	0.2578	−0.0014	0.1728
ATR	208	0.0058	8.3991	2.0582	1.3616
WCT	208	0.1030	25.5877	3.6415	2.9683
DAI	208	0.0000	568.4716	78.1739	68.6720
RT	208	0.2074	367.0442	20.5517	45.0923
DMS	208	0.0000	1.5461	0.2379	0.3482
DR	208	0.1859	6.8192	0.7399	0.6860
RLA	208	0.0431	0.9774	0.4013	0.2230
Valid N (listwise)	208				

4. Research results

Running the model using E-view software under Panel data, we have Table 3. In addition, using Regression with the Random Effect method, we have Table 4. The Hausman test is used to choose between two Random Effect Model and Fixed Effect Model. In essence, this is a test of whether unique errors correlate with the explanatory variables. Tests of hypothetical pairs are as follows and the results are shown in Table 5.

H_0: There is no correlation between explanatory variables and random components (choose Random Effect).
H_1: There is a correlation between explanatory variables and random components (choose Fixed Effect).

With Prob.=0.0000<0.05, H_0 is rejected and the Fixed Effect model is selected. Therefore, this article will use the Fixed Effect Model to regression to find out key factors affecting the financial risks of steel firms in Vietnam in the period of 2013-2020. The purpose of removing variables from the model is to exclude variables that have no impact on dependent variables. Using the method of elimination and testing, remove each variable from the model and use E-view software to verify. After running the software, we see that at most four variables can be removed: QPR, OPR, ROS, and DAI. To conduct the test to remove four variables QPR, OPR, ROS, and DAI from the initial regression model, we test the following hypothesis pair and the results are shown in Table 6.

H_0: $\beta_2 = \beta_3 = \beta_4 = \beta_8 = 0$
H_1: $\beta_j \neq 0$ (j = 2,3,4,8)

Prob. F=0.1768>0.05 is not enough to reject H_0. So, it is possible to remove four variables QPR, OPR, ROS, and DAI from the model. With Prob (F-statistic)=0.0000<0.05, the regression function is appropriate. The model of factors affecting the financial risk of listed steel enterprises in Vietnam is:

$$FR_i = \alpha_1 + \alpha_2 SPR_i + \alpha_3 ROA_i + \alpha_4 ATR_i + \alpha_5 WCT_i + \alpha_6 RT_i + \alpha_7 DMS_i + \alpha_8 DR_i + \alpha_9 RLA_i. \quad (5)$$

Sample regression function:

$$FR_i = -0.2885 - 0.8405SPR_i - 1.6191ROA_i - 0.3346ATR_i - 0.2752WCT_i - 0.0057RT_i - 0.6356DMS_i + 0.2423DR_i - 1.9972RLA_i.$$ (6)

Table 3: Regression results with fixed effect model

Variable	Coefficient	Std. error	t-statistic	Prob.
C	−0.3394	0.2692	−1.2605	0.2093
SPR	−0.5102	0.2015	−2.5321	0.0123
QPR	−0.1170	0.1744	−0.6707	0.5034
OPR	0.3541	0.1611	2.1978	0.0294
ROS	0.0147	0.0193	0.7623	0.4469
ROA	−1.8021	0.3261	−5.5257	0.0000
ATR	−0.3144	0.0695	−4.5220	0.0000
WCT	−0.2644	0.0280	−9.4327	0.0000
DAI	0.0008	0.0008	1.0222	0.3082
RT	−0.0057	0.0009	−6.1071	0.0000
DMS	−0.4812	0.1783	−2.6985	0.0077
DR	0.3035	0.0902	3.3618	0.0010
RLA	−2.5968	0.5960	−4.3567	0.0000
	Effects specification			
	Cross-section fixed (dummy variables)			
	Period fixed (dummy variables)			
R-squared	0.7981	Mean dependent var		0.1138
F-statistic	14.6506	Durbin-Watson stat		2.2704
Prob(F-statistic)	0.0000			

Dependent variable: FR; Method: Panel Least Squares; Date: 07/11/21 Time: 12:31; Sample: 2013 2020; Periods included: 8; Cross–sections included: 26; Total panel (balanced) observations: 208

Table 4: Regression results with random effect model

Variable	Coefficient	Std. error	t-statistic	Prob.
C	−0.8134	0.1962	−4.1443	0.0001
SPR	0.4641	0.1652	2.8096	0.0055
QPR	−0.0706	0.1374	−0.5144	0.6075
OPR	0.1875	0.1089	1.7205	0.0869
ROS	0.0251	0.0170	1.4746	0.1419
ROA	−2.4620	0.2239	−10.991	0.0000
ATR	−0.1885	0.0471	−4.0019	0.0001
WCT	0.1892	0.0207	9.1254	0.0000
DAI	0.0010	0.0006	1.7174	0.0875
RT	−0.0055	0.0008	−6.7556	0.0000
DMS	−0.2730	0.1484	−1.8395	0.0674
DR	−0.1364	0.0655	−2.0809	0.0387
RLA	0.0366	0.4089	0.0895	0.9287
	Weighted statistics			
R-squared	0.6627	Mean dependent var		0.1138
F-statistic	31.9408	Durbin-Watson stat		2.0935
Prob(F-statistic)	0.0000			

Dependent variable: FR; Method: Panel EGLS (Cross-section random effects); Date: 07/11/21 Time: 12:32; Sample: 2013 2020; Periods included: 8; Cross-sections included: 26; Total panel (balanced) observations: 208; Swamy and Arora estimator of component variances

Table 5: Hausman test results

Test summary	Chi-Sq. statistic	Chi-Sq. d.f.	Prob.
Cross-section random	91.2024	12	0.0000

Correlated random effects-Hausman test; Equation: Untitled; Test cross-section random effects

Table 6: Test results of removing 4 variables QPR, OPR, ROS, and DAI from the model

	Redundant variables: QPR OPR ROS DAI			
F-statistic	1.5998	Prob. F(4,163)		0.1768
Log likelihood ratio	8.0100	Prob. Chi-Square(4)		0.0912
Variable	Coefficient	Std. Error	t–Statistic	Prob.
C	−0.2885	0.2463	−1.1714	0.2431
SPR	−0.8405	0.1053	−7.9780	0.0000
ROA	−1.6191	0.2843	−5.6949	0.0000
ATR	−0.3346	0.0677	−4.9382	0.0000
WCT	−0.2752	0.0251	−10.941	0.0000
RT	−0.0057	0.0008	−6.4345	0.0000
DMS	−0.6356	0.1570	−4.0471	0.0001
DR	0.2423	0.0775	3.1262	0.0021
RLA	−1.9972	0.4937	−4.0453	0.0001
	Effects specification			
	Cross-section fixed (dummy variables)			
R-squared	0.7902	Mean dependent var		0.1138
F-statistic	15.7297	Durbin–Watson stat		2.2878
Prob(F-statistic)	0.0000			

Dependent variable: FR; Method: Panel least squares; Date: 07/11/21 Time: 12:40; Sample: 2013 2020; Periods included: 8; Cross-sections included: 26; Total panel (balanced) observations: 208

5. Discussions

In Table 6, there is R²=0.7902 indicating that in the regression model, 8 variables SPR, ROA, ATR, WCT, RT, DMS, DR, and RLA have a great influence on FR, capable of explaining 79,02% for fluctuations of FR, which means that 79,0251% change in FR of steel companies listed on Vietnam stock market is caused by the impact of 8 variables SPR, ROA, ATR, WCT, RT, DMS, DR, RLA.

α_2=−0.8405 reflects that the short-term payment ratio has a negative impact on the financial risk of

the enterprise, which means that steel enterprises with higher short-term payment ratios have lower financial risk when other factors are constant and if the short-term payment ratio increases by 1%, financial risk will decrease by 0.8405% and vice versa. This negative relationship has been proven through research results: Gang and Liu (2012) and Bhunia and Mukhuti (2012).

$\alpha_3=-1.6191$ means that the return on assets has the opposite effect on the financial risk of steel enterprises, the higher the return on assets, the higher the financial risk of the steel industry. When other factors are held constant, if the return on assets of the enterprise increases by 1%, the financial risk of the enterprise decreases by 1.6191% and vice versa. This result is similar to the study of Gang and Liu (2012) and Bhunia and Mukhuti (2012).

$\alpha_4=-0.3346$, $\alpha_5=-0.2752$, and $\alpha_6=-0.0057$ show a negative relationship between asset turnover ratio, working capital turnover, and receivables turnover to financial risk. Asset turnover ratio, working capital turnover and receivables turnover reflect the operating performance of the business. Thus, the higher the performance of listed steel enterprises in Vietnam, the lower the financial risks of these enterprises. Therefore, this result is consistent with the author's expectation, while the study of Gang and Liu (2012) and Bhunia and Mukhuti (2012) did not prove the relationship between performance with financial risk.

$\alpha_7=-0.6356$ means that the debt maturity structure of steel enterprises has a negative impact on financial risk. When other factors are held constant, if the debt maturity structure of the enterprise increases by 1%, the financial risk of the enterprise decreases by 0.6356% and vice versa. This result is consistent with the hypotheses proposed in the article.

$\alpha_8=0.2423$ means that the debt ratio has a positive effect on the financial risk of the steel industry. When other factors are held constant if the debt ratio of the enterprise increases by 1%, the financial risk of the enterprise increases by 0.2423% and vice versa. This research result is supported by John (1993), Lee et al. (2011), Bhunia and Mukhuti (2012), Gang and Liu (2012), Ferrouhi (2014), and Masnoon and Saeed (2014).

$\alpha_9=-1.9972$ reflects the ratio of long-term assets negatively affecting financial risk. When other factors are held constant, if the ratio of long-term assets of the enterprise increases by 1%, the financial risk of the enterprise decreases by 1.9972% and vice versa. The research results of Gang and Liu (2012) and Bhunia and Mukhuti (2012), also showed an inverse relationship between long-term asset ratio and financial risk.

In addition, this paper shows that quick payment ratio (QPR), overall payment ratio (OPR), return on sales (ROS), and days of average inventories (DAI) do not affect the financial risks of steel industry enterprises listed on the Vietnamese stock market.

6. Conclusion

In summary, the article has studied the factors affecting the financial risk of steel companies listed on the Vietnamese stock market through data collected from 26 steel companies in the period of 2013-2020. The empirical model shows the correlation between internal factors and business performance including Short-term solvency, returns on assets, total asset turnover, working capital turnover, receivables turnover, debt maturity structure, and long-term asset ratio are negatively related to financial risk, while the debt ratio is positively related to financial risk, and quick payment ratio, total payment solvency, return on sales, average inventory maturity do not affect the financial risk of steel enterprises listed on Vietnam stock market. The results of this study have provided useful information for steel companies in finding solutions to limit their risks and maximize their corporate value. It is a better study than others because the factors chosen by the authors are very clear and closely related to the financial risks. In particular, the factors given by the authors in this article have helped explain up to 79,02% of the research problem. Thereby shows the superior level of the outstanding reputation of the study compared to previous research.

Based on the above discussion, some recommendations can be proposed to help steel enterprises improve business efficiency as follows.

The model results show that in order to prevent and limit financial risks for steel companies listed on the Vietnamese stock market, it is necessary to pay attention to variables reflecting short-term payment ratio (SPR), return on assets (ROA), total assets turnover (ATR), working capital turnover (WCT), accounts receivable turnover (RT), debt maturity structure (DMS), ratio debt (DR), return on long-term asset (RLA). Based on this, the article can make some recommendations to reduce financial risks and increase corporate value as follows:

- Improve short-term payment ratio: Short-term payment ratio in listed steel enterprises has a negative relationship with financial risks. To minimize financial risks, businesses need to improve their ability to pay short-term debts by flexibly applying a variety of solutions such as increasing the liquidity of assets and building a reasonable debt structure. In addition, the analysis also shows that many businesses use short-term debt to finance long-term assets, which causes financial imbalance and puts businesses at higher risk of bankruptcy. In the coming time, businesses need to regularly analyze their financial situation to identify insolvency risks, make detailed short-term cash flow plans, and increase cash generation capacity to ensure solvency.
- Improve profitability: According to research results, profitability is negatively correlated with financial risks. To improve profits, businesses need

to improve their competitiveness to increase sales and have proper cost control measures.

- Improve operating performance: According to the regression of the study of operational efficiency (expressed through asset turnover, working capital turnover, and receivables turnover) has a negative impact on the financial risk of the enterprise. This indicates that when corporate administrators strengthen the management of receivables, increase the amount of money collected, and minimize the short-term capital occupied by customers, it will help control financial risks better. In order to manage accounts receivable well, businesses need to develop a reasonable credit policy by analyzing the financial reputation of customers and applying appropriate debt recovery measures.
- Building a reasonable debt maturity structure: According to the results of the model, the higher the long-term debt, the lower the financial risk. Although long-term debts will help businesses avoid financial risks because they avoid the pressure of debt repayment unlike using short-term debts. However, businesses also need to pay attention not to borrowing too much long-term debt, just enough for their needs for long-term financing. In fact, long-term borrowing will cause the company to incur a large interest expense.
- Setting the appropriate debt ratio: Although borrowing brings many benefits to businesses, businesses also need to combine it with finding out their optimal capital structure, because if debt exceeds this threshold will cause the business at risk of bankruptcy, which is considered a huge financial risk.
- Building a reasonable asset structure: If a large proportion of long-term assets will help businesses limit risks, businesses need to actively expand the scale of operations by innovating technology, investing in machinery and equipment, improve production capacity.

Compliance with ethical standards

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

References

Altman EI and Sabato G (2007). Modelling credit risk for SMEs: Evidence from the US market. Abacus, 43(3): 332-357. https://doi.org/10.1111/j.1467-6281.2007.00234.x

Beaver WH (1966). Financial ratios as predictors of failure. Journal of Accounting Research, 4: 71-111. https://doi.org/10.2307/2490171

Bhunia A and Mukhuti S (2012). Financial risk measurement of small and medium-sized companies listed in Bombay Stock Exchange. International Journal of Advances in Management and Economics, 1(3): 27-34. https://doi.org/10.31270/ijame/01/03/2012/04

Blome C and Schoenherr T (2011). Supply chain risk management in financial crises-A multiple case-study approach. International Journal of Production Economics, 134(1): 43-57. https://doi.org/10.1016/j.ijpe.2011.01.002

Ferrouhi EM (2014). Bank liquidity and financial performance: Evidence from Moroccan banking industry. Business: Theory and Practice, 15(4): 351-361. https://doi.org/10.3846/btp.2014.443

Gang F and Liu D (2012). Empirical study on the financial risk factors for small and medium-sized enterprise: The evidence from 216 companies of small plates stock market in China. Journal of Contemporary Research in Business, 3(9): 380-387.

Gordon LA, Loeb MP, and Tseng CY (2009). Enterprise risk management and firm performance: A contingency perspective. Journal of Accounting and Public Policy, 28(4): 301-327. https://doi.org/10.1016/j.jaccpubpol.2009.06.006

John TA (1993). Accounting measures of corporate liquidity, leverage, and costs of financial distress. Financial Management, 22(3): 91-100. https://doi.org/10.2307/3665930

Lee S, Koh Y, and Kang KH (2011). Moderating effect of capital intensity on the relationship between leverage and financial distress in the US restaurant industry. International Journal of Hospitality Management, 30(2): 429-438. https://doi.org/10.1016/j.ijhm.2010.11.002

Li S (2003). Future trends and challenges of financial risk management in the digital economy. Managerial Finance, 29(5/6): 111-125. https://doi.org/10.1108/03074350310768797

Masnoon M and Saeed A (2014). Capital structure determinants of KSE listed automobile companies. European Scientific Journal, 10(13): 451-461.

Masys AJ, Ray-Bennett N, Shiroshita H, and Jackson P (2014). High impact/low frequency extreme events: Enabling reflection and resilience in a hyper-connected world. Procedia Economics and Finance, 18: 772-779. https://doi.org/10.1016/S2212-5671(14)01001-6

Rahmi M, Azma N, Muttaqin AA, Jazil T, and Rahman M (2016). Risk volatility measurement: Evidence from Indonesian stock market. The Journal of Asian Finance, Economics and Business, 3(3): 57-65. https://doi.org/10.13106/jafeb.2016.vol3.no3.57

Roztocki N, Soja P, and Weistroffer HR (2019). The role of information and communication technologies in socioeconomic development: Towards a multi-dimensional framework. Information Technology for Development, 25(2): 171-183. https://doi.org/10.1080/02681102.2019.1596654

Westgaard S and Van der Wijst N (2001). Default probabilities in a corporate bank portfolio: A logistic model approach. European Journal of Operational Research, 135(2): 338-349. https://doi.org/10.1016/S0377-2217(01)00045-5

Zhe L, Ke L, Kaibi W, and Xiaoliu S (2012). Research on financial risk management for electric power enterprises. Systems Engineering Procedia, 4: 54-60. https://doi.org/10.1016/j.sepro.2011.11.049