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Original Research Article

Credit Risk Analysis in Trade Enterprises: A Case Study of Refrigeration Mechanical Joint Stock Company

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Abstract: This paper aims to analyze commercial credit risk at Refrigeration Electrical Engineering Joint Stock Company based on financial data from 2021 to 2023. The study applies statistical comparison methods and financial ratio analysis, including debt recovery ratio, collection period, accounts receivable and payable ratios. The results indicate that the company's commercial credit risk is decreasing, but long-term debt is increasing. Based on the analysis, the paper proposes solutions to mitigate risks and improve commercial credit management efficiency.

Keywords: Credit Risk, Commercial Credit, Refrigeration Electrical Engineering Joint Stock Company.

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1. INTRODUCTION

Trade credit plays a pivotal role in the operational dynamics of businesses, especially within the food sector, where deferred payments are prevalent. However, the expansion of trade credit is accompanied by credit risk, particularly when customers fail to meet payment deadlines or face insolvency. Effective management of credit risk enables companies to sustain liquidity, minimize the risk of capital erosion, and optimize profitability.

This study focuses on assessing trade credit risk at Refrigeration Mechanical Joint Stock Company, a leading enterprise in Vietnam's infrastructure and energy sectors. The research will analyze key financial metrics, evaluate prevailing trends, and propose strategic solutions for risk mitigation.

2. AN OVERVIEW OF TRADE CREDIT RISK IN ENTERPRISES

Trade credit is a form of credit extended between businesses, typically manifested through the practice of deferred payments for goods. Even providing upfront payments to suppliers without receiving goods is considered a form of trade credit, as the buyer temporarily allows the seller to utilize their capital. Trade credit differs from bank credit and consumer credit in that the underlying subject of trade credit is goods, whereas bank credit pertains to monetary transactions. As such, trade credit offers distinct advantages over bank credit, notably in terms of time efficiency and reduced transaction costs with financial institutions.

In a market economy, the occurrence of capital shortages within businesses is frequent. On one hand, trade credit helps to meet the short-term capital needs of businesses while facilitating the sale of their products. On the other hand, the existence of this credit form enables companies to effectively leverage capital, ensuring timely responses to the demands of production and business operations.

In practice, businesses often face limitations in accessing loan capital from credit institutions. As a result, there is a growing reliance on trade credit. Trade credit relationships are formed when a company with surplus raw materials or supplies extends credit to another business in need of these resources. If this credit arrangement is carried out within a defined period, both parties stand to gain. Given the variation in production cycles across businesses, the phenomenon of one company having surplus capital while another faces a deficit is both common and inevitable.

Given the current economic challenges, the necessity of utilizing trade credit has become increasingly crucial. As many as 84% of businesses nationwide rely on trade credit to support their production and operational activities. Companies are often faced with capital shortages, making the practice of "buying on credit" for production materials indispensable. Thus, trade credit functions as a vital "lifeline" between businesses.

Furthermore, Trade Credit Reveals Several Inherent Limitations

Firstly, Trade Credit Entails Substantial Risks for the Selling Enterprises

Currently, domestic trade credit is predominantly based on mutual trust between buyers and sellers, which often results in prolonged and tangled debt relationships between businesses. Trade credit is a widely used form of credit in commercial transactions, where suppliers typically receive payment for one batch of goods only after delivering the subsequent one. The volume of trade credit can escalate to billions of VND without any collateral, causing considerable financial losses for the selling businesses.

Statistics indicate that trade credit constitutes up to 40% of the total working capital of businesses. Enterprises routinely leverage this form of credit to address short-term liquidity constraints. In numerous instances, sellers are compelled to accept trade credit as a promotional tactic or an incentive to encourage purchases. In the article *"Factors Influencing Trade Credit in Aquaculture Farms in Tra Vinh Province"*, author Tran Ai Ket reveals that nearly 55% of farms rely on trade credit. The primary rationale for this is the limited access to business capital, forcing sellers to accept credit arrangements to allow buyers to release goods and generate funds to settle debts. This is an effective solution to sustain continuous operations; however, in many cases, sellers struggle to recover payments, leaving them vulnerable to bad debt without recourse.

Secondly, Trade Credit Introduces Significant Risks to Bank Credit

Currently, the practice of capital misappropriation and the failure to repay debts, often in the absence of promissory notes or formal debt acknowledgment, is widespread. In many instances, banks suffer substantial losses due to debtors withholding goods or coercing the bank into lending without collateral. Moreover, many bank loans are misdirected, as funds are redirected to settle mandatory trade credit debts, forcing buyers to repay unconditionally when due. If businesses lack the liquidity to meet payment deadlines, they may resort to additional loans to cover their trade credit liabilities, creating a cycle of debt that exacerbates financial instability.

Trade credit risk refers to the likelihood that customers will be unable or unwilling to settle their obligations on time, which can have a detrimental effect on a company's cash flow and profitability. This risk can stem from various factors, including the customer's financial health, macroeconomic conditions, and the company's credit policies.

Trade credit risk within enterprises is influenced by several critical factors:

- **The financial health of the customer**: A customer with weak financial standing is at an elevated risk of default, which may result in them failing to meet obligations not only to banks but also to other businesses.
- **The company's credit policy**: Overly permissive credit policies with lax terms for deferred payments can lead to the extension of credit to customers who do not meet the necessary qualifications.
- **The impact of the macroeconomic environment**: Economic downturns can exacerbate the incidence of non-performing loans, increasing the overall credit risk for businesses.

3. RESEARCH METHODOLOGY

This study leverages secondary data sourced from the financial statements of Refrigeration Mechanical Joint Stock Company for the period from 2021 to 2023. The analytical approaches employed include:

- Quantitative Analysis: Calculating critical financial ratios such as the debt recovery rate, accounts receivable turnover, and the ratio of non-performing loans.
- Comparative Analysis: Evaluating the trends in credit risk across the years.
- Evaluation of Trade Credit Risk Management: Identifying the existing weaknesses and recommending strategic solutions for enhancement.

4. RESULTS AND DISCUSSION

4.1. Current Credit Risk Profile at Refrigeration Mechanical Joint Stock Company

In the course of its business operations, the company generates receivables and payables, collectively referred to as trade debt. The company's trade debt comprises two primary components: receivables and payables. To thoroughly analyze and elucidate the potential trade credit risks the company faces, it is crucial to conduct a comprehensive assessment of its trade debt situation.

The following data highlights the trends in key financial indicators associated with the company's trade debt, including: the accounts receivable ratio, the accounts payable ratio, accounts receivable turnover, and the average debt recovery period.

Table 1: Trade Receivables and Payables Overview of Refrigeration Mechanical Joint Stock Company for the Period 2021-2023

Indicator	2021	2022	2023	Variance	
				2021-2022	2022-2023
Receivables Turnover Ratio	0,11	0,12	0,10	0,02	-0,01
Payables Turnover Ratio	0,41	0,43	0,49	-0,05	-0,03
Receivables Conversion Cycle	2,83	3,99	3,43	0,55	-1,16
Average Collection Period (Days)	127	90	105	-15	37
Total Assets (Million VND)	31.827.003	33.914.556	34.912.272	2.087.553	997.716
Net Sales Revenue (Million VND)	5.809.810	9.371.927	8.569.918	3.562.116	-802.009

*(**Source**: Financial Statements of Refrigeration Mechanical Joint Stock Company for the years 2021, 2022, and 2023)*

The data indicates that the company's receivables turnover ratio for 2021 was 0.10 times; for 2022, it was 0.12 times; and for 2023, it stood at 0.11 times. In the first two years, this metric exhibited an upward trend of 0.02 times, suggesting that the company's capital was increasingly tied up in receivables, potentially due to a more lenient credit sales policy. The escalation of this ratio can be attributed to a surge in total assets by VND 2,087,553,359,050, or 6.56%, alongside a notable rise in receivables by VND 1,022,976,406,036, or 33.83%. The proportionate increase in receivables exceeded that of total assets, which implies that the company may have adopted a more relaxed credit policy, resulting in higher outstanding receivables.

However, in the subsequent two years, this indicator demonstrated a decline of 0.01 times, with total assets rising by VND 997,716,112,585, or 2.94%, while receivables decreased by VND 249,384,267,631, or 6.16%. The reduction in this ratio signals an improvement in the company's debt recovery efforts, as it indicates a lower proportion of capital tied up in receivables. Timely payments from customers have alleviated the burden of debt collection, reducing both the costs and efforts required in the recovery process. As a result, the company has tightened its credit policies, thereby enhancing the effectiveness of its collection procedures.

The company's accounts payable turnover ratio for 2021 was 0.49 times; for 2022, it decreased to 0.43 times; and in 2023, it further dropped to 0.41 times. The ratio consistently displayed a downward trajectory across the three years: from 2021 to 2022, it fell by 0.05 times, driven by a 6.56% increase in total assets (VND 2,087,553,359,050), while payables decreased by 4.9% (VND 758,262,200,064). This indicates that the company has successfully reduced its liabilities and scaled back its reliance on commercial credit. By 2023, the ratio declined by an additional 0.03 times compared to 2022, as total assets rose by 2.94% (VND 997,716,112,585), while payables decreased by 3.87% (VND 568,692,512,665). The reduction in the accounts payable turnover ratio signifies that the company's outstanding obligations to third parties have decreased relative to the preceding period. This enhancement in cash flow facilitates more efficient debt servicing, which in turn leads to a reduction in inventory purchases and, consequently, a decrease in outstanding payables to suppliers.

Regarding the accounts receivable turnover ratio, in 2023, it stood at 2.83 times; in 2022, it was 3.99 times; and in 2021, it was 3.43 times. This indicator increased by 0.55 times from 2021 to 2022, primarily due to a substantial rise in net revenue by VND 3,562,116,848,505 (61.31%), along with a corresponding increase in average short-term receivables by VND 657,695,940,016 (38.88%). This suggests that although the company exhibited robust growth in revenue, the concurrent increase in receivables indicates the necessity for more stringent management of credit sales to optimize operational efficiency. In 2023, the ratio experienced a decline of 1.16 times compared to 2022, as net revenue declined by VND 802,009,435,549 (8.57%) and average short-term receivables increased by VND 674,649,746,008 (28.72%). A reduction in the accounts receivable turnover ratio signifies that the company is encountering difficulties in collecting payments from customers, resulting in a rise in overdue debts. Slow recovery of receivables diminishes asset turnover and adversely impacts cash flow, posing potential liquidity risks for the company.

The average collection period for the company in 2021 was 105 days; in 2022, it was reduced to 90 days; but in 2023, it increased to 127 days. When compared to 2021, the collection period shortened by 15 days in 2022. However, from 2022 to 2023, the collection period expanded by 37 days. This increase presents considerable challenges, as delayed payments from customers result in liquidity shortages, hampering the company's ability to maintain smooth operations. The accumulation of bad debts can lead to a significant decrease in revenue and profitability, further exacerbating the company's financial difficulties.

4.2. Evaluation of Commercial Credit Risk at Cơ Điện Lạnh Mechanical Electrical Joint Stock Company

Between 2021 and 2023, the management of commercial credit risk at Cơ Điện Lạnh Mechanical Electrical Joint Stock Company underwent notable transformations, reflecting the company's evolving financial and credit strategies year by year. The following outlines the key achievements and challenges:

Achievements:

Enhanced Debt Recovery Capabilities During 2021-2022:

The accounts receivable ratio increased from 0.11 (in 2021) to 0.12 (in 2022), signifying the company's expansion of its credit policies to stimulate revenue. The receivables turnover ratio surged significantly from 2.83 times (in 2021) to 3.99 times (in 2022), indicating an accelerated pace of debt collection. The average collection period decreased from 105 days (in 2021) to 90 days (in 2022), enabling the company to improve its working capital turnover.

Progressive Reduction in Reliance on Payables:

The accounts payable ratio gradually decreased from 0.49 (in 2021) to 0.41 (in 2023), illustrating the company's increasing ability to manage its liabilities and reduce its dependence on commercial credit. The total accounts payable declined consistently throughout the period, enhancing the company's liquidity and alleviating financial strain.

Adaptive Credit Policy Responsive to Financial Conditions:

The company displayed a proactive approach in adjusting its credit policies: it expanded credit in 2022 to drive revenue growth, followed by a tightening of credit terms in 2023 to mitigate the risks associated with bad debts.

Challenges:

Risk of Capital Being Tied Up Due to Expanded Credit (In 2022):

The accounts receivable ratio rose to 0.12, while total receivables increased by 33.83%, outpacing the growth in total assets (6.56%), indicating a greater degree of capital being tied up. Despite a substantial 61.31% growth in net revenue in 2022, this expansion came with the potential risk of uncollectible debts if customers failed to meet payment deadlines.

Deterioration in Debt Collection Efficiency in 2023:

The accounts receivable turnover ratio declined from 3.99 times (2022) to 3.43 times (2023), signaling a deceleration in the company's debt recovery process. The average collection period increased from 90 days (2022) to 127 days (2023), exerting pressure on cash flow and heightening the risk of overdue receivables.

5. Strategic Solutions to Mitigate Commercial Credit Risk for the Company

To effectively mitigate commercial credit risk, the company should implement several strategic measures as outlined below:

5.1. Enhance the Credit Evaluation Process

Establish an Internal Credit Rating System:

Develop a robust credit risk assessment model that leverages financial data, payment history, and the client's credibility.

Leverage advanced data analytics technologies: Utilize Artificial Intelligence (AI) and Machine Learning to conduct real-time credit risk assessments.

Build Comprehensive Credit Profiles:

Continuously update and maintain detailed financial records and operational status of clients to ensure tailored and informed credit policies.

5.2. Enhance Credit and Debt Management Oversight

Deploy Automated Debt Management Software:

The system will autonomously issue payment reminders, thereby mitigating the frequency of delayed payments and ensuring more timely settlements.

Establish a robust debt recovery framework:

Classify clients according to their risk profiles and implement tailored, risk-sensitive recovery strategies to optimize collections.

Implement precise payment stipulations within contracts:

Clearly define payment terms, deadlines, and penalty interest rates in contracts, ensuring stringent enforcement and accountability.

5.3. Establishing a Credit Risk Reserve Fund

Allocate a percentage of revenue to hedge against credit risks: The Company should establish a robust reserve fund to mitigate the financial impact of bad debts.

Diligently accrue provisions for bad debts in compliance with regulations: Ensure that the company maintains sufficient financial resources to address potential credit risks in the future.

Collaborate with credit insurance providers: Minimize exposure to risk by securing credit insurance for high-value transactions, offering a safeguard against potential defaults.

5.4. Diversifying the Client Portfolio

Minimize Reliance on a Concentrated Customer Base:

Spread risk by broadening the client base, ensuring that no single customer holds a disproportionate share of the company's receivables.

Adopt a Dynamic and Adaptable Credit Policy:

Adjust credit terms based on the client's industry, financial standing, and business size, thereby tailoring risk management strategies to ensure stability and profitability.

5.5. Enhancing Customer Relationships and Strengthening Communication

Establish long-term partnerships with clients: Build trust by offering flexible financial support to partners with a strong payment history.

Provide incentives for early payments: Offer discounts or rebates for timely payments to encourage clients to honor their credit commitments.

Enhance clients' financial management awareness: Organize workshops and financial advisory sessions to assist clients in developing more effective financial strategies.

These strategies will help Cơ Điện Lạnh Joint Stock Company minimize commercial credit risks, improve debt collection efficiency, and optimize cash flow, ensuring sustainable business operations.

6. CONCLUSION

This study has thoroughly examined the commercial credit risk situation at Cơ Điện Lạnh Joint Stock Company during the period from 2021 to 2023. The company has demonstrated flexibility in adjusting its credit management policies to align with its evolving financial conditions and business activities. Specifically, the company expanded its credit policy in 2022 to stimulate revenue growth and subsequently tightened it in 2023 to mitigate potential risks. These adjustments have resulted in some positive outcomes, such as enhanced debt recovery efficiency in 2022 and a gradual reduction in dependence on payables. However, debt recovery in 2023 has encountered more challenges, reflected in the increased average debt recovery period.

To further optimize debt management and minimize commercial credit risks, the company must continue to strike a balance between revenue growth and effective credit risk management. Key strategies include implementing stricter controls on credit issuance, accelerating debt collection efforts, optimizing cash flow, and leveraging advanced technology for debt management. These initiatives will be pivotal in ensuring the company's financial stability and fostering long-term sustainable growth in the years to come.

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