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The Influence of Financial Risk Management on Construction Company Effectiveness in East Java, Indonesia

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Abstract

In recent years, the construction industry has developed significantly and has become one of the leading sectors for societal and economic advancement. The market for construction services in Indonesia is highly promising, with government and private sector investment activities increasing annually. A common challenge faced in project implementation is the unidentified and unmanaged project risks, which hinder the achievement of project goals in terms of time, cost, and quality. This research utilized the Smart PLS application, with the study population consisting of construction service companies affiliated with the Indonesian National Construction Contractors Association (GAPENSI) in East Java Province. The study sample included 97 respondents. The findings indicate that credit risk and effectiveness significantly affect company performance. Interest rate risk, foreign exchange risk, market risk, and liquidity risk do not significantly affect company performance. Foreign exchange risk, credit risk, and liquidity risk do not significantly affect effectiveness. Foreign exchange risk and market risk significantly affect effectiveness.

Keywords: Construction Industry, Project Risk Management, Company Performance Effectiveness, Credit Risk, Interest Rate Risk, Foreign Exchange Risk, Market Risk, Liquidity Risk, SmartPLS, Construction Services, GAPENSI Indonesia, Construction Sector

Introduction

The construction industry has significantly grown, becoming crucial for economic development and job creation (Isa et al., 2013). Its growth supports national progress and urbanization (Dainty et al., 2006). In Indonesia, rising investments highlight strong potential, which can be optimized through fair competition, legal enforcement, and support for national contractors (Hartantyo, SD 2019).

A major issue in construction projects is unmanaged risk, leading to time, cost, and quality problems. While risks can't be removed, they can be controlled. Thus, understanding and managing risks systematically is essential.

Further studies on financial risk management are needed to improve company performance and provide valuable insights for industry stakeholders, enhancing overall construction practices.

Literature Review

A. Risk Interest rate

Interest rate changes affect bonds and construction costs (Maravas & Pantouvakis, 2012). Material shortages are major issues in Palestine, Nigeria, and Egypt due to financial constraints (Enshassi et al., 2009; Okpala & Aniekwu, 1988; El-Gohary & Aziz, 2014).

H 1 : Risk ethnic group flower to performance

H 6: Risk ethnic group flower to effectiveness

B. Exchange Rate Risk

Foreign exchange risk refers to potential losses from currency fluctuations in international finance (Gad, Adel-Monem, & Hamid, 2022). It can be measured using indicators such as dollar exchange rates, floating pound policies, and dollar shortages. These fluctuations affect companies with foreign currency obligations or assets.

H 2 : Foreign exchange risk to performance

H 7: Foreign exchange risk to effectiveness

C. Market Risk

Market risk is possibility individual or other entities will experience loss Because influencing factors performance investment in a way overall in financial markets (Hayes, A., Silberstein, S., 2022). Market risks and risks specific (no systematic) is two category main risk investment . Market risk , also called " risk systematic ", no can removed through diversification , though can protected mark with another way .

H 3: Market risk to performance

H 8 : Market risk to effectiveness

D. Risk Credit

Risk credit is possibility loss consequence failure borrower For pay return loan or fulfil obligation contractual . By traditional , this refers to risk that giver loan Possible No accept principal and interest owed , resulting in disturbance cash flow and improvement cost For billing . Excessive cash flow can written For give protection addition For risk credit . When the giver loan face risk high credit , p That can reduced through level more coupons high , which provides more cash flow large (Brock, T. & Eichler, R., 2022).

H 4: Risk credit to performance

H 9 : Risk credit to effectiveness

E. Risk Liquidity

Liquidity is the ability to meet debt without major losses, while liquidity risk arises from difficulty selling assets quickly (Kenton & Smith, 2021). In construction, low-liquidity assets

can lead to financial issues, especially when relying on external funding and project payments are delayed.

H5 : Risk liquidity to performance

H10 : Risk liquidity to effectiveness

F. Construction Company Efficiency

Effectiveness is a strategic action that is planned in such a way as to achieve specific targets (Mesbah et al., 2017). Construction company effectiveness refers to how well a company achieves its goals efficiently—completing projects on time, within budget, and meeting quality standards. It involves efficient resource management and strong risk handling to minimize potential negative impacts.

H 11 : Effectiveness on Performance

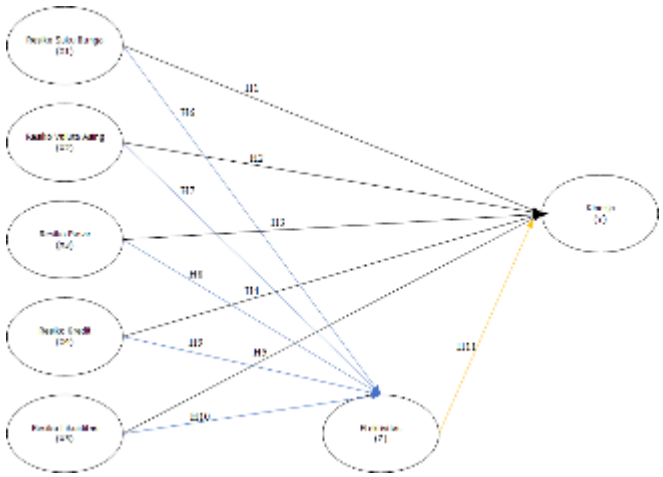

Fig 1. Framework Study

From picture 1 above shows the conceptual model from study This ie Where influence factors in management risk Where cover risk ethnic group interest , foreign exchange risk , market risk , risk credit , and risk liquidity influential to performance company construction that is intervened by effectiveness

Research Methods

The population in this study includes 3,541 construction service companies under GAPENSI East Java, consisting of 978 K1, 1,369 K2, and 1,194 K3 companies. The sample was drawn from this total using a survey method. To ensure accuracy, random sampling was applied, and the sample size was determined using Slovin's formula with an acceptable margin of error.

$$n = \frac{N}{1 + Ne^2}$$	(1)

Where :

n = Number sample company service construction

N = Number population company service construction

e 2 = Precision set (margin of error) of 10%

$$n = \frac{3541}{1 + (3541x0.1^2)} = 97 \text{ Responden} \quad (2)$$

In this study, the sample size was set at 97 respondents. A 10% margin of error was chosen due to the wide distribution of members across Indonesia and their long experience in the field, allowing them to provide accurate responses. To calculate the number of samples from each group, the following formula was used:

$$n = \frac{\text{Jumlah Sampel Seluruh Anggota}}{\text{Jumlah Populasi}} x \text{ Jumlah populasi disetiap kelompok} \quad (3)$$

$$n = \frac{978}{3541} x\ 97 = 26.79\ (K1)$$

$$n = \frac{1369}{3541} x\ 97 = 37.50\ (K2)$$

$$n = \frac{1194}{3541} x\ 97 = 32.70\ (K3)$$

NO	BPD GAPENSI PROVINCE	K3	K2	K1	AMOUNT	Information
1	East Java	978	1,369	1,194	3,541	Population
		27	37	33	97	Sample

The data collection method used in this study was a questionnaire, where written statements were given to respondents to complete. This method provided the primary data needed by the researchers (Lubis, Z., 2017: 173).

Data Analysis and Result

A. Outer Model Analysis

Following is structural model drawing data processing using Smart PLS application.

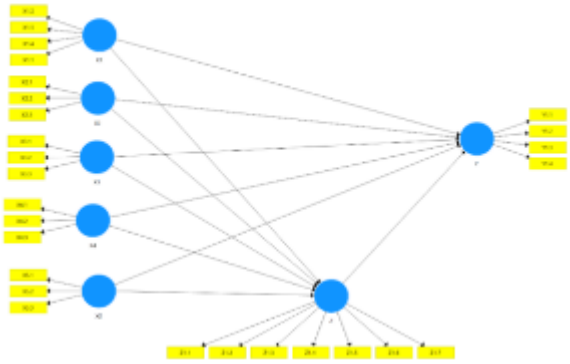

Fig 2. Structural Model

According to Hair et al. (2019), a validity test ensures that an instrument accurately measures what it is intended to. In PLS, two types are used: Convergent Validity, which is adequate if the loading factor > 0.7 and AVE > 0.5 (Dzikrulloh et al., 2022; Muhtarom et al., 2021), and

Discriminant Validity, which compares cross-loading values that must exceed 0.7 and be higher than other constructs (Putri et al., 2023).

Table I Composite Reliability and Convergent Validity Test Results
Fig 2. Structural Model

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Table I
Composite Reliability and Convergent Validity Test Results

	Items	Factor Loading	AVE	Composite Reliability	Cronbach's Alpha
(X1)Risk Interest rate	X1.1	0.944	0.824	0.949	0.928
	X1.2	0.839			
	X1.3	0.905			
	X1.4	0.938			
(X2) Exchange Rate Risk	X2.1	0.950	0.867	0.951	0.923
	X2.2	0.913			
	X2.3	0.931			
(X3) Market Risk	X3.1	0.848	0.777	0.912	0.856
	X3.2	0.948			
	X3.3	0.844			
(X4)Risk Credit	X4.1	0.822	0.711	0.881	0.801
	X4.2	0.810			
	X4.3	0.896			
(X5)Risk Liquidity	X5.1	0.851	0.782	0.915	0.861
	X5.2	0.902			
	X5.3	0.900			
(Y) Performance	Y1.1	0.846	0.832	0.952	0.932
	Y1.2	0.929			
	Y1.3	0.927			
	Y1.4	0.943			
(Z) Effectiveness	Z1.1	0.956	0.773	0.960	0.950
	Z1.2	0.828			
	Z1.3	0.883			
	Z1.4	0.915			
	Z1.5	0.799			
	Z1.6	0.801			
	Z1.7	0.956			

The table shows that all variables have loading factors above 0.7 and AVE values above 0.5 (Muhtarom et al., 2021), indicating valid constructs. It also shows Cronbach's Alpha and

Composite Reliability values above 0.7, meaning the variables are reliable (Anggraini et al., 2022).

B. Inner Model Analysis

Table II

R-Square Test Results

Variable	R Square	R Square Adjusted
(Y) Performance	0.908	0.902
(Z) Effectiveness	0.907	0.902

This test measures the influence of variable X on variable Y. An R-Square value of 0.67 is strong, 0.33 moderate, and 0.19 weak (Muhtarom et al., 2022). Based on the table, company performance has an R-Square of 0.908, meaning 90.8% is influenced by interest rate risk, foreign exchange risk, market risk, credit risk, liquidity risk, and effectiveness. Effectiveness has an R-Square of 0.907, indicating 90.7% is influenced by the five risk variables.

Hypothesis Testing

Mediation testing examines the role of a mediating variable between independent and dependent variables (Muhtarom et al., 2022). There are three types: Non-Mediation (positive direct effect, negative mediator), Full Mediation (negative direct effect, positive mediator), and Partial Mediation (all effects positive). A Specific Indirect Effect is significant if the P-value is below 0.05.

Table III

Path Analysis Output

Path Diagram	**Path Coefficient**	**t-value**	**p-value**	**Information**
X1 -> Y	-0.022	0.233	**0.816**	H1 is rejected
X2 -> Y	0.160	1,383	**0.167**	H2 is rejected
X3 -> Y	0.059	0.777	**0.438**	H3 is rejected
X4 -> Y	0.354	4,469	**0,000**	H4 is accepted
X5 -> Y	-0.022	0.418	**0.676**	H5 is rejected
X1 -> Z	0.296	3,111	**0.002**	H6 accepted
X2 -> Z	0.053	0.649	**0.517**	H7 is rejected
X3 -> Z	0.521	6,546	**0,000**	H8 accepted
X4 -> Z	0.048	0.645	**0.519**	H9 is rejected
X5 -> Z	0.095	1,787	**0.075**	H10 is rejected
Z -> Y	0.459	4,587	**0,000**	H11 accepted

Table IV
Specific Indirect Effect

Path Diagram	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
X1>Z>Y	0.024	0.024	0.039	0.620	**0.535**
X2>Z>Y	0.239	0.229	0.049	4,908	**0,000**
X3>Z>Y	0.022	0.020	0.034	0.644	**0.520**
X4>Z>Y	0.136	0.143	0.063	2,164	**0.031**
X5>Z>Y	0.043	0.044	0.028	1,570	**0.117**

Based on table 3, variables X 1 to Y showing P Values = 0.816 > 0.05. In table 4, variable X1 to Y which is intervening with Z own P- Values = 0.535 > 0.05. So , from the results of the data categorized as non-mediation.

Based on table 3, variables X 2 to Y showing P Values = 0.167 > 0.05. In table 4, variable X2 to Y which is intervening with Z own P-Values = 0.000 < 0.05 . The results of the data categorized as full mediation. X3 against Y in table 3 shows P- Values 0.438 > 0.05, and X3 against Y which is intervening by Z shows value 0.520 so categorized as non-mediation. Different with X4 against Y get P-Values value is 0.000 < 0.05, and X4 against Y which is intervened by Z gets P-Values is 0.031 , p the can enter to partial mediation category.
And last i.e. X5 against Y obtains the P-Values value is 0.676 > 0.05 and X5 to Y intervening Z, the P- Values value namely 0.117, p the can enter to in non-mediation.

A. Risk Interest Rates on Company Performance
Company Performance
Table 3 shows that the effect of interest rate risk on company performance has an Original Sample = -0.022, T-Statistic = 0.233 < 1.987, and P-value = 0.816 > 0.05, indicating H1 is rejected. This means the relationship is positive but not significant.
The findings indicate that interest rate risk does not significantly affect company performance. Thus, it is not a key factor influencing operational or financial outcomes. While rate fluctuations may affect finances, the impact is not strong enough to influence overall performance. This is supported by Sinaga (2021).

B. Foreign Exchange Risk on Company Performance
Table 3 shows that the effect of foreign exchange risk on company performance has an Original Sample = -0.160, T-Statistic = 1.383 < 1.987, and P-value = 0.167 > 0.05, meaning H2 is rejected. This indicates a positive but not significant relationship.
The result suggests that foreign exchange risk does not significantly impact company performance. Companies may have effectively managed this risk through strategies like using financial derivatives or diversifying markets and resources. This finding is supported by Bambang (2020).

C. Market Risk on Company Performance
Table 3 shows that market risk has an Original Sample = 0.059, T-Statistic = 0.777 < 1.987, and P-value = 0.438 > 0.05, indicating H3 is rejected. This suggests a positive but not significant relationship.

The findings indicate that market risk does not significantly affect company performance. This may imply that market fluctuations, such as stock price volatility or global economic uncertainty, do not strongly influence business outcomes in the studied context. However, the results should be interpreted with caution due to possible limitations like sample size or research methods. These findings align with Irmawati (2014) and Adityantoro (2013), who also found no significant effect of market risk on performance.

D. Risk Credit on Company Performance

Table 3 shows that credit risk has an Original Sample = 0.354, T-Statistic = 4.469 > 1.987, and P-value = 0.000 < 0.05, indicating H4 is accepted. This means there is a positive and significant relationship.

Credit plays a crucial role in connecting surplus and deficit parties in an economy. While it supports both consumption and investment, it carries credit risk. This risk may arise from poor credit policies, weak borrower evaluation, inadequate legal systems, interest rate instability, low capital, and insufficient supervision by banks.

E. Risk Liquidity on Company Performance

Table 3 shows that liquidity risk has an Original Sample = -0.022, T-Statistic = 0.418 < 1.987, and P-value = 0.676 > 0.05, indicating H5 is rejected. This suggests a positive but not significant relationship.

The results indicate that liquidity risk does not significantly affect company performance. Although liquidity challenges can impact cash flow, their effect on profitability, sales growth, or company valuation may be minimal in this context. These findings highlight the importance of effective liquidity management and align with research by Septian & Febriyanti (2024).

F. Risk Interest Rates against Effectiveness

Table 3 shows that interest rate risk has an Original Sample = 0.296, T-Statistic = 3.111 > 1.987, and P-value = 0.002 < 0.05, indicating H6 is accepted. This confirms a positive and significant relationship.

Interest rates serve as a monetary tool to control money supply and demand. When demand is high, rates can be raised to reduce circulation; when support for economic growth is needed, rates may be lowered. Therefore, interest rate risk—arising from rate fluctuations—plays a crucial macroeconomic role and significantly affects company effectiveness.

G. Foreign Exchange Risk to Effectiveness

Table 3 shows that foreign exchange risk has an Original Sample = 0.053, T-Statistic = 0.649 < 1.987, and P-value = 0.517 > 0.05, indicating H7 is rejected. This reflects a positive but not significant relationship.

The results suggest that foreign exchange risk does not significantly affect company effectiveness. Although currency fluctuations can create financial uncertainty, their impact on operational efficiency and productivity appears minimal in this context. These findings highlight the importance of managing foreign exchange exposure to reduce potential risks.

H. Market Risk to Effectiveness

Table 3 shows that market risk has an Original Sample = 0.521, T-Statistic = 6.546 > 1.987, and P-value = 0.000 < 0.05, indicating H8 is accepted. This confirms a positive and significant relationship.

The results suggest that market risk significantly influences company effectiveness. Despite market fluctuations potentially causing operational instability, effective market risk management is crucial for maintaining stability and optimizing performance in the studied context.

I. Risk Credit to Effectiveness

Table 3 explains that hypothesis test results variable risk credit to effectiveness have mark Original Sample amounting to 0.048 > 0.000. T-Statistics. 0.645 < T table 1.987. P-values 0.519 > 0.050 So declared H 9 rejected . This means happen direction positive relationship but No significant on the variable the .

Although important For manage risk credit with Carefully , other factors are possible own more impact big to effectiveness in a way whole .

J. Risk Liquidity to Effectiveness

Table 3 shows that liquidity risk has an Original Sample = 0.095, T-Statistic = 1.787 < 1.987, and P-value = 0.075 > 0.05, indicating H10 is rejected. This means a positive but not significant relationship.

The findings suggest that liquidity risk does not significantly affect efficiency. While liquidity shortages can challenge cash flow and financial sustainability, their direct impact on operational efficiency appears limited in this study. This highlights the need for strong liquidity management to handle financial pressures without compromising efficiency.

K. Effectiveness on Company Performance

Company Performance

Table 3 shows that credit risk has an Original Sample = 0.459, T-Statistic = 4.587 > 1.987, and P-value = 0.000 < 0.05, indicating H11 is accepted. This confirms a positive and significant relationship. Effective credit risk management improves company performance by minimizing losses and supporting long-term sustainability through appropriate risk strategies.

Conclusion

Risk credit and effectiveness influential in a way significant to performance company . Risk ethnic group interest , foreign exchange risk , market risk , and risk liquidity No influential in a way significant to performance company . Foreign Exchange Risk , risk credit and risk liquidity No influential in a way significant to effectiveness . Foreign exchange risk and market risk have an influence in a way significant to effectiveness .

Risk is things that don't will Once can avoided at some point activity or activities carried out human , therefore That usage technique analysis risk , which is adopted from discipline knowledge management in the retrieval process decisions on activities investment in the

sector industry construction , esp subsector is very important , because in every activities , such as project , for sure There is various uncertainty (uncertainty).

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