

Factors Affecting the Efficiency of Concessional Loans at Environment Protection Funds in Vietnam

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Abstract

This study uses survey data of 427 officials working at 22 central and local environment protection funds in Vietnam that are implementing concessional lending activities. Data analysis was performed using SPSS 22.0 software and the application of Structural Equation Modeling (SEM) analysis in AMOS 22. The results showed that the factors: Policy mechanism, human resource quality, credit risk management and local support are factors that positively and positively affect the effectiveness of preferential loans for environment protection projects and the management capacity of project owners.

Keywords: Efficiency of Preferential Loans; Environmental Protection Investment Projects; Environmental Protection Fund in Vietnam.

1. Introduction

The report on the current state of the environment in Vietnam for the period 2015-2020 has clearly shown the problem of population, urbanization; developing industrial zones and craft villages; energy development; construction development, transportation; tourism and medical activities; agricultural development... has an impact on the increase in environmental pollution, climate change, greenhouse gas emissions, degradation, resource depletion and biodiversity loss and consequences for human health of Vietnamese people. In Vietnam, there are 48 environment protection funds (01 Central fund, 46 local funds and 01 coal industry fund). Operational purposes of Environment Protection Funds are non-profit activities, establishing financial support mechanisms for environmental protection investment programs and projects; associating development - society with environment protection; encouraging investment in environment protection. Up to now, many environmental protection projects and programs have been successfully implemented thanks to financial support from Environment Protection Funds and financial support from international organizations. This study aims to determine the factors affecting the efficiency of concessional loans at Vietnam, Environment Protection Funds and to find the difference in the degree of influence of those factors on the efficiency of concessional loans environmental protection investment projects, helping the Environment Protection Funds successfully realize the goal of financial support for environmental protection investment projects in the coming time. The author has systematized the theoretical basis related to the preferential lending activities for investment projects in environmental protection and used the OECD's view of preferential lending efficiency as the basic theoretical foundation in this research. Accordingly, the effectiveness of preferential lending for environmental protection

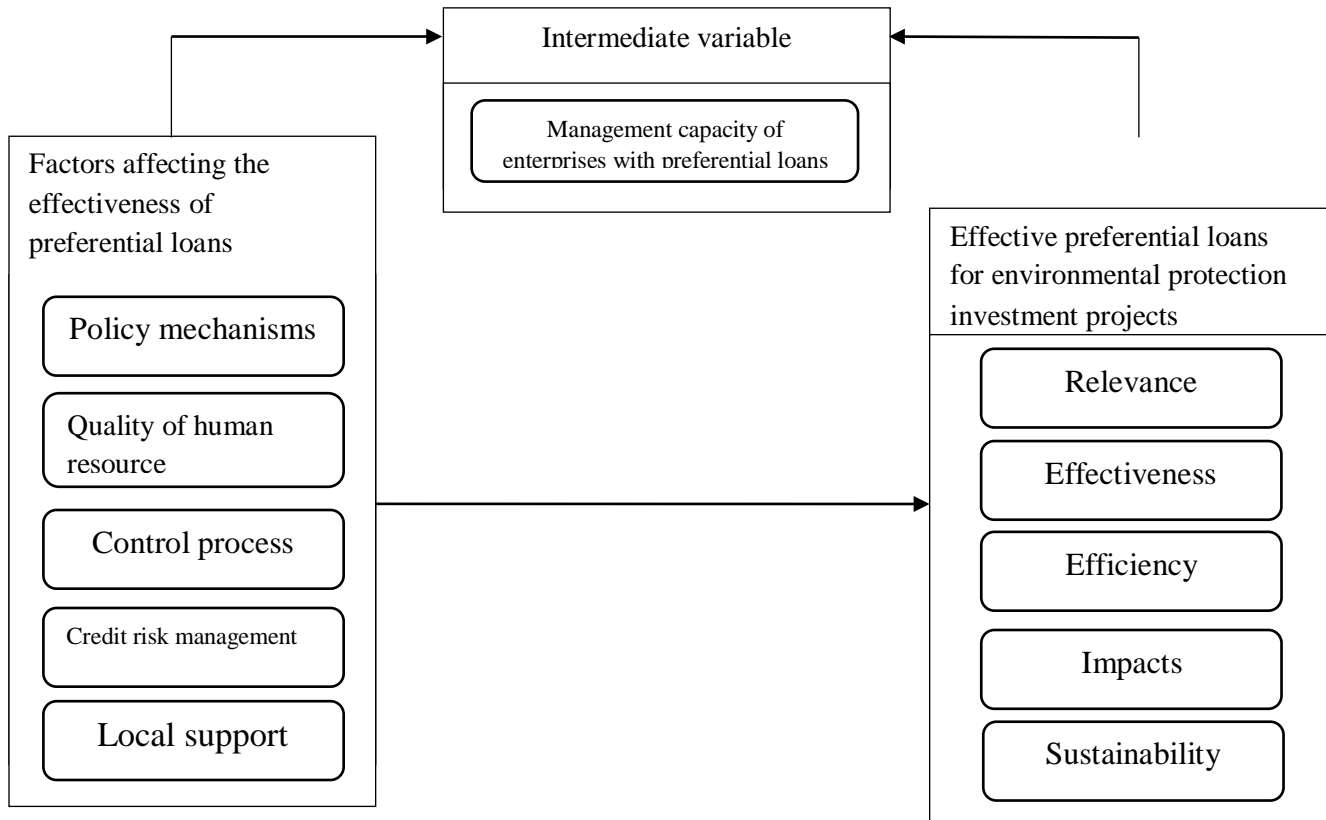
investment projects is the rational allocation of capital structure and the implementation of preferential lending activities to the right subjects, in accordance with the process and regulations to ensure secure capital sources and bring economic and social benefits to stakeholders.

2. Research Background and Hypothesis Development

The effectiveness of preferential lending for investment projects in environmental protection is demonstrated through the mechanism of allocating capital structure to reasonable priority areas and implementing preferential lending activities to the right subjects, in order to optimize capital turnover efficiency and social efficiency that preferential capital brings to investors of environmental protection projects. Prof. Maciej Nowicki (2009), former Minister of Environment of Poland, identified the method of mobilizing concessional loans as a factor that greatly affects the effectiveness of concessional loans. Studying the evaluation index of ODA projects, Kim. K (2015) emphasizes how the disbursement of concessional loans has a positive effect on the efficiency of concessional loans. A number of other studies (Henri and Journeault, 2010; Melnyk et al., 2003), focus on the achievement aspect of environmental goals and claim a reduction in overall costs, production time, quality improvement, market reputation improvement, product design perfection, and waste reduction in the production process are the factors that have a great influence on the decision to lend preferential loans. Recently, studies have focused on making an increase in the control system of loan projects, assessing project effectiveness by cost-benefit analysis techniques (Steinmann, 2001), one of the factors affecting the effectiveness of preferential loans. Authors Leen Decadt (2001); Furia, L, D and Wallace-Jones. J. (2000); Pohjola, M. V., and Tuomisto, J. T. (2011); Wang et al (2003); Reed (2008)... argues that public participation is the most effective way to control businesses using concessional capital in environmental protection, community participation as an essential part to support sustainable growth and development.

In this study, the author uses the evaluation model according to OECD guidelines as a theoretical basis to measure the effectiveness of concessional loans at environment protection funds in Vietnam in aspects such as: (i) Relevance; (ii) Effectiveness; (iii) Efficiency; (iv) Impacts and (v) Sustainability. Combining different research methods, the author identified 5 factors affecting the effectiveness of preferential loans for investment projects in environmental protection in Vietnam. Proposed research model on factors affecting concessional lending activities at the Environmental Protection Fund:

Figure 1. Research model



Inheriting research results of authors such as: Nelly Petkova (2006); Ahmad, N. H., and Ahmad, S. N. (2004); Report produced by OECD (2014) within the framework of "Greening economies in the European Union's Eastern Partnership countries"; Hassan Al-Tamimi and Mohammed Al-Mazrooei (2007); Misker Bizuayehu (2015); Al -abedallat (2016); Salas and Saurina (2002); Rajan and Dhal (2003); JICA Vietnam (2016); International Finance Corporation (IFC, 2012), the author proposes the following research hypotheses:

H1: Mechanisms and policies have a positive impact on the effectiveness of preferential loans for investment projects in environmental protection

H2: Human resource quality has a positive impact on the effectiveness of preferential loans for investment projects in environmental protection.

H3: The loan control process has a positive impact on the effectiveness of preferential loans for investment projects in environmental protection.

H4: Credit risk management has a positive impact on the effectiveness of preferential loans for investment projects in environmental protection.

H5: Local support has a positive effect on the effectiveness of preferential loans for investment projects in environmental protection.

Considering the intermediary role between the management capacity of the investor of the concessional loan in the relationship between the efficiency of using the concessional loan for environmental projects and the influencing factors, and also based on the research results of the authors Krasnikov and Jaynchandran (2008); R. K. Mavi and C. Standing (2018); C. Scott-Young and D. Samson (2008); Knippenberg. D.V and Hogg.M.A (2003); Koene, Bas A.S. et al (2002); Le Quan et al (2011) the author proposes:

H6: The mediating factor between the management capacity of the investor receiving concessional loan in the relationship between the efficiency of the concessional loan and the factors affecting the efficiency of the concessional loan for environmental protection investment projects.

3. Research Methods

In this study, the author uses a combination of qualitative and quantitative methods to build, develop models, research hypotheses and process research data based on survey data from questionnaires with 5-level Likert scale. The data were collected from 427 officials working at 22 Central and local environment protection funds in Vietnam are implementing preferential lending activities. Data analysis was done using SPSS 22.0 software and application of Structural equation modeling (SEM) in AMOS 22. Quantitative research helps to test the reliability of the scales in the thesis topic by analyzing Cronbach's Alpha coefficient and removing measurement variables that are not suitable for the research model; Exploratory Factor Analysis (EFA); Confirmatory factor analysis CFA in SEM linear structure model; Test the model and research hypotheses of the thesis topic, thereby adding new findings in the research (if any). On that basis, the author determines the degree of influence of the factors and the level of impact of each factor on the effectiveness of preferential lending for investment projects in environmental protection.

4. Research results

4.1. Check the reliability of the scale

From the results presented in Table 1, it shows that the Cronbach's Alpha ranges from 0.792 to 0.957. According to Hair, Black, Babin, Anderson and Tatham (2006), the corrected Item-Total Correlation greater than 0.3 is acceptable. In this study, 11 variables and 68 observed variables have high reliability coefficient (above 0.7). This means the observed variables are reliable and are used for the next step of exploratory factor analysis.

Table 1: Reliability of the scales in the study

Scale	Number of observed variables	Cronbach's Alpha
Dependent variable		
Relevance (PH)	6	0.918
Effectiveness (HQ)	7	0.957
Efficiency (HS)	8	0.934
Impacts (TD)	5	0.822
Sustainability (BV)	7	0.865
Independent variable		
Policy mechanisms (CC)	5	0.792
Quality of human resource (NS)	6	0.896
Control process (KS)	8	0.889
Credit risk management (RR)	6	0.924
Local support (DP)	4	0.850
Intermediate variable		
Management capacity of business owners (NL)	6	0.792

Source: Author synthesizes calculation results from survey data

4.2. Exploratory Factor Analysis (EFA)

Studies have shown that exploratory factor analysis is necessary in this case because the scale used by the author in the study is derived from many sources, so the variable structure has not been clearly defined. According to Hair et al., when analyzing EFA, independent and dependent variables should not be combined but should be separated for analysis. The authors illustrates that, if the dependent and independent variables are included in the same EFA analysis, the strong correlation between the independent variables and the dependent variable makes the observed variables of the dependent variable scales easy to be merged with independent variables. This makes the scale structures not guaranteed to be discriminant in EFA. Therefore, the separate EFA analysis of the independent variables and the dependent variable are the most optimal and reasonable in terms of the correlation between the variables.

*** Exploratory factor analysis for dependent variables**

The method to conduct exploratory factor analysis is Principal Component Analysis method with Varimax perpendicular rotation; The basis for factor extraction is based on Eigen Value greater than 1. The factor analysis is conducted on 33 observed variables. The results of KMO and Bartlett's test are shown in Table 2. The structure of the dependent variable is consistent with the five variables and exploratory factor analysis explains 67,781 percent of the variation.

Table 2. Factor analysis for the dependent variables

	Dependent variable				
	Relevance	Effectiveness	Efficiency	Impacts	Sustainability
PH1			0.849		
PH2			0.855		
PH3			0.849		
PH4			0.826		
PH5			0.845		
PH6			0.805		
HQ1	0.946				
HQ2	0.823				
HQ3	0.860				
HQ4	0.867				
HQ5	0.919				
HQ6	0.872				
HQ7	0.940				
HS1		0.840			
HS2		0.847			
HS3		0.819			
HS4		0.869			
HS5		0.811			
HS6		0.825			
HS7		0.813			
HS8		0.778			
TD1					0.787
TD2					0.756
TD3					0.690
TD4					0.793
TD5					0.790
BV1				0.663	
BV2				0.758	
BV3				0.835	
BV4				0.718	
BV5				0.730	
BV6				0.696	
BV7				0.814	

KMO = 0,897; Bartlett's test $\chi^2 = 9645$, sig = 0.000

Source: Calculation results from survey data

Note: Only load factors greater than 0.3 are shown in the table

Kaiser Meyer-Olkin Index Measures sample accuracy by 0.897 which is greater than the acceptable level of 0.5; The indicators of Bartlett's test are consistent with $\chi^2 = 9645$, Sig = 0.000, this result shows that the exploratory factor analysis is appropriate. The results of exploratory factor analysis show that all variables in the same variable are clustered on the same factor, no variable is loaded on another factor. The coefficients are all greater than 0.5. According to research by Hair et al. (2006), loading factor greater than 0.5 means has practical

significance. Hence, the five dependent variables have a clear variable structure and are five different variables.

*** Exploratory factor analysis for the independent variable**

The analysis results show that the structure of the dependent variable is consistent with the five seas and the exploratory factor analysis explains 64,042% of the variation, with the rotation method being Varimax. The Kaiser Meyer-Olkin index measures a sample's accuracy of 0.915 which is greater than the acceptable level of 0.5; The indicators of Bartlett's test are all consistent with $\chi^2 = 6842$, sig = 0.000, proving that the exploratory factor analysis is appropriate.

Table 3: Result of factor analysis to discover independent variable

	Independent variable				
	Policy mechanisms	Quality of human resource	Control process	Credit management risk	Local support
CC1				.660	
CC2				.760	
CC3				.756	
CC4				.642	
CC5				.764	
NS1			.793		
NS2			.780		
NS3			.746		
NS4			.749		
NS5			.682		.352
NS6			.759		
KS1	.741				
KS2	.686				
KS3	.718				
KS4	.643				
KS5	.749				
KS6	.731				
KS7	.771				
KS8	.738				
RR1		.915			
RR2		.868			
RR3		.791			
RR4		.833			
RR5		.803			
RR6		.893			
DP1					.743
DP2					.772
DP3			.320		.783
DP4					.705

KMO = 0,915; Bartlett's test $\chi^2 = 6842$, sig = 0.000

Source: Calculation results from survey data

Note: Only load factors greater than 0.3 are shown in the table

Calculation results from survey data show that variables on mechanisms, policies, control processes, and credit risk management all have load variables on the same factor, only variables NS5 and DP3 load more than 2. factor, but the difference of the load factor is greater than 0.3. Therefore, the results of factor analysis exploring independent variables have variable structure of 5 different factors.

4.3. Confirmatory Factor Analysis (CFA)

* Factor analysis confirms the dependent variable

The results of factor analysis confirming the dependent variable in this study are shown in Figure 2.

The results of the confirmatory factor analysis show that the fit of the model is quite high. $\chi^2 / df = 1.562$ is less than the acceptance level of 3; GFI (Goodness of Fit) index of 0.906 is greater than the acceptable level of 0.9. The RMSEA (Root Mean Square Error of Approximation) index is 0.036 less than 0.8. The CFI (Comparative Fit index) is 0.971 at a good level, the TLI (Tucker Lewis Index) near the value 1 shows that the model fits at a high level and is valid in this study.

CMIN/DF = 1.562 ; GFI = .906; CFI = .971; RMSEA = .036; TLI = .968

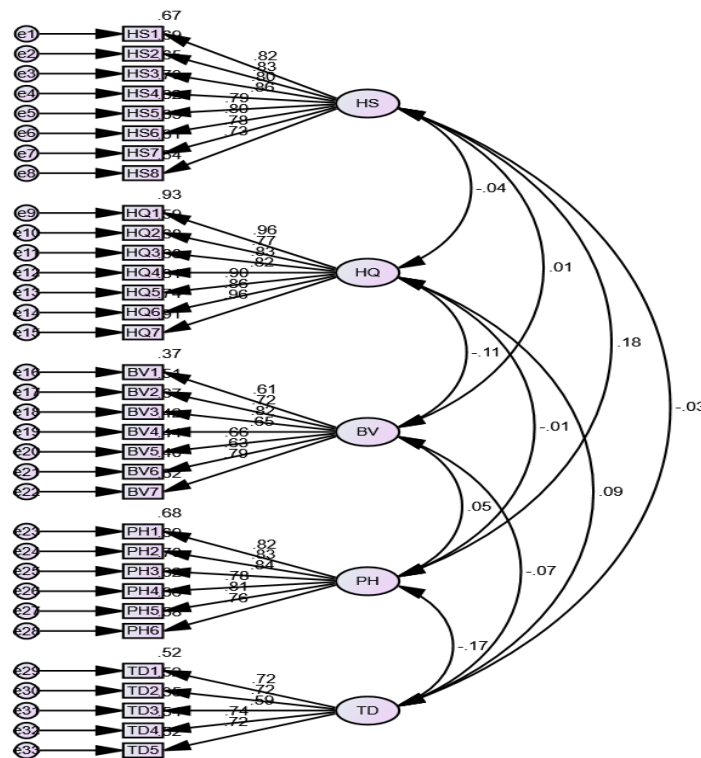


Figure 2: Results of confirmatory factor analysis of dependent variable

Dive deeper into composite reliability (CR) metrics; Extracted Variance (AVE) and Maximum Specific Variance (MSV) to confirm variable structure, results from detailed survey data (Table 4).

Table 4: Confirmatory factor analysis indicators of dependent variable

	(1)	(2)	(3)	(4)	(5)	CR	AVE	MSV
(1) Efficiency	1					0.935	0.632	0.031
(2) Effectiveness	-0.042	1				0.957	0.762	0.013
(3) Impacts	-0.032	0.091	1			0.827	0.491	0.031
(4) Relevance	0.177	-0.007	-0.173	1		0.919	0.656	0.031
(5) Sustainability	0.013	-0.113	-0.071	0.049	1	0.869	0.490	0.013

Source: Calculation results from survey data

According to research by Hu and Bentler (1999), composite reliability (CR - Composite Reliability) is greater than 0.7 which is an acceptable level. The variance extracted (Average Variance Extracted (AVE) of the performance, efficiency, and fit variables are all larger than the acceptable level of 0.5 proposed by Hu and Bentler (1999). However, according to Hair et al. (2006) the AVE should be greater than 0.5 but in specific studies it is acceptable to accept an AVE of 0.4. Fornell and Larcker (1981) suggested that if the AVE is less than 0.5, but if the composite confidence is higher than 0.6, the validity of the structure is still suitable and acceptable. The largest individual variances (Maximum Shared Variance - MSV) are all smaller than AVE, showing that the variable structure of the dependent variables in the research model is quite clear.

*** Factor analysis confirms the independent variable**

The results of the confirmatory factor analysis of the independent variable in the detailed research model Figure 3.

CMIN/DF=1.559; GFI=.915; CFI=.969; RMSEA=.036; TLI=.966

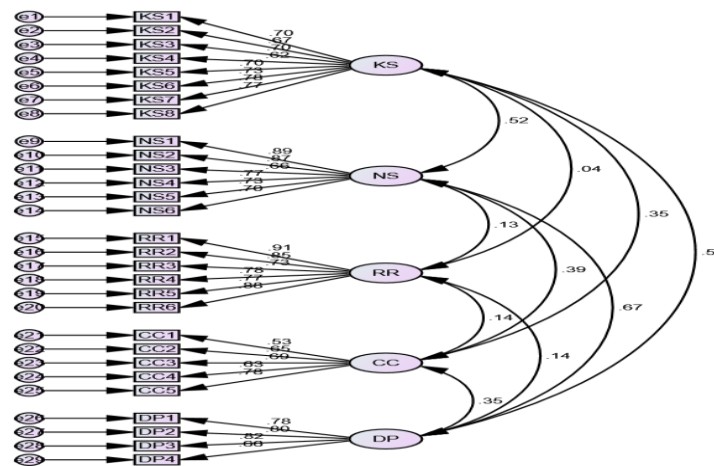


Figure 3: The results of confirmatory factor analysis of the independent variable

The results of factor analysis confirm that the independent variables show a high degree of fit of the model. $\chi^2 /df = 1.559$ is less than the acceptance level of 3; GFI (Goodness of Fit) index of 0.915 is greater than the acceptable level of 0.9. The RMSEA (Root Mean Square Error of Approximation) index is 0.036 less than 0.8. The CFI (Comparative Fit index) is 0.969 which is good, the TLI (Tucker Lewis Index) near 1 indicates a high fit of the model. Dive deeper into composite reliability (CR) metrics; Extracted Variance (AVE) and Maximum Specific Variance (MSV) to confirm the structure of dependent variable, results from detailed survey data see Table 5.

Table 5: Confirmatory factor analysis indicators of independent variables

Dependent variables	(1)	(2)	(3)	(4)	(5)	CR	AVE	MSV
(1) Control process	1					0.890	0.504	0.266
(2) Quality of human resource	0.516	1				0.898	0.597	0.450
(3) Credit risk management	0.040	0.133	1			0.927	0.680	0.021
(4) Policy mechanisms	0.352	0.388	0.141	1		0.793	0.437	0.151
(5) Local support	0.506	0.671	0.143	0.351	1	0.852	0.591	0.450

Source: Calculation results from survey data

According to research by Hu and Bentler (1999), composite reliability (CR - Composite Reliability) is greater than 0.7 which is an acceptable level. The results of the confirmative factor analysis of the independent variable show that the variance extracted (Average Variance Extracted - AVE) of the variables (1) loan control process, (2) quality of human resource, (3) credit risk management, (5) local support is all greater than the acceptable level of 0.5 as suggested by Hu and Bentler (1999). The AVE of the policy and mechanism variable is 0.437 which is close to the acceptable value of 0.5. However, according to Hair et al. (2006), the extracted variance should be greater than 0.5 but acceptable at 0.4. The authors Fornell and Larcker (1981) suggest that if the extracted variance is less than 0.5 but the aggregate reliability is higher than 0.6, the validity of the structure is still appropriate. The combined reliability of the mechanism and policy variables is 0.793, greater than 0.6. MSV (Maximum Shared Variance) are all smaller than the extracted variance, showing that the variable structure of the independent variables is quite clear and significant in the study.

4.5. Structural regression analysis results

CMIN/DF=1.508; GFI=.821; CFI = .937; RMSEA=.035; TLI=.934

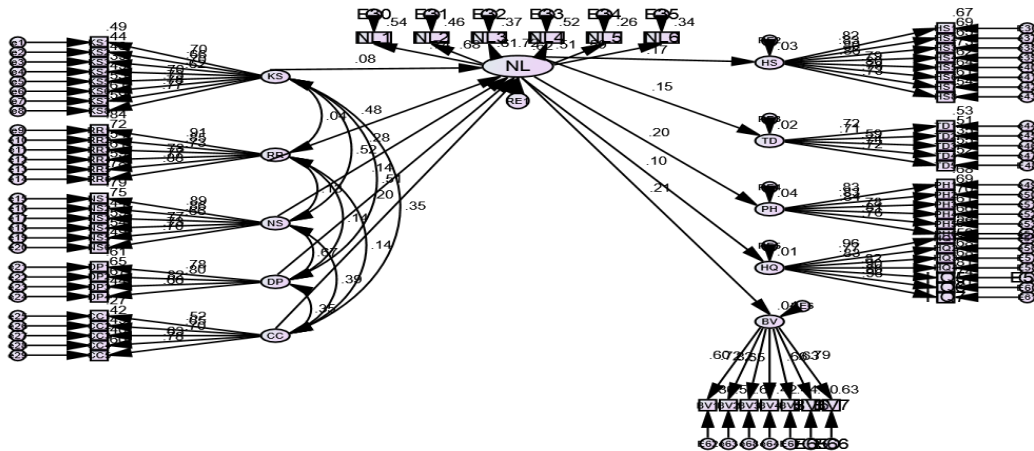


Figure 4: Structural regression results

The structural regression analysis results show that the model's fit is quite high. $\chi^2 / df = 1.508$ is less than the acceptable level of 3; The GFI (Goodness of Fit) index of 0.821 is less than the acceptable level of 0.9. The RMSEA (Root Mean Square Error of Approximation) index is 0.035 less than 0.8. The Comparative Fit index (CFI) is 0.937 which is acceptable, the TLI (Tucker Lewis Index) is 0.934 which is greater than 0.9. Among the model fit indicators, only the GFI index does not fit. However, according to Doll, Xia and Torkzadeh (1994) a GFI greater than 0.8 is an acceptable level in the case of limited sample size. Thus, the model in this study is quite suitable and valid.

Table 6: Regression results

	β	S.E.	C.R.	P	Note
NL <--- RR	0.228	0.022	10.338	***	Accepted
NL <--- KS	0.076	0.047	1.614	0.107	Rejected
NL <--- NS	0.175	0.039	4.444	***	Accepted
NL <--- DP	0.093	0.043	2.134	0.033	Accepted
NL <--- CC	0.267	0.071	3.780	***	Accepted
HS <--- NL	0.254	0.083	3.051	0.002	Accepted
TD <--- NL	0.157	0.062	2.534	0.011	Accepted
PH <--- NL	0.296	0.080	3.717	***	Accepted
HQ <--- NL	0.222	0.116	1.909	0.056	Accepted
BV <--- NL	0.174	0.048	3.623	***	Accepted

Source: Calculation results from survey data

Note: *** là $P < 0,000$

The survey results show that the management capacity of investment project owners is an intermediate variable that predicts the effectiveness of preferential loans for environmental protection projects (relevance, effectiveness, efficiency, impact and sustainability). Among them, management capacity has the greatest impact on relevance, efficiency, and effectiveness. The management capacity of the investment project owner positively affects the relevance with $\beta = 0.296$ ($se = 0.080$, $p < 0.000$) This means, if the project owner's management capacity is increased by one unit, the relevance of investment projects will be increased by 0.296 units. Conversely, if the investor's management capacity is reduced by 1 unit, it will reduce the relevance of the investment project to 0.296 units. Management capacity has a positive impact on performance with $\beta = 0.254$ ($se = 0.083$, $p = 0.002$), this result shows that if increasing management capacity by one unit, it will increase the performance of investment projects by 0.254 units. Conversely, if the management capacity is reduced to one unit, the efficiency of the projects will be reduced by 0.254 units... Similarly, the management capacity of the investment project owner has a positive correlation with the effectiveness and sustainability of the project. It can be affirmed that if the Environmental Protection Funds want to increase the effectiveness of concessional loans, they need to strengthen the management capacity of the project owners of concessional loans through different forms and methods suitable to the source of concessional loans.

Considering the relationship between the intermediate variable (the project owner's management capacity) and the factors affecting the effectiveness of preferential loans, there are four factors that positively affect the management capacity of the project owner, including: Policy mechanism, quality of human resources, credit risk management and local support. The other factor is that the loan control process does not have a positive impact on the management capacity of project owners with concessional loans. Policy mechanism is the variable with the greatest impact on management capacity with $\beta = 0.267$ ($se = 0.071$, $p < 0.000$). If the policy mechanism variable is increased by one unit, it will increase the management capacity of the project owner with concessional loans to 0.267 units. On the contrary, if there is any impact that reduces the policy mechanism to one unit, it will reduce the management capacity to 0.267 units. Similar to the above, the second most influential factor on the management capacity of investment project owners with preferential loans is risk management with $\beta = 0.228$ ($se = 0.002$, $p < 0.000$), then comes quality of human resource management of environmental protection funds in Vietnam with impact coefficient $\beta = 0.175$ ($se = 0.039$, $p < 0.000$). The factor that has the least impact on the management capacity of project owners with preferential loans for environmental protection investment is the local support with $\beta = 0.093$ ($se = 0.043$, $p = 0.033$). This result shows that if the local support is increased by one unit, it will increase the management capacity of the project owner with the preferential loan for environmental protection investment to 0.093 units. On the contrary, if there is an impact of reducing local support to one unit, it will reduce management capacity to 0.093 units. In particular, the results of data analysis showed that the control process factor did not affect the management capacity of project owners with preferential loans for investment in environmental protection with $\beta = 0.076$ ($se = 0.047$, $p = 0.107$). This places careful requirements for managers at Environmental

Protection Funds in Vietnam when developing, adjusting, supplementing and changing the preferential loan control process for owners of capital-intensive projects. Preferential loans to invest in environmental protection projects.

5. Conclusion

Research on factors affecting the effectiveness of preferential loans for environmental protection projects reflects the current situation that staff of Environmental Protection Funds in Vietnam currently do not really pay attention to credit risk management measures. The participation of local people with investors in monitoring the implementation of environmental protection projects has the lowest impact on this scale. Regression analysis shows that there are 4 factors affecting the capacity of the investor (mechanism and policy, quality of human resources, credit risk management, local support). The other variable is the loan control process which does not have a positive impact on the management capacity of the project owner with preferential loans for investment in environmental protection. In addition, the quality of human resource of the credit department and the appraisal of investment projects of environmental protection funds is still inadequate and has not been paid much attention by the Fund's leaders. Managers need to be cautious and choose the appropriate method of impact when influencing the loan control process in order to increase efficiency in preserving the fund's preferential capital. Considering the management capacity of project owners with concessional loans in relation to the efficiency of concessional loans, the regression results also show that the management capacity variable has a positive impact on all 5 dependent variables (Efficiency, impacts, relevance, effectiveness and sustainability). Of these five factors, management capacity has the greatest impact on relevance and efficiency. Therefore, when the management capacity is improved, the project's performance and the project's relevance will increase. In addition, when the investor deploys any business activities in any field, the innovation in the way of doing and thinking must be focused because it directly affects the efficiency of business administration and operation.

These are the observations that the author has discovered from the results of research on the current status of factors affecting the effectiveness of preferential lending for environmental protection investment projects of environmental protection funds in Vietnam in the period 2016 to 2020. The above findings are the basis for the author to propose appropriate solutions and recommendations to help Environmental Protection Funds in Vietnam increase efficiency in using concessional loans for environmental protection projects, contributing to meeting objectives and strategies. countries in environmental protection.

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Appendix

Summary table of variable codes

Dependent variable code	
1. Relevance - PH	PH1. The project is suitable for local needs and priorities
	PH2. The project is in line with the overall national goal of environmental protection
	PH3. The investment objective of the project owner is consistent with the policies and regulations on preferential loans of the environmental protection fund
	PH4. The project is designed, using advanced domestic technology, and providing appropriate technical assistance to achieve the set goals.
	PH5. The scope of project implementation is in line with the requirements of stakeholders (government, locality, beneficiaries, concessional lenders, etc.)
	PH6. The suitability of the project's financial mechanism (Finance Modalities), equity capital, working capital, etc. with the policy of preferential loans for investment in environmental protection and project objectives.
2. Effectiveness - HQ	HQ1. Project implementation results meet the objectives of the investor and stakeholders in environmental protection
	HQ2. Projects with preferential loans from the environmental protection fund to facilitate economic development of the locality where the projects are implemented
	HQ3. The project contributes to creating jobs for people in the surrounding area
	HQ4. Projects with preferential loans from the Environmental Protection Fund in Vietnam can reduce costs to overcome environmental consequences
	HQ5. Ensuring the safety of public health in the vicinity of projects with preferential loans from the Environmental Protection Fund in Vietnam
	HQ6. Ensure biodiversity and ecosystem in the area projects with preferential loans from the Environmental Protection Fund in Vietnam
	HQ7. Project implementation results contribute to reducing the risk of water, air, soil pollution and greenhouse effect
3. Efficiency- HS	HS1. The enterprise's own capital meets the minimum level calculated on the total capital spent on investment projects on environmental protection
	HS2. The actual revenue of the project is in line with the original expected revenue
	HS3. The ratio of operating cash flow to total capital is in line with the original plan of the project.

	HS4. Working capital, total debt to total equity (debt to equity) of the business in line with the initial plan of the project
	HS5. Account payable turnover, account receivable turnover are in line with the original estimate of the project.
	HS6. The profit-to-total revenue (ROI) ratio is in line with the project's original plan
	HS7. Net Present Value (NPV) is in line with the original projection of the project
	HS8. Internal rate of return (IRR) is consistent with the project's original plan
4. Impacts - TD	TD1. Invested project brings positive impact on environment (local, regional level)
	TD2. Implemented projects bring positive socio-economic impacts (local and regional level)
	TD3. The project creates a positive impact, needs to be replicated
	TD4. Project implementation results have a positive impact on the safety of concessional loans of the environmental protection fund
	TD5. The selection of technology, work items and project activities
5. Sustainability - BV	BV1. Financial statements of enterprises are transparent and fully reflect reliable financial indicators
	BV2. The enterprise does not violate its commitment to repay the loan interest during the preferential loan period
	BV3. The internal rate of return of the project in accordance with the original plan
	BV4. The project contributes to increasing income levels and stabilizing long-term life for people in the vicinity
	BV5. Preferential loans help businesses reduce environmental pollution (water, air, land) in the area.
	BV6. The project contributes to the protection of natural resources, landscapes and historical relics (if any)
	BV7. Enterprises eligible for concessional loans commit to continue implementing environmental protection projects even after their preferential policies expire.
Independent variable code	
1. Policy - CC	CC1. The funding from the state budget and the provincial budget for projects with preferential loans for environmental protection has not yet met practical needs
	CC2. Legal bases for the organization and operation of environmental protection funds are incomplete
	CC3. The organizational structure of the Fund's management apparatus at the central and local levels is not synchronized
	CC4. The policy on operation coordination and capital coordination between

	central funds and local funds has not been established
	CC5.The policy of mobilizing capital from domestic and foreign organizations and individuals has not been focused.
2. Quality of Personnel - NS	NS1.Environmental protection funds have a deep understanding of business processes, accurate and effective advice
	NS2. Staff of the environmental protection fund's professional divisions/departments have expertise in credit and appraisal and selection of feasible projects
	NS3.Risk managers have the ability to recognize, respond to and control problem debts
	NS4.The structure of personnel to manage concessional loan projects is consistent with the projects approved for concessional loans of the fund
	NS5.The staff of the environmental protection fund's professional departments/departments are always trained and fostered in knowledge and professional development.
	NS6.Environmental protection fund staff comply with regulations on professional ethics
3. Loan control process - KS	KS1.The process of appraising and selecting preferential loan projects has specific, objective and transparent criteria.
	KS2.Customer records are kept in the fund's documents and made public
	KS3.Dossier-receiving officer and project and asset appraisal officer with high specialization
	KS4.The Foundation has an effective communication policy that ensures that all businesses have equal access to information and opportunities for their projects to be considered.
	KS5.Check disbursement conditions and content
	KS6.The inspection of the use of concessional loans in accordance with the loan purposes of customers is always carried out according to the plan.
	KS7.The loan management department has a plan to periodically check with a scientific and effective method
	KS8. There is a plan to check the project implementation situation, change the collateral ... of customers with preferential loans.
4. Credit risk management - RR	RR1. The Environmental Protection Fund's credit risk management process is strict
	RR2. The credit information system is deployed in a timely and synchronous manner
	RR3. The risk management department is separate from the internal inspection and control department
	RR4. The classification of debts and setting up of provisions for risks of the Environmental Protection Fund are in accordance with regulations.
	RR5. The Fund has a problem debt management department and a security

	asset handling division.
	RR6. The Fund has a plan to implement effective measures to handle bad debts.
5. Local support - DP	DP1. The support of the local government for the investors of environmental protection projects
	DP2. The role of media agencies and civil society organizations in monitoring and implementing environmental protection projects
	DP3. The support of local people for investors in implementing environmental protection projects
	DP4. Participation of local people in monitoring, implementing and operating environmental protection projects
Intermediate variable code	
Management capacity of business owners with preferential loans - Capacity	NL1. Having knowledge of industries and fields related to investment in environmental protection projects
	NL2. Knowledge of business strategy
	NL3. Having knowledge of financial and human resource management
	NL4. Capability to plan, organize, operate and control projects
	NL5. Thought ready to innovate
	NL6. Capability to mobilize capital from other sources of environmental protection investment project owners