

## Research Article

# Financial Performance of Local Governments: The Effects of Disaster Risk

Nova Anggriani<sup>1\*</sup>, Andi Chairil Furqan<sup>1</sup>, Latifah Sukmawati Yuniar<sup>1</sup>, and Shinta Megawati Sitorus<sup>2</sup>

<sup>1</sup>Faculty of Economics and Business, Tadulako University, Palu, Indonesia

<sup>2</sup>Regional Research and Innovation Agency, Central Sulawesi Province, Indonesia

## Abstract.

Financial performance is a measure of assessing the sustainability of an organization. This study aims to analyze how disaster risk impacts local governments' financial performance as measured by the Disaster Risk Index (DRI). This study uses data from Local Governments in Indonesia for 2015-2021 with a total sample size of 3766 observations. The results show that the DRI negatively impacts the level of local autonomy, financial flexibility, and service solvency. However, the DRI has no bearing on short-term solvency. The results are robust to different measurements of the DRI, whether using scores or DRI categories, particularly the negative impact of the DRI on the level of regional autonomy and service solvency. These findings have implications for efforts to improve the financial performance of local governments and reduce disaster risk (DRR). Therefore, as a strategy to enhance financial performance while maintaining regional financial sustainability, local governments need to establish policies and disaster mitigation programs oriented toward disaster risk reduction.

**Keywords:** DRI, financial performance, level of regional autonomy, financial flexibility, service solvency

Corresponding Author: Nova  
Anggriani; email:  
novaanggriani535@gmail.com

**Published:** 4 July 2024

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Selection and Peer-review under  
the responsibility of the 3rd  
JESICA Conference Committee.

## 1. Introduction

In 2015, several key international frameworks were established to address a range of global issues from sustainable development to climate change, including the Paris Agreement on the Framework Convention on Climate Change (FCCC), the Sustainable Development Goals (SDGs), and the Sendai Framework for Disaster Risk Reduction (SFDRR). The SFDRR, or Sendai Framework, provides guidelines for reducing disaster risk utilizing a more comprehensive and integrated strategy, emphasizing the significance of building resilience and strengthening disaster risk governance.

The SDGs are an action plan to secure peace and prosperity for all people, safeguard the environment, and eradicate poverty, encompassing 17 Sustainable Development Goals. The FCCC is a worldwide pledge to pursue efforts to keep the rise in global temperatures to 1.5 degrees Celsius and to keep average increases to below 2 degrees

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Celsius over pre-industrial levels. This contract stipulates all nations must provide their Nationally Determined Contributions (NDCs) and report in their progress. These frameworks collectively underline the urgency and complexity of issues intersecting sustainable development, catastrophe risk reduction with climate change. Globally, disaster risk has become a primary focus for many countries natural catastrophes include storms, floods, droughts, and earthquakes have impacted millions, destroying infrastructure and affecting the economies of affected nations.

The importance of the SFDRR in this context cannot be overstated. As a framework specifically designed to reduce disaster risk, the SFDRR offers a clear structure for countries to enhance resilience and reduce vulnerability to natural and human-made disasters. To achieve this, local governments in Indonesia have adopted the SFDRR in order to lessen current disaster risks and avoid new ones. Additionally, one focus of the SFDRR is governance and accountability in disaster management. Research has evolved to analyze the repercussions of disaster risk on local governments' financial performance. Previous studies indicate that disaster risk impacts municipal governments' financial performance. The literature agrees that disaster risk is a major impediment to improving financial performance. Efforts emphasize how crucial assessing the impact of disaster risk on the financial performance of local governments for policy formulation and disaster mitigation programs oriented toward disaster risk reduction.

However, research to date has been limited to how calamities affect the balance of the budget, revenue, And the municipal administration expenditure. This study aims to analyze disaster risk as a potential loss or damage as a measure of local government financial performance. Natural disasters are increasingly frequent, deadly, and costly. 432 catastrophe occurrences were reported globally in 2021 according to the Emergency Event Database (EM-DAT), causing over 10,000 fatalities, impacting over 100 million individuals, and causing economic losses of over 250 billion USD. Asia is the most affected continent, with 40% of all disaster events and significant proportions of deaths and impacted individuals. Globally, while the number of deaths and impacted individuals was below Compared to the previous 20 years, 2021 experienced a rise in natural disasters and large financial losses.

The National Disaster Management Agency of Indonesia has been assessing danger of calamity since its inception in 2008. Terminology changes from "vulnerability" to "risk" signify a shift from assessing disaster impacts (deaths, damages, or losses) to evaluating potential losses or damages (risk). The 2022 disaster risk index (IRB) shows 13 provinces at high disaster risk and 21 at medium risk, with no provinces at low risk. The highest-risk provinces include West Sulawesi, Maluku, and the Bangka Belitung Islands.

The lowest-risk provinces at the medium level are Central Java, the Riau Islands, and Jakarta.

Despite the unpredictability of disasters, governments have several administrative and planning instruments for mitigation and preparedness. The literature on public financial management examines the function of fiscal tools, such as unreserved fund balances and budget reserve funds, in managing income and expenditure shocks. Research shows that governments can use budgetary tools to prepare for disasters. According to Government Accounting Standards Statement (PSAP) No. 4, work objectives can be evaluated based on efficiency and effectiveness thresholds. Legitimacy strategic plans and indicators must be linked to financial performance measurement and comply with relevant legislation. Minister of Home Affairs Regulation 19 of 2020 states that to evaluate local financial governance's level of quality performance, measuring the local financial management index is essential. This research is the first to assess local government financial performance based on one dimension of IPKD measurement, namely, local financial condition, using indicators such as fiscal, and financial flexibility, short-term solvency, and service solvency in moderating disaster impacts. Regulation 71 of 2010 on Government Accounting Standards also supports the use of numerous indicators in performance measurement.

Using data from Indonesian districts/cities and provinces from 2015 to 2021, with a 3,766 as the sample size observations, this study finds a negative influence between Disaster Risk and Local Government Financial Performance. This suggests that disaster mitigation efforts to reduce disaster risk are crucial for improving local government financial performance. Research by Noy and Nualsri [1] confirms the negative impact the local government version of the Disaster Risk Index financial performance, indicating that areas with higher disaster risk tend to experience a decline in their fiscal balance. Future disaster management must be designed to accommodate anticipatory efforts against potential disasters caused by non-natural factors. The limitation of this study is that it only uses data for seven years and analyzes only 1 of 6 measurement dimensions and 4 of 6 financial performance evaluation indicators. Additionally, the variables analyzed in this study are limited to Disaster Risk. This article is separated into four sections: the subsequent section discusses overview of the literature, premise development, and research methods; the third part discusses hypothesis testing outcomes; as well as conclusions in the fifth section consequences, restrictions, and recommendations for further study of the research.

## 2. Material and Methods

### 2.1. Sendai Framework for Disaster Risk Reduction (SFDRR)

The framework for disaster risk reduction in Sendai, often known as the Sendai framework for disaster risk reduction is a global agreement that was adopted by UN member states in March 2015 during the Third UN World Conference on Disaster Risk Reduction, which took place in Sendai, Japan. It serves as the replacement for the Hyogo Framework for Action (HFA) 2005–2015, the initial scheme to outline the actions needed across all industries and actors to lessen calamity losses. This framework emphasizes Seven distinct worldwide and four key activities aims to avoid and lessen the likelihood of current disasters:

Seven Distinct Worldwide:

1. Significantly decrease worldwide disaster death toll by 2030.
2. Significantly decrease the number of catastrophe victims worldwide by 2030.
3. Reduce, by 2030, the direct economic harm that natural disasters cause to the global gross domestic product (GDP).
4. Significantly By building their resilience by 2030, we can lessen the risk of harm coming to vital infrastructure and the interruption of essential services, such as medical and educational institutions.
5. Increase the number of nations that have adopted municipal and national disaster risk reduction plans by 2020.
6. Strengthen international collaboration with developing nations by providing them with sufficient and long-lasting support to supplement their domestic efforts toward the implementation of this framework by 2030.
7. Make catastrophe risk assessments and information more widely available to the public, as well as multi-hazard early warning systems by 2030.

Four Key Activities:

1. Recognizing catastrophe risk and making better use of available data in decision-making.
2. Developing a clear vision, plan, expertise, direction, and coordination within and across sectors, as well as stakeholder involvement, are key components of strengthening disaster risk governance.

3. Allocating resources and policies to risk prevention and mitigation in order to build resilience via investing in catastrophe risk reduction.
4. Improving readiness for disasters to enable efficient response and “Build Back Better” in terms of recovery, rehabilitation, and reconstruction: making use of post-disaster possibilities to streamline risk management procedures, planning, and governance.

## 2.2. ISO 31000 Theory of Risk Management

The ISO 31000 Risk Management Model is an internationally recognized framework for risk management. This standard, which is published by the International Organization for Standardization (ISO), is intended for use in managing risks in a variety of scenarios by companies of all sizes and across all industries. The model is not specific to any industry or sector, making it flexible and broadly applicable.

The ISO 31000 model emphasizes an integrated and holistic approach to risk management, with a continuous and iterative process involving:

1. Implementation the Principles of Risk Management
2. Development of a Structure of Risk Management
3. Process of Risk Management
4. Continuous Improvement

The model also recognizes the need to understand and respond to risks at various decision-making levels and disciplines throughout the organization. This means that risks should be managed not only at the strategic level but also at the operational level. Due to its generic nature, ISO 31000 is often customized to meet the specific needs of particular industries or sectors, including finance, healthcare, and the public sector, such as natural disaster risk management in local governments. Resultant implementation of this standard requires a clear understanding of the specific context in which an organization operates, including legal regulations, market, and environmental factors that may affect its risk exposure.

### 2.3. Disaster Risk's Impact on Local Government Financial Performance

Local financial management has a significant influence on the development of a region in determining the target level of local financial achievement. For regional management, not only human resources are required, but also economic resources in the form of finances reflected in the local government budget. State managers, mandated by the people, are prompted by this circumstance to ask for more financial support for performance measurement. This assessment will determine the extent to which a particular company's performance has generated more than a certain period compared to the original schedule.

By measuring financial performance, it can be ascertained whether decision-making has been done accurately and objectively. In addition, timely and objective performance evaluation is key to determining the next steps to be taken to improve future performance, as suggested by some researchers. Bouckaert and Halligan [2] found that the performance measurement process can strengthen accountability and improve the performance of public institutions; Poister et al. [3] in their research on performance management inside the government, emphasized the importance of performance public sector management and how effective Assessment of performance can inform and improve decision-making processes and enhance public services. These aspects are the foundation for building a robust disaster management system, where local financial management is a critical component. Success in danger of calamity mitigation, careful preparation, prompt and accurate response when a disaster occurs, and effective as well as enduring recovery all depend on transparent governance and an accountable accountability structure. As these processes should be designed to optimize the allocation and use of funds, identify investment priorities in security infrastructure, and ensure community and other stakeholder participation in decision-making related to disaster risk. Therefore, in a global context, disaster risk is suspected to become a primary focus for many countries in reducing natural disaster risks such as earthquakes, floods, droughts, and storms that have affected millions of people, destroyed infrastructure, and impacted the economies of affected countries.

**H1: Disaster risk negatively affects the Local Governments' Financial Performance.**

## 2.4. Data and Sample

The data collection for determining samples in this study used purposive sampling. The data utilised in this research are data from local governments in Indonesia, totaling 542 provinces/districts/cities from 2015 to 2021. However, since 6 districts/cities in the Special Capital Region (DKI) Jakarta are part of the reporting entity of DKI Jakarta Province, they are excluded from this research sample. Additionally, 22 local governments lacking disaster risk index data are also excluded from the sample. Therefore, the sample used is 514 observations. Since the observation years are from 2015 to 2021, the total final sample amounts to 3,766 observations. Secondary data in the research include IRB Indonesia documents National Disaster Management Agency publication (2015-2021); financial statement information from the Ministry of Finance about local government data and sizes reachable via the official website: [www.djpk.kemenkeu.go.id](http://www.djpk.kemenkeu.go.id), and data on local governments' ages obtained from the Ministry of Home Affairs, their status, and geographical location.

## 2.5. Empirical Model and Variable Operationalization

The empirical model used in this study is as follows in order to address the research problem:

$$\text{Kinkeu}_{it} = \alpha + \text{Driskor}_{it} + \text{Mun}_{it} + \text{Island}_{it} + \text{Agesk}_{it} + \text{Size}_{it} + e \quad (1)$$

In this study, the primary factors are Kinkeu (Financial Performance) and Driskor (Disaster Risk Score). Four variables are used to measure Kinkeu, which is the region's capacity to apply financial rules accurately and successfully in order to provide desired services: Fiscal Independence, Financial Flexibility, Short-Term Solvency, and Service Solvency.

Fiscal Independence is the capacity of the local government to fund its activities without relying on external assistance, including from the central government, measured by dividing local revenues by total revenue. The ability of the local government to raise funds in order to fulfill growing obligations through higher income or borrowing capacity is known as financial flexibility, measured by subtracting special allocation funds (DAK) from total revenue and then dividing by total obligations added to employee expenditure. Short-term solvency is the capacity of the local government to pay its debts due within or equal to 12 months, measured by adding cash and cash equivalents with short-term investments and opposing them to current liabilities. Service solvency, which is calculated by dividing total fixed assets by population size, is the capacity of the local

government to deliver and uphold the standard of public services that the community needs and desires. Driskor is the Disaster Risk Index variable measured by combining the values of hazard index, vulnerability, and local capacity.

In this study, the control variables are Sizeit, Agesit, Islandit, and Munit. Munit is a variable representing the status of the Local Government as determined by a dummy variable, “1” if the Regional Governance is a city, and “0” otherwise. This variable represents the difference in social conditions and types of Regional Governance status in Indonesia. Province capitals are commonly referred to as cities, and they are distinguished from districts by their dense populations and more extensive infrastructure. Islandit is a geographical location variable of the Regional Governance, measured by a dummy variable, “1” if the Regional Governance is on the island of Java, and “0” otherwise, representing cultural differences among local governments in Indonesia. Agesit is the age of the Regional Governance, determined by the duration of time since its establishment. Sizeit is the size variable of the Regional Governance, determined by the natural logarithm (Ln) of the total assets of the Local Government. As a quick summary, Table 1 shows how the study’s variables and data sources were operationalized.

### 3. Results and Discussion

#### 3.1. Descriptive Statistics

The complete descriptive statistical overview of Table 2 lists all of the study’s variables below:

Descriptive data are included in Table 2 for every variable examined in this research. The fiscal variable’s mean is 12.64, indicating that, on average, the fiscal independence level of the local governments in the sample is low. The mean of the Flexibility (Fleks) variable is 2.32, suggesting that the average degree of financial flexibility of the local governments in the sample is slow in mobilizing financial resources. The mean of the Short-term Solvency (Shortsolv) variable is 15.7, implying that, on average, the short-term solvency level of the local governments in the sample is low, indicating a limited ability to generate future income to meet future obligations. The mean of the Service Solvency (Servsolv) variable is 411.39, indicating that, on average, the service solvency level of the local governments low in the sample, reflecting the limited the capacity of local governments to deliver and uphold the standard of public services. Following this, Table 3 displays the findings of each variable’s correlation analysis below :



TABLE 1: Variable Operationalization and Data Source.

Name	Variable Operationalization	Data Source
$Fiskal_{it}$	The local government's ability to self-finance local government activities without depending on outside support including the central government as measured by local revenue split down by overall revenue.	Indonesian Audit Board
$Fleks_{it}$	Local government circumstances might result in more revenue or a higher debt capacity, which will enhance financial resources to handle rising commitments as measured by total revenue minus special allocation funds (DAK) then divided by total liabilities summed by employee costs.	Indonesian Audit Board
$Shortsolv_{it}$	The local government's capacity to fulfill its debts that are due in less than or equal to a year as measured by cash and cash equivalents summed with short-term investments and compared with current liabilities.	Indonesian Audit Board
$Servsolv_{it}$	The ratio of total fixed assets to population indicates how well local governments are able to supply and sustain the caliber of public services that the community needs and wants.	Indonesian Audit Board
$Driskor_{it}$	The index values of hazard, vulnerability, and regional capacity are combined to determine the capacity evaluation expressed by the Regional Resilience Indicators of all disaster management stakeholders in Indonesia.	National Disaster Relief Agency
$Mun_{it}$	Local Government Status, is determined using a dummy of Local Government status, i.e. "1" for City Government, "0" for other.	Ministry of Home Affairs
$Island_{it}$	The geographical location of Local Government, determined using island dummy, i.e. "1" for Java island, "0" for other.	Ministry of Home Affairs
$Ages_{it}$	The age of the local government is determined by how many years have passed since its founding.	Ministry of Home Affairs
$Size_{it}$	The natural logarithm (Ln) of the total assets of a local government is used to calculate its size.	Indonesian Audit Board

Data source: Processed by researchers, 2023

Table 3 demonstrates that every major research variable, such as the financial performance indicators like Fiscal, Flexibility (Fleks), Short-term Solvency (Shortsolv), Service Solvency (Servsolv), and the Disaster Risk Score (Driskor) variable, have correlations with each other. As predicted earlier, the financial performance A negative correlation exists between variables with the disaster risk index. Similarly, regarding the control variables used, almost all have a negative and significant correlation with the Financial Performance (Kinkeu) variable and a positive and significant correlation with the Disaster Risk Score (Driskor) variable. This indicates that financial performance is not only correlated with the disaster risk index but furthermore with the size, age, the age of local governments, and geographical location.

TABLE 2: Description of Variable Statistics.

Description	Obs	Mean	Std. Dev.	Min	Max
Fiskal <sub>it</sub>	3.766	12.64	11.81	0.08	87.26
Fleks <sub>it</sub>	3.766	2.32	0.87	0.79	11.99
Shortsolv <sub>it</sub>	3.766	15.7	0.86	12.58	18.92
Servsolv <sub>it</sub>	3.766	411.39	16815.16	0.008	980100.9
Driskor <sub>it</sub>	3.766	147.58	31.68	44.8	250
Mun <sub>it</sub>	3.766	0.29	0.57	0	2
Island <sub>it</sub>	3.766	0.22	0.41	0	1
Ages <sub>it</sub>	3.766	41.25	24.03	1	71
Size <sub>it</sub> *)	3.766	4802.72	21,521.45	50.17	544.504,58
Total of Observation = 3.766					
Explanation of variable operationalization in table 1					
*) In billion rupiah					

Source: Secondary data, STATA-14.2 output (Processed, 2023)

### 3.2. Hypothesis Testing

Multiple linear regression techniques are used in this study’s hypothesis testing with the STATA-14 software program. Table 4 displays the test results.

The outcomes of multiple linear regression tests generally show that the Driskorit variable substantially impacts the financial performance variables, where the variables affected by Driskorit are Fiscal, Flexibility (Fleks), and Service Solvency (Servsolv). This supports the hypothesis that financial performance influences the Disaster Risk Index in Indonesia. The variables Fiscal, Fleks, and Servsolv show a negative influence on the Disaster Risk Index with coefficients of 0.008, and 0.000, significant at the 5% level for Fiscal and Fleks. Meanwhile, for the Servsolv variable, the coefficient is 0.005, significant at the 1% level. However, another financial performance variable, Short-term Solvency (Shortsolv), does not show an influence on the disaster risk index, indicating that the data used in this study do not have a significant effect on the disaster risk index. This finding supports the hypothesis that disaster risk negatively affects the Financial Performance of Local Governments.

These results generally concur previous research, particularly by Chen [4], who claimed that natural disasters can drain financial resources that should be used for development and public services. This study also highlights how disasters cause not only direct losses through infrastructure damage but also have long-term impacts on local finances. This is further supported by Fannin et al. [5], who evaluated the fiscal

TABLE 3: Correlation Analysis of Variables.

Variable	Fiskal <sub>it</sub>	Fleks <sub>it</sub>	Shortsolv <sub>it</sub>	Servsolv <sub>it</sub>	Driskor <sub>it</sub>	Ages <sub>it</sub>	Island <sub>it</sub>	Mun <sub>it</sub>	Size <sub>it</sub>
<b>Fiskal<sub>it</sub></b>	1.000								
<b>Fleks<sub>it</sub></b>	-0.020	1.000							
	0.214								
<b>Shortsolv<sub>it</sub></b>	-0.015	0.035**	1.000						
	0.337	0.030							
<b>Servsolv<sub>it</sub></b>	-	0.263***	0.022	1.000					
	0.358***	0.000	0.176						
<b>Driskor<sub>it</sub></b>	-	-	-0.022	-0.191***	1.000				
	0.132***	0.060***	0.176	0.000					
<b>Mun<sub>it</sub></b>	0.637***	0.064***	-0.012	-0.205***	-0.188***	1.000			
	0.000	0.000	0.452	0.000	0.000				
<b>Island<sub>it</sub></b>	0.365***	-	-0.012	-0.418***	0.030*	0.042***	1.000		
	0.000	0.086***	0.444	0.000	0.058	0.009			
<b>Ages<sub>it</sub></b>	0.359***	-	-0.027*	-0.433***	0.038***	0.086***	0.456***	1.000	
	0.000	0.286***	0.092	0.000	0.018	0.000	0.000		
<b>Size<sub>it</sub></b>	0.711***	0.074***	-0.023	-0.163***	-0.091***	0.456***	0.351***	0.395***	1.0000
	0.000	0.000	0.151	0.000	0.000	0.000	0.000	0.000	
Total of Observation = 3.766									
Explanation of variable operationalization in Table 1.									
***, **, * = P-value signifikan 1%, 5%, 10%.									
Source: Secondary data, STATA-14.2 output (Processed, 2023)									

health changes of parish governments in Louisiana after the 2005 hurricane season. They found that for three years after Hurricanes Katrina and Rita, local governments with stronger solvency positions (e.g., debt-to-asset ratios) before the storms lowered their positions compared to local governments with initially lower solvency levels, suggesting that federal government reimbursement policies hinder local financial preparedness. Thus, highlighting the importance of financial resilience in the context of natural disasters and how local governments can prepare for unexpected financial impacts [6].

### 3.3. Sensitivity Testing

To provide confidence and robustness to this research model in Table 4, sensitivity testing was conducted. The sensitivity test was conducted out utilizing the IRB variable

TABLE 4: Results of Hypothesis Testing.

Variable	Expected sign	Fiskal <sub>it</sub>	Fleks <sub>it</sub>	Shortsolv <sub>it</sub>	Servsolv <sub>it</sub>
_Cons		-179.305	-4.301	11996.560	11.048
		0.000	0.000	0.346	0.000
Driskor	H : (-)	-0.008**	-0.000**	-12.857	-0.005***
		0.023	0.028	0.145	0.000
Mun	(+/-)	8.643***	-0.019	-246.774	-0.435***
		0.000	0.466	0.650	0.000
Island <sub>it</sub>	(+/-)	4.582***	0.013	145.435	-0.662***
		0.000	0.712	0.849	0.000
Ages <sub>t</sub>	(+/-)	0.039***	-0.013***	-15.162	-0.012***
		0.000	0.007	0.258	0.000
Size	(+/-)	6.562***	0.255***	-315.028	0.218***
		0.000	0.000	0.484	0.000
Prob > F		0.000	0.000	0.332	0.000
Adj R-Squared		7469.130	544.290	5.740	1973.270
Mean VIF		1.340	1.340	1.340	1.340
Total of Observation = 3,766					
Explanation of variable operationalization in Table 1.					
***, ** = P-value significant 1%, 5%					
Source: Secondary data, STATA-14.2 output (Processed, 2023)					

assessed by a dummy for IRB categories, '1' for high-category IRB scores and '0' for other categories. The findings of the sensitivity tests are shown in the following table:

In general, it shows that the variables are capable of explaining the measurement of financial performance with IRB, significant at the 1% and 5% levels. The IRB variable has a negative influence on the financial performance variables, namely Fiscal and service solvency, with coefficients of -0.484 and -0.238, significant at the 5% and 1% levels, respectively. The sensitivity test's findings for additional variables indicate the IRB has been the foundation for measuring financial in Indonesian regional governments, and is strong utilizing different IRB measures, whether utilizing IRB scores or IRB categories.

#### 4. Conclusion

This study generally attempts to examine the effects of disaster risk on the financial performance of local governments. Additionally, this research is expected to contribute to

TABLE 5: Results of Sensitivity Testing.

Variable	Expected sign	Fiskal <sub>it</sub>	Fleks <sub>it</sub>	Shortsolv <sub>it</sub>	Servsolv <sub>it</sub>
_Cons		-180.477	-4.359	9571.732	9.962
		0.000	0.000	0.448	0.000
lrbd <sub>it</sub>	H : (-)	-0.484**	-0.030	-870.749	-0.238***
		0.033	0.249	0.116	0.000
Mun <sub>it</sub>	(+/-)	8.676***	-0.004	-219.886	-0.408***
		0.000	0.874	0.685	0.000
Island <sub>it</sub>	(+/-)	4.570***	0.016	102.504	-0.679***
		0.000	0.651	0.893	0.000
Ages <sub>it</sub>	(+/-)	0.039***	-0.013***	-15.651	-0.012***
		0.000	0.000	0.242	0.000
Size <sub>it</sub>	(+/-)	6.571***	0.252***	-279.410	0.232***
		0.000	0.000	0.534	0.000
Prob > F		0.000	0.000	0.297	0.000
Adj R-Squared		7447.360	532.250	6.090	1786.270
Mean VIF		1.340	1.340	1.340	1.340
Total of Observation = 3,766					
Explanation of variable operationalization in Table 1.					
***, ** = P-value significant 1%, 5%					
Source: Secondary data, STATA-14.2 output (Processed, 2023)					

understanding the importance of regional development strategies focused on disaster risk reduction (DRR), especially when it comes to keeping local finances sustainable.

Considering the outcomes of the tests and discussions in this study, it can be concluded that disaster risk fully and negatively influences local governments' financial performance. A lower disaster risk index impacts the improvement local governments' financial performance. The implication of these findings is the creation of policies to enhance the local governments' financial performance and reduce disaster risk given the importance that government size plays in disaster response, local governments are required to take deliberate measures in creating more effective financial policies and catastrophe risk reduction initiatives. The results of this study can provide valuable guidance for local governments in designing incorporated action plans, which include efforts to improve financial performance while strengthening disaster preparedness and response.

This research only uses data for seven years, from 2015 to 2021, and analyzes only 1 of 6 measurement dimensions, namely the local government's financial situation, as well

as four of the six indicators used to evaluate local governments' financial situations, such as Fiscal, financial flexibility, short-term solvency, and long-term solvency. Additionally, the variables analyzed in this study are limited to disaster risk. Future research is expected to develop this study more comprehensively, through more in-depth research on other factors influencing Financial Performance. Furthermore, future researchers are also expected to analyze financial performance concerning achieving the SFDRR as a framework designed to reduce disaster risk.

## References

- [1] Noy I, Nualsri A. Fiscal storms: public spending and revenues in the aftermath of natural disasters. *Environment and Development Economics*. 2011 Feb;16(1):113-28. <https://doi.org/10.1017/S1355770X1000046X>
- [2] Bouckaert G, Halligan J. Comparing performance across public sectors. In *Performance information in the public sector: How it is used 2008* (pp. 72-93). London: Palgrave Macmillan UK. [https://doi.org/10.1007/978-1-137-10541-7\\_6](https://doi.org/10.1007/978-1-137-10541-7_6)
- [3] Poister TH, Pasha OQ, Edwards LH. Does performance management lead to better outcomes? Evidence from the US public transit industry. *Public Administration Review*. 2013 Jul;73(4):625-36. <https://doi.org/10.1111/puar.12076>
- [4] Chen G. Assessing the financial impact of natural disasters on local governments. *Public Budgeting & Finance*. 2020 Feb;40(1):22-44. <https://doi.org/10.1111/pbaf.12245>
- [5] Fannin JM, Barreca JD, Detre JD. The role of public wealth in recovery and resiliency to natural disasters in rural communities. *American Journal of Agricultural Economics*. 2012 Jan 1;94(2):549-55.
- [6] Fannin JM. Financial resilience of local governments impacted by natural disasters: A framework for calculating climate change risk and liability. In: *Addressing Climate Change at the Community Level in the United States 2018 Dec 12* (pp. 232-242). Routledge.