

# The effect of enterprise risk management (ERM) on firm value in manufacturing companies listed on Indonesian Stock Exchange year 2010-2013

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## Abstract

**Purpose** – The purpose of this paper is to identify the effect of enterprise risk management (ERM) with firm size, ROA and managerial ownership as control variables on firm value that is proxied by Tobin's  $Q$ .

**Design/methodology/approach** – Population of this research was manufacturing companies listed on the Indonesian Stock Exchange (IDX) in 2010–2013. The used method in this research is multiple linear regression-ordinary least square and hypotheses testing using  $t$ -test to test the regression coefficients with level of significance of 5 percent.

**Findings** – The results showed that ERM, ROA and size of the company have a significant positive effect on the firm value. While the managerial ownership has a significant negative effect on the firm value.

**Originality/value** – The results showed that firm value increases as ERM, ROA and size of the company improves. While the managerial ownership has a significant negative effect on the firm value.

**Keywords** Enterprise risk management, Firm value, Firm size, ROA, Managerial ownership

**Paper type** Research paper

## Introduction

Companies in running their activities are faced with uncertain conditions that can affect the success or failure in achieving goals. The rapid development of the external and internal environments leads to increasingly complex business risks (Sanjaya and Linawati, 2015). To deal with existing circumstances, companies need to provide management tools that can manage risks (Widjaya and Sugiarti, 2013). A good risk management will not only improve business certainty but also increase competitive advantage and firm value.

Risk management is an integral component of corporate strategy and its implementation is done as an action to prevent and mitigate risks to the smallest risk level, in order for the company to survive in competition. Efforts to improve the quality of risk management implementation can be done through integrated risk management, i.e. enterprise risk management (ERM) implementation.

ERM aims to create systems or mechanisms within the organization so that the adverse risks can be anticipated and managed for the purpose of increasing firm value (Hoyt and Liebenberg, 2011). Therefore, one of the goals of ERM is to create firm value.

This research was conducted to determine the effect of ERM on the firm value. Firm value is the description of prosperity conditions of the owners and shareholders. The welfare of the



owners and shareholders is reflected through the company's stock price. This study uses Tobin's  $Q$  in measuring values based on market perspectives reflecting investors' future expectations (Lin *et al.*, 2012). Firm values are influenced by ERM as well as influenced by several other variables, i.e. firm size measured through ROA, profitability and managerial ownership that is used as the independent control variable that affects the firm value.

Several previous studies that linked ERM to firm value have been performed and show inconsistent results. Research by Hoyt and Liebenberg (2011) and research conducted by Tahir and Razali (2011) discuss the effect of ERM and firm value. Hoyt and Liebenberg (2011) stated that there is a significant positive influence, while Tahir and Razali (2011) stated that there is no significant positive effect between ERM and firm value.

Based on previous research which indicates the inconsistency of the research results, the effect of ERM on the firm value will be re-examined. This study was conducted for manufacturing companies listed on the Indonesian Stock Exchange (IDX) in 2010–2013. Manufacturing companies are selected because this sector is a group business with size, volume and risk of trading that is large compared with other sectors.

## Literature review

### *Enterprise risk management (ERM)*

Risk is something that cannot be avoided by organizations. Risk arises because there are uncertain conditions. According to Hanafi (2009), risks can be grouped into two types, i.e. pure risk and speculative risk. To be able to manage the various risks faced by the company, a risk management tool is required. The focus of risk management is to understand the risks and take appropriate action against those risks.

Efforts to improve the quality of risk management implementation can be done through integrated risk management, that is implementation of ERM. According to a holistic approach, ERM identifies and assesses multiple risks, integrates all types of risks, and then coordinates the activities of risk management to all operating units within an organization. This is contrary to the traditional practices, where certain risks are valued separately by each business unit and they decide on their own a way of handling them (Lin *et al.*, 2012). According to COSO, ERM is a process that is influenced by management, board of directors, and other personnel which run in strategy determination and includes an overall organization, designed to identify potential events that influence the organization, manage risks and also provide adequate confidence related to the achievement of organizational goals (Moeller, 2009).

The objective of company risk management is to create added value in every organizational activity continuously (Siahaan, 2009). Conceptually, the ERM consolidation approach can add firm value in several ways. First, by assessing all risks, firms can develop a complete picture of their own risk portfolio. Second, through ERM, companies can prioritize risk factors according to their own risk appetite (Lin *et al.*, 2012). In addition, the implementation of ERM can assist companies in making decisions related to activities that must be done to run business activities with measurable risk (Widjaya and Sugiarti, 2013). Therefore, integrated risk management is needed to make a company more prepared to face the risks.

### *Firm value*

In general, the main objective of a company is to increase the value of the company through increasing the welfare of its owners and shareholders. Firm value describes how much price that a potential buyer or so-called investor is willing to pay (Prasetyorini, 2013). As the manager of the company, managers are required to act in accordance with the wishes of the owners and shareholders to improve their welfare. Increasing the welfare of owners and shareholders can be reflected through the increase in market share

prices. In this research, firm value is measured using Tobin's  $Q$  ratio. This ratio shows the market estimation of the firm concerning future returns on investment seen by outsiders and investors (Sugiyono, 2010).

#### *Agency theory*

The principle of agency theory is the relationship of both parties between the principal and the agent. The principal is the owner of the company or the investor, while the agent is the management that manages the company on behalf of the owner (Jehnsen and Meckling, 1976).

Dalton (2007) revealed that agency theory can lead to "managerial mischief" because of the difference in interests between the principal and the agent. This behavior is related to the actions of each party that is motivated by self-interest. This conflict of interest is called an agency problem, which then leads to information asymmetry between investor and management.

#### *Managerial ownership*

Managerial ownership is the percentage measurement of the shares held by management, such as directors and commissioners or any parties directly involved in corporate decision-making (Indahningrum and Handayani, 2009). The agency approach considers the managerial ownership structure as a tool for reducing conflict within the company. The amount of shares ownership owned by directors and commissioners shows how much effort they have in aligning their interests with shareholders.

#### *Firm size (Size)*

Firm size describes the size of a firm that can be expressed by total assets or total net sales. The greater the total assets and sales, the greater the size of a firm. The size of the firm is divided into three categories, namely large firms, medium-size and small firms. The determination of the size of the firm is based on the total assets of the company. Thus, the size of the company is the size or amount of assets owned by the firm.

#### *Profitability*

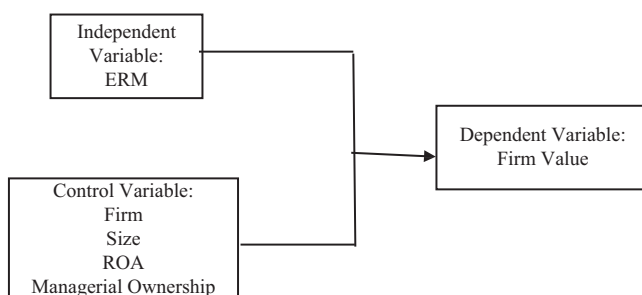
Profitability is the company's ability to generate profit in the future and is an indicator of the success of the company's operations. High profitability will spur the company on to grow and develop and vice versa. The increase in profitability has a positive effect on the company's financial performance in achieving the goal to maximize the firm value that will be responded to positively by the investor, so that the demand for stock increases and can raise the stock price. Profitability ratios can be reflected with return on assets (ROA). According to Ross (2007), ROA is the ratio of net income to the total assets of the company. ROA is a measure to assess how much rate of return of the company assets.

#### *Conceptual framework*

Based on a previous literature review and research, it will be tested whether the ERM variable has a positive effect to firm value with control variable, i.e. firm size, ROA and managerial ownership. Relationship model can be illustrated by the following figure (Figure 1).

ERM allows management to effectively handle risk-related uncertainties by integrating all types of risks using integrated tools and techniques communicated to all business lines, thereby increasing the capacity to build firm value. The implementation of ERM in a company is also viewed positively by investors so that it can be taken into consideration in investing. A positive response from an investor can increase the company's value with increasing demand for stocks:

H1. ERM has a positive effect on firm value.



## Research methods

This research is conducted by using a quantitative approach that focuses on hypothesis testing. The assumptions used in this research are measurable variables that begin with hypotheses and theories.

### Research variable

Dependent variable in this research is firm value, while independent variable is ERM. The research also used control variables, consisting of firm size, ROA and managerial ownership.

### Operational definition of variables

- (1) Firm value: the value of the firm is the value given by the financial market (market price) that is willing to be paid by the prospective buyer (investor). This study uses the ratio of Tobin's  $Q$  which is calculated by the following formula:

$$Q = \frac{(\sum \text{Outstanding shares} \times \text{Closing price}) + \text{Total liabilities}}{\text{Total assets}}$$

- (2) ERM: ERM disclosures contained in the company's annual report are conducted by searching for the same phrase as the following words, "ERM," "Chief Risk Officer," "Risk Management Committee" "Risk Committee," "Strategic Risk Management," "Consolidated Risk Management," "Holistic Risk Management," "Integrated Risk Management," ERM is measured by dummy variable, value 1 for companies implementing ERM and 0 for others.
- (3) Firm size: in this study, the size of the firm is described by the amount of assets owned by the company as measured by total assets or commonly called Ln (Assets).
- (4) ROA: ROA is the ratio between net profit to total assets. ROA data are calculated by the formula: Net profit/Total assets.
- (5) Managerial ownership: managerial ownership is a measure of the percentage of shares held by management such as, directors and commissioners or any parties directly involved in corporate decision-making. The calculation of managerial ownership is proxied by the percentage of shares owned by management, such as directors and commissioners:

$$\text{Own} = \frac{\sum \text{Shares owned by management}}{\sum \text{Shares outstanding}} \times 100\%$$

*Types and data sources*

The type of data used in this study is quantitative data, i.e. the type of nominal data (dummy) and ratio. Sources of data in this study are secondary data that are obtained from data sources of audited financial statements and annual reports of manufacturing companies listed on IDX from the period 2010–2013. The company’s financial and annual reports are obtained from IDX’s website [www.idx.com](http://www.idx.com) and [yahoofinance](http://yahoofinance.com).

*Data collection procedures*

The method of data collection in this study is by recording the required data listed in the financial statements and annual reports of companies and [yahoofinance](http://yahoofinance.com). After that, calculations for each variable are performed, then followed by data analysis. It therefore proceeds as documentation, collection, selection, tabulation for quantitative analysis and presented as informative processed data.

*Population and sample*

The population in this study is a manufacturing company listed on the Indonesian Stock Exchange (IDX) in 2010–2013. Sampling technique in this research is purposive sampling. The sampling criteria in this research are:

- (1) manufacturing companies listed on IDX 2010–2013;
- (2) companies that are always listed on the IDX during the research period;
- (3) companies that publish complete financial reports and annual reports during 2010–2013;
- (4) companies that provide complete stock price data at the end of the year (closing price) during the period 2010–2013; and
- (5) the unit of financial reporting currency used is rupiah.

From all manufacturing companies listed in the Indonesian Stock Exchange (IDX) for the period 2010–2013, there were obtained samples from each period as follows (Table I).

*Analysis technique*

Analytical techniques used to test and prove the hypothesis in this study are multiple regression model (regression multiple), with the help of Statistical Product and Service Solutions 18. The research model for this research can be expressed in the following equation:

$$Q = \alpha + \beta_1ERM + \beta_2KM + \beta_3SIZE + \beta_4ROA + \varepsilon.$$

Criteria	Number of sample			
	2010	2011	2012	2013
1. Total population of manufacturing companies listed on BEI	125	129	132	137
2. Companies not listed on the IDX during the study period	(2)	(3)	(1)	(1)
3. The financial statements and annual reports are incomplete during the period 2010–2013	(0)	(4)	(7)	(12)
4. Companies that do not provide complete stock price data at the end of the year (closing price) during the period 2010–2013	(1)	(0)	(0)	(0)
5. Units of currency other than the rupiah during the period 2010–2013	(10)	(11)	(24)	(26)
Total sample	112	111	100	98

**Table I.**  
Criteria and number of sample research

**Source:** Processed data

Explanation:  $Q$  = Firm value measured with Tobin's  $Q$ ;  $\alpha$  = Intercept coefficient;  $\beta_{1-4}$  = Coefficient for each independent variable; ERM = Enterprise risk management measured by dummy variable 1 = implement ERM and 0 for others; KM = Managerial ownership; SIZE = Firm size measured from book value assets; ROA = Return on Assets  $\epsilon$  = Error.

Stages in multiple regression analysis techniques are descriptive statistics, classical assumption test, normality test, autocorrelation test, multicollinearity test, and Heteroskedasticity test. Hypothesis testing using  $t$ -test with significance level of 0.05 ( $\alpha = 0.05$ ).

## Results and discussion

### *Subject and object research description*

The subject of this research is the effect of ERM on the firm value in manufacturing companies listed on the IDX for the period 2010–2013. The object of this study is a manufacturing company listed on the IDX in 2010–2013 period contained in www.idx.co.id. Total sample companies according to the criteria are 421 observations.

### *Descriptive statistical analysis*

Descriptive statistical analysis in this study aims to describe the variables used, i.e. ERM, Firm Size (size), ROA, Managerial Ownership and Tobin's  $Q$ . Based on the research results, the minimum, maximum and average value of each variable of the sampled company during 2010–2013 can be seen (Table II).

### *Firm value*

The firm value is indicated by the LnTobins $Q$  index. Based on the results of descriptive statistical analysis during the period 2010–2013, LnTobins $Q$  index reached a maximum value of 15.54 for PT. Unilever Indonesia Tbk in 2013 and the lowest value of 0.22 for Polychem Indonesia Tbk in 2010. LnTobins $Q$ 's value of more than 1 indicates a company growth based on the market value of the company's stock.

### *Enterprise risk management*

ERM is measured by a dummy variable; if the company implements ERM the value is one, and zero if the company does not implement ERM. The analysis shows that there are 10.7 percent of the 112 firms in 2010, 14.4 percent of the 111 companies in 2011, 15 percent of the 100 companies in 2012 and 19.4 percent of the 98 companies in 2013 that implement ERM.

### *Firm size*

The highest value of 33.00 for PT. Astra International Tbk in 2013 and the lowest value of 23.08 for PT. Alam Karya Unggul Tbk in 2012. The size of the company in the sample company has an average of 27.8116.

Variable	$n$	Minimum	Maximum	Mean	SD
LnTobins $Q$	421	0.22	15.54	1.8534	2.12521
ERM	421	0.00	1.00	0.1473	0.35479
Size	421	23.08	33.00	27.8116	1.58228
ROA	421	-0.76	0.97	0.0690	0.13549
KM	421	0.00	0.70	0.0264	0.07159
Valid $N$ (listwise)	421				

**Table II.**  
Descriptive  
test results

*Profitability*

Profitability of the company is proxied by ROA. Based on the results of descriptive statistical analysis, the highest value of 0.97 for PT. Gudang Garam Tbk in 2012 and the lowest value of -0.76 for PT were obtained. Alam Karya Unggul Tbk in 2011. The average value of the sample company's ROA is 0.0690 which reflects the company's effectiveness in generating profit by utilizing its assets at 6.90 percent.

*Managerial ownership*

Most of the sample companies showed a relatively small proportion of internal ownership compared to external ownership with an average ownership value of 0.0264. The highest ratio is 0.7 which is that owned by PT. Sat Nusa Persada Tbk, while the lowest ratio of 0.00 is owned by several companies such as PT. Unilever Indonesia Tbk, PT. Cement Indonesia (Persero) Tbk and others.

*Regression model analysis*

Regression analysis is used to test the effect of independent variables on dependent variable. This study uses multiple regression analysis to determine the effect of ERM, size, profitability (ROA) and managerial ownership on firm value. The following is the result of the regression.

Based on the calculation of regression Table III, can be formulated the regression equation as follows:

$$\text{Tobin's } Q = -1,783 + 0,384 \text{ ERM}_{it} + 0,071 \text{ Size}_{it} + 1,587 \text{ ROA}_{it} - 1,768 \text{ KM}_{it} + e.$$

The positive coefficient indicates the change between the independent variables and dependent variable is in the same direction, whereas the negative coefficient indicates the change between the independent variables is in the opposite direction. Here is the interpretation of the regression coefficient value above.

*Constants*

If ERM, size, ROA, and managerial ownership do not give effect then the firm value will be -1.783.

*Enterprise risk management (ERM)*

ERM variable coefficient of 0.348 means that if the ERM has increased by one unit then the value of the company will increase by 0.348 and vice versa. The sign of a positive regression coefficient signifies a direct relationship.

Model	Unstandardized Coefficients		Standardized coefficients		Sig.
	B	SE	$\beta$	t	
(Constant)	-1.783	0.595	-2.998	0.003	(Constant)
ERM	0.348	0.091	0.175	3.838	0.000
Size	0.071	0.022	0.159	3.285	0.001
ROA	1.587	0.231	0.304	6.868	0.000
KM	-1.768	0.421	-0.179	-4.197	0.000

**Table III.**  
Regression coefficient  
results coefficients<sup>a</sup>

**Notes:** <sup>a</sup>Dependent variable: LnTobinsQ. \*Significant at 5 percent

*Firm size*

Size variable coefficient of 0.071 means that if the size increased one unit then the value of the company will increase by 0.071 and vice versa. The sign of a positive regression coefficient signifies a direct relationship.

*Return on assets*

The ROA variable coefficient of 1.587 means that if ROA is increased one unit then the value of the company will increase by 1.587 and vice versa. The sign of a positive regression coefficient signifies a direct relationship.

*Managerial ownership*

The coefficient of managerial ownership variable is  $-1.768$ . This negative number means if the managerial ownership increases by one unit then the value of the company will decrease by  $-1.768$  and vice versa.

*Determination coefficient and correlation coefficient*

From the regression test results, the coefficient of correlation and determination can be seen as follows: Dari hasil uji regresi juga dapat diketahui koefisien korelasi dan determinasi sebagai berikut.

From Table IV can be seen that the value of  $R^2$  or coefficient of determination is equal to 0.530. This means that the change of firm value variable ( $Y$ ) caused by ERM, size, profitability (ROA), and managerial ownership is 0.530 or 53 percent while the rest of 0.470 or 47 percent is influenced by other variables outside independent variables and controls used in the study.

*Hypothesis test*

From the results of the classical assumption test, the results obtained stated that the data have been distributed normally, no autocorrelation, no multicollinearity, and no symptoms of heteroscedasticity. Hypothesis testing is done to know the significance of the effect of independent variables to the dependent variable. Here is the  $t$ -test result.

Based on Table V, the effect of each independent variable can be explained as follows:

- (1) ERM variable to the firm value is 3.838 with a significance level of 0.000. The significant level of this variable is less than 5 percent so it can be concluded that ERM has a significant positive effect on firm value.
- (2) Variable control of firm size to firm value is equal to 3.285 with significance value of 0.001 so it concludes that firm size has a significant positive effect on firm value.
- (3) Variable control of profitability (ROA) to firm value is equal to 6.868 with significance value of 0.000 so it concludes that profitability (ROA) has a significant positive effect on firm value.
- (4) Variable control of Managerial ownership to firm value is equal to  $-4.197$  with a significance value of 0.000 so it concludes that managerial ownership has a significant negative effect on firm value.

Model	$R$	$R^2$	Adjusted $R^2$	Atd. error of the estimate
1	0.530 <sup>a</sup>	0.280	0.274	0.60226

**Notes:** <sup>a</sup>Predictors: (Constant), KM, ERM, ROA, Size; <sup>b</sup>Dependent Variable: LnTobinsQ

**Table IV.**  
Determination  
and correlation  
coefficient result



**Discussion**

*The effect of ERM to firm value*

The results of this study are consistent with the research of Hoyt and Liebenberg (2011) in the United States and Bertinetti *et al.* (2013) in Europe. However, the results are inconsistent with the results of research conducted by Tahir and Razali (2011) in Malaysia and Li and Chipulu (2014) in China. The results showed that the implementation of ERM is one of the company's mechanisms that can affect the value of the company.

ERM supports the creation of firm value by facilitating management to face all types of risks caused by uncertainty by integrating all types of risks using integrated tools and techniques, so that all types of risks including failure risk can be managed and minimized. The existence of a better risk management with the implementation of ERM in a company also determines the level of investor confidence. Implementation of ERM that can reduce the risk of a company's failure is viewed as a positive thing and considered to have good prospects by investors so that it can be taken into consideration in making investment decisions. The consideration is due to the existence of ERM, because companies are able to minimize and manage the risks, including the risk of failure so that investors will tend to be more confident to make an investment. A positive response from investors will increase the demand for shares that will be followed by an increase in corporate value.

ERM aims to create mechanisms within the organization so that adverse risks can be anticipated and managed for the purpose of increasing the firm value. Implementation of ERM can assist companies in making decisions related to activities that must be done to run business activity. Accuracy in decision-making is necessary so that failure in decision-making does not occur, because failure in decision-making can reduce the firm value. Hoyt and Liebenberg (2011) argue that by integrating decision-making across all classes of risk, firms can avoid duplication of risk management expenditures. Pagach and Warr (2010) also argue that ERM can create value if it can help companies avoid cost-related financial distress, so that companies can achieve high profitability and the goal of creating corporate value can be achieved.

*The effect of firm size to firm value*

The result of this research is consistent with research conducted by Nuraina (2012) and Sujoko and Soebiantoro (2007), which stated that firm size has a significant positive effect on firm value. These results indicate that the larger the size of the firm, the greater the increase in the value of the firm. This is because the larger the size of the company, the more able the company is to control the market conditions and face economic competition that can reduce the uncertainty of the company, and it also determines the level of investor confidence. Firms that have larger sizes will have more flexibility and accessibility to obtain funds from the capital market than smaller companies. The ease is seen by investors as a positive signal because the company is considered to have good prospects (Gusaptono, 2012). Thus the investors will use information about the size of the company in conducting investment valuations that can ultimately increase the value for the company.

Model	Unstandardized coefficients		Standardized coefficients		Sig.
	B	SE	$\beta$	t	
(Constant)	-1.783	0.595	-2.998	0.003	(Constant)
ERM	0.348	0.091	0.175	3.838	0.000
Size	0.071	0.022	0.159	3.285	0.001
ROA	1.587	0.231	0.304	6.868	0.000
KM	-1.768	0.421	-0.179	-4.197	0.000

**Notes:** <sup>a</sup>Dependent Variable: LnTobinsQ. <sup>\*</sup>Significant at 5 percent

**Table V.**  
t-Test result

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*The effect of profitability (ROA) to firm value*

The results of this study support previous research conducted by Murhadi (2008) and Sujoko and Soebiantoro (2007) who found a significant positive effect between profitability (ROA) with firm value. The high level of corporate profitability makes the company's financial performance look good, so investors will see that the prospects of the company will also be better. Information on the high level of profitability is a signal for investors and can be used as consideration in making investment decisions. A positive response from investors will increase the demand for shares that will be followed by an increase in corporate value.

*The effect of managerial ownership to firm value*

The results of this study are not in accordance with research conducted by Sujoko and Soebiantoro (2007) but in accordance with Antari and Dana (2013) and Hamin which stated that managerial ownership has a negative and significant effect on firm value. Managerial ownership has a negative and significant coefficient which means high managerial ownership will decrease company value. This is supported by the entrenchment hypothesis proposed by Stulz, suggesting that higher managerial ownership will lead to a decrease in corporate value. Managers who have a large number of shares will tend to secure (entrench) on their positions resulting in a negative relationship between managerial ownership and firm value. As a result, the decision is non-value maximizing so that the value of the company decreases (Chen *et al.*, 2003).

Most of the company's ownership in Indonesia is concentrated ownership where most of the shares are owned by a small number of individuals or groups. In PT. Sat Nusa Persada Tbk total shares owned by managerial is 0.7. In concentrated ownership, managers are strongly controlled by controlling shareholders so managers make decisions in the interests of controlling shareholders. A conflict of interest will arise if the controlling shareholder has a special interest in the company to maximize his/her own well-being. This leads to a shift in agency conflict into a conflict of interest between the controlling shareholder (together with the management) and the non-controlling shareholder that can lead to the problem of entrenchment that affects the value of the company.

**Conclusion**

Based on the data analysis and discussion in the previous chapter, the conclusion of this research is that although the implementation of ERM in Indonesia is still small, it can prove that ERM has a positive effect on firm value. This does not rule out the possibility that other companies will follow the ERM implementation in managing their corporate risk. Corporate control size variable (size) has a positive effect on firm value. The profitability control variable (ROA) has a positive effect on firm value. Managerial ownership control variable negatively affects firm value.

The limitation in this research is that the implementation of ERM in Indonesian companies is still not yet comprehensive, especially for non-financial companies. Therefore in this study, ERM measurement does not use Enterprise Risk Management Index because the number of samples implementing ERM is still limited.

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