Factors Affecting the Accounting Estimate of Provision for Devaluation of Inventories

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Abstract: To improve the quality of accounting estimates of provision for devaluation of inventories, it is necessary to study the factors that affect the accounting estimates of provision for devaluation of inventories in enterprises. Thus, there are solutions to overcome the limitations in accounting estimates of provision for the devaluation of inventories. This study was conducted to determine the factors affecting the accounting estimate of provision for the devaluation of inventories. The study is based on data from 60 companies operating in the field of building materials for the period 2019-2021 in Vietnam. Panel data analysis was used in this study. The results of panel data analysis show that firm size, inventory, and audit unit have a positive impact on the ability to make provision for devaluation of inventories. In addition, the study did not find the effect of profitability ratio and type of state ownership on inventory provisioning. Based on the results of this study, the authors also make some implications for companies as well as external auditors. The value of the research will help prepare for the devaluation of inventories. Factors for predicting provision for devaluation of inventories are also included in this study.

Keywords: accounting estimate; inventory; provision for devaluation of inventories; Vietnam.

Article info: Received 21 Februari 2023 | revised 15 May 2023 | accepted 3 Juni 2023

Recommended citation: Bui, H. T. T., Nguyen, V. T. H., & Nguyen, C. T. Q. (2023). Factors Affecting the Accounting Estimate of Provision for Devaluation of Inventories. *Indonesian Journal of Sustainability Accounting and Management*, 7(1), 169–178. https://doi.org/10.28992/ijsam.v7i1.747

INTRODUCTION

International economic integration has led to increasingly complex accounting phenomena, and the demand for quality accounting information is increasing (Hermawan et al., 2021; Musah et al., 2022). In order to best meet the goals of users of information making economic decisions, accounting information must meet certain requirements (Owolabi & Iyoha, 2012; Meutia et al., 2022). The information requirements on reliability (truthful presentation), relevance, comparability, and intelligibility are also considered from a broader and deeper perspective. In particular, relevance requires accounting information not only to evaluate the economic activities that have arisen as a basis for proposing future decision-making measures, predict the outcome of past events as well as the effect these events will have on the firm's future cash flows (Amalia & Triwacananingrum, 2022; Owolabi & Iyoha, 2012; Spiceland et al., 2001). Therefore, using fair value to recognize enterprise assets is increasingly popular. According to The International Accounting Standards Board



(IASB) and the Financial Accounting Standards Board (FASB), Fair value is the price that would be received to sell an asset or settle a liability in a normal transaction between market participants at the valuation date (Armstrong et al., 2010; Lantto, 2006; Lasmin, 2011; Mazars et al., 2005; Nurim & Asmara, 2019). Determining fair value depends on accounting estimates based on trading assumptions under normal circumstances. According to the IASB and FASB, an accounting estimate is an approximate value of an item related to the financial statements estimated when it has arisen (Lestari & Takada, 2015; Ratnaningrum et al., 2022). However, there is no exact data or no exact calculation method. Alternatively, an actual item has yet to arise but has been estimated for financial reporting (Higgins, 2006; PricewaterhouseCoopers, 2003).

An accounting estimate is the determination of approximate values of elements in the financial statements, including assets, liabilities, income, and expenses, based on information and documents collected at the time of estimation (Glendening et al., 2019). In the context of the difficult world economy due to the current COVID pandemic, international and domestic trade is limited. Commodities move slowly, and both goods and input materials are unpredictable. Estimating the fair value of inventories to provide useful inventory information to financial statement users (Bauman & Shaw, 2014; Glendening et al., 2019). This is also a great concern for information users, businesses in general and Vietnamese enterprises in particular. However, the values of these factors are only approximate estimates because there is no exact value or precise method of determination (Bauman & Shaw, 2014). In making these estimates, the preparers of the financial statements must use "professional judgments." Because they are judgments, they are heavily subjective, and it is not easy to have a standard to evaluate the reasonableness. There is, therefore, always a risk that accounting estimates are incorrectly determined and recognized, leading to material distortions in the enterprise's financial information. Besides, there is also the influence of environmental conditions, legal regulations, technical and technological bases, etc., to serve the process of making accounting estimates. In order to improve the quality of accounting estimates of inventory reduction, it is necessary to study the factors that affect accounting estimates of inventory reduction in enterprises. From there, there are solutions to overcome the limitations in accounting estimates of inventory reduction.

Several authors have studied the provision for the devaluation of inventories (Bauman & Shaw, 2014; Glendening et al., 2019). Studies have shown that several factors affect the provision for devaluation of inventories, such as inventory, profitability, and firm size (Chodorow-Reich et al., 2012; Johan, 2021). Some researchers have also demonstrated the dependency of provisions for devaluing inventories on state ownership (Balla & Rose, 2015). Some researchers have shown that using large or small auditing firms also affects the provision for the devaluation of inventories (Chodorow-Reich et al., 2012; Johan, 2021). Some studies also suggest that profit or the state ownership ratio is not a determining factor for the provision for the devaluation of inventories (Feng et al., 2015; Holz, 2002). It can be seen that the devaluation of inventories has been implemented but there are still many related controversies.

In Vietnam, studies on the provision for the devaluation of inventories are limited. From the above analysis, studying factors affecting the accounting estimate of inventory reduction provides useful information for the users of inventory information in the report. Financial statements are essential. This study is conducted to determine the factors that make signs to predict whether enterprises have provision for inventory devaluation. The study will contribute theoretically when it identifies the predictive information factors for the devaluation of inventories. What factors will be a signal to know if a business has a devaluation of inventories. In addition, from the research results, managers also have strategies to optimize profits, boost sales, reduce inventory risks and manage the company's supply chain.

METHODS

An accounting estimate is an approximate value of an item related to the financial statements that would have been estimated where it actually occurred (Glendening et al., 2019). But there is no exact data or a more accurate calculation method, or an actual item has not arisen but has been estimated to prepare financial statements (Boone et al., 2023; Tan & Yeo, 2022). For example, estimate the incurred items related to the decrease in asset value such as the decrease in the value of receivables; reduce the value of financial investments; decrease in inventory value; decrease in value of tangible fixed assets, intangible assets, investment real estate; estimated depreciation (Lev & Sougiannis, 2010). Accounting estimates for costs and liabilities that may arise in the future related to transactions and events during the financial reporting year, such as estimates of provisions for product warranties goods and services; provision for payables for high-risk contracts; provision for payables for restructuring activities or for commitments on environmental protection, food hygiene and safety; estimates of the guaranteed accruals in accordance with the revenue recognized in the period or the payables from the lawsuits of the plaintiffs who are related organizations and individuals (Boone et al., 2022; Boone et al., 2023). The role of accounting estimates is as follows: First, allowing the existence of subjective estimates will increase economic efficiency and the feasibility and effectiveness of accounting regulations. Second, making accounting estimates, recognition, and presentation in the financial statements will make the financial information more truthful. Therefore, accounting estimates with reasonable confidence are integral to financial reporting (Hermawan et al., 2021; Musah et al., 2022; Sacer et al., 2016; Schultz & Lopez, 2001).

Inventories include: (1) Goods purchased for sale; (2) Finished goods in stock and finished products for sale; (3) Work in progress; (4) Raw materials, materials, tools, tools in stock, sent for processing and purchased are on the way; and (5) Expenses for services in progress. At the end of the accounting period, businesses need to make an accounting estimate of the decrease in inventory value by determining the net realizable value of the inventory (Lucchese & Carlo, 2020). Net realizable value: The estimated selling price of inventories in the ordinary course of business minus (–) the estimated costs of completing the product and the estimated costs necessary for their consumption. The net realizable value of inventories is determined for each inventory item or group of inventories (Items that are similar or closely related, such as the same type, interchangeable, manufactured, and sold in the same region)

An estimate of the net realizable value of inventories should be based on reliable evidence obtained at the time of the estimate. This estimate must consider fluctuations in prices or costs directly related to events occurring after the end of the financial year, which are confirmed with conditions available at the time estimated score (Amalia & Triwacananingrum, 2022). Also, additional consideration must be given to holding the inventory when estimating net realizable value. For example, for inventories held to secure irrevocable sales or service contracts, the net realizable value should be based on the contract value. Suppose the quantity in stock is greater than the quantity required for the contract. In that case, the net realizable value of the difference between the goods in stock and the quantity required for the contract is assessed based on the estimated selling price.

From the theory as well as previous research, the research model is presented as follows:

$$Ln\left(\frac{P_{DL_{it}=1}}{\left(1-P_{DL_{it}=1}\right)}\right) = \alpha_i + \beta_1 LINV_{it} + \beta_2 SIZE_{it} + \beta_3 ROA_{it} + \beta_4 STATE_{it} + \beta_5 BIG4_{it} + \epsilon_{it}$$

The variables in the model are described as follows in Table 1.

Table 1 The Variables Define

Variables	Content
PRO	= 1 if Provision for devaluation of inventories = 0 if not Provision for devaluation of inventories
LINV	= Ln(Inventory)
SIZE	= Ln(Tổng tài sản)
ROA	= return/total assets
STATE	NN = 1: If the company is state-owned NN = 0: If the company is non state-owned
BIG4	Auditing unit; $BIG4 = 1$: If the company is audited by companies in the $BIG4$ group, $BIG4 = 0$: If the company is audited by companies, not in the $BIG4$ group.

With the dependent variable being the ability to make provision for inventory devaluation, receiving binary values (0, 1), Logit and Probit models are often used to study the impact of independent factors on the dependent variable. In this study, the authors choose the Logit model to summarize the factors affecting the ability to make provision for inventory devaluation in companies.

Inventories are assets held for sale in the normal course of company or production, trading in progress, and raw materials, materials, tools, and instruments for use in production, trade, or service provision. With a large inventory salary, costs are incurred, and profits are also reduced. Therefore, the possibility of needing to make provisions for inventory increases. Therefore, the research hypothesis is stated as follows:

H1: Inventory has a positive effect on inventory provisioning.

The size of the company is reflected in the total assets of the company. The larger the company's size, the more inventory it has, which increases the ability to make provisions for inventory. The logarithm of total assets calculates this indicator. Therefore, the research hypothesis is put forward as follows:

H2: Firm size has a positive effect inventory provisioning.

ROA is a variable that represents the profitability of the business. As a business's profits increase, good cash flow makes it easier to use provisions. Therefore, the research hypothesis is stated as follows:

H3: Return on total assets influences the ability to make provision for inventory.

Big Four companies audit the company; the information ensures more rigor. For accounting and auditing, the Big 4 are Deloitte, Ernst & Young (E&Y), PricewaterhouseCoopers (PwC), and Klynveld Peat Goerdeler (KPMG). To represent the audit subject, the research team uses dummy variables as follows:

H4: Firms audited by the BIG4 group have a higher ability to make provisions for inventory than companies not audited by this group.

Ownership relationship represents the owner of the business: An enterprise with the state capital, controlling ownership, or a private enterprise. Based on the information on the financial statements, the research team categorizes the group of businesses and uses a dummy variable to show the ownership relationship.

H5: Ownership has an effect on the ability to make provision for inventory.

The study builds a quantitative model to verify the factors affecting the determination of accounting estimates for inventory reduction and inventory provisioning at enterprises. To do this, the research team collects data

on the financial statements of companies operating in building materials from 2019 to 2021. The research team for enterprises engaged in the production and trading of building materials because, in recent times, the price of construction materials has fluctuated with a large amplitude due to the influence of construction demand of real estate business, epidemics, and political issues in the world. The research team collects data on financial statements of companies operating in building materials from the company's website or securities and economic-financial websites such as Vietstock. vn, Cafef.vn, Cophieu68.vn. After removing information and companies that do not satisfy the remaining conditions, the sample includes 60 companies operating in building materials from 2019 to 2021 (of which 48 joint stock companies are listed on the Stock market and 12 unlisted companies)

RESULTS AND DISCUSSION

The collected variables were put into STATA version 15 software for data analysis. Descriptive statistics were used to summarize the research variables. The descriptive results show that the average ROA is 24.65%, of which the largest is 1584.53% and the smallest is -29,335. Regarding the size of enterprises, the average total assets of enterprises are 1.5 trillion Viet Nam Dong (VND), the largest is 219.7 trillion VND, and the smallest is 979 billion VND. The average inventory is 246, the largest is 3775, and the smallest is 0. Details of the variables are described in Table 2.

Table 2 Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	180	24.647	158.124	-29.33	1584.53
TS	180	1538326	4019559.7	979	21997051
НТК	180	246019.42	679561.11	0	3775294

With qualitative variables, provisioning, using Big4 audit, and state ownership ratio are all described in Table 3.

Table 3 The information of qualitative variables

PRO	Freq.	Percent	Cum.
No	100	55.56	55.56
Yes	80	44.44	100.00
BIGF			
Non-BIG4	155	86.11	86.11
Big4	25	13.89	100.00
STATE			
Non-State	147	81.67	81.67
State	33	18.33	100.00
Total	180	100.00	

Initially, conduct tests to choose which model is the most suitable among the three models, FEM, REM, and Pooled OLS. Use the Hausman test to choose between FEM or REM model. The estimated p-value of the Hausman test corresponding to model 1 and model 2 is larger than the 5% significance level, so the REM model is more suitable than the FEM model. The results of the regression analysis were analyzed on REM. The detailed regression results are in Table 4.

Table 4 The results of regression

	(1)	(2)	(3)
VARIABLES	PRO	PRO	PRO
LINV	0.353**	0.152	0.782***
	(0.138)	(0.104)	(0.216)
ROA	0.000389	0.000173	0.00151
	(0.00106)	(0.000348)	(0.00193)
SIZE	0.294**	0.314*	1.306***
	(0.139)	(0.161)	(0.338)
BIG4	1.306*	0.816	3.487**
	(0.754)	(0.643)	(1.472)
STATE	-0.114	-0.0248	-0.495
	(0.507)	(0.767)	(1.315)
Constant	-7.590***	-5.713***	-24.85***
	(1.441)	(1.768)	(3.744)
Observations	180	180	180
Number of macty		60	60
Hausman test		0.27	

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

The final regression results show that company size, inventory, and audit subjects positively impact provisioning ability. The direction of influence of all three variables is the same as the initial hypothesis of economic theory. Therefore, hypotheses H₁, H₂, and H₄ are accepted. Hypotheses H₃ and H₅ are rejected.

Thus, with the use of the Logit model to quantify the factors affecting the ability to make provision for the devaluation of inventory with a research sample of 60 companies, financial statement data of 3 years 2019-In 2021 (180 observations), the model results show that three variables positively affect the ability to make provision for devaluation of inventories, including firm size (SIZE); inventory value (INV) and audit subject (Big4). Two variables that have not shown a clear relationship have an influence or not are ROA and ownership.

The value of inventories does have an impact on the provision for the devaluation of inventories. Specifically, as the value of inventory increases, it leads to the decision to make provisions for the devaluation of inventories. When the inventory value is high or there is a large quantity of inventory, it creates pressures on revenue. This, in turn, causes related costs associated with inventory to increase. Therefore, a provision for the devaluation of inventories is necessary to ensure the normal operations of the business. This research has similar findings

to the studies conducted by Chodorow-Reich et al. (2012) and Johan (2021), as they both indicate the positive impact of inventory value on the provision for the devaluation of inventories.

Firmsize, measured by total assets, has a positive impact on the provision for the devaluation of inventories. This result indicates that as the size of the firm increases, the occurrence of the provision for the devaluation of inventories becomes more likely. With larger firm size, inventory issues become more significant as inventory costs also impact the operations of the business. Particularly, as the firm expands in size, the provision for the devaluation of inventories becomes a greater concern for the company. Taking proactive measures regarding the provision for the devaluation of inventories helps the firm be more proactive in capital utilization within the business. These research findings align with previous studies that also highlight the positive impact of firm size on the provision for the devaluation of inventories (Chodorow-Reich et al., 2012; Johan, 2021).

Companies audited by Big4 accounting firms tend to choose a provision for the devaluation of inventories more often than companies not audited by Big4 firms. Big4 accounting firms are reputable and globally recognized. Engaging in an audit by these firms can meet the requirements of regulatory bodies and other stakeholders such as shareholders, partners, and banks. This can help increase trust and confidence in the company's decision to reduce the value of inventory. These research findings align with previous studies conducted by Chodorow-Reich et al. (2012) and Johan (2021).

The ROA variable and the state ownership relationship variable (state-owned and non-state-owned enterprises) do not have an impact on the provision for the devaluation of inventories. This indicates that profitability is not a signal for companies to make decisions regarding the provision for the devaluation of inventories. Whether the profitability is good or bad, the provision for the devaluation of inventories remains unchanged in the company. These research findings are consistent with the study conducted by Feng et al. (2015), which also did not indicate the impact of profitability on the provision for the devaluation of inventories

Next, state ownership also does not have an impact on the provision for the devaluation of inventories. This indicates that whether a business is state-owned or of a different ownership type, the factor of the provision for the devaluation of inventories remains the same. The difference in ownership structure of the company is not a factor that changes the provision for the devaluation of inventories. These findings align with the study conducted by Holz (2002), which concluded that there is no difference in the provision for the devaluation of inventories among different ownership types of companies.

CONCLUSION

The study achieved the stated research objectives as well as answered the research questions. Firstly, the study has researched and presented the actual contents of the guidance of Vietnamese accounting standards and regimes on the estimation of provision for devaluation of inventories, the current status of applying accounting standards and regimes on estimating and recording a provision for devaluation of inventories in enterprises; assess the advantages, limitations, and causes of limitations on estimation and recognition of a provision for impairment of inventory in the enterprise. Secondly, the study has implemented a quantitative research method to determine the factors affecting the estimate of provision for devaluation of inventories in the enterprise. The results show that inventory, firmsize, and Big4 audit unit positively impact provisioning for inventory devaluation. From this result, the authors also offer some policy implications: 1) for companies with large assets and inventories, the ability to reduce inventory prices is more, and enterprises need to estimate and record a provision for the devaluation of inventories. Therefore, audit firms may consider this as an indication to conduct audit procedures in a comprehensive and detailed manner to check the reliability of the information about the

estimated decrease in inventory value or information about the provision for devaluation of inventories in the financial statements, thereby requiring the audited entity to estimate and record the provision for devaluation of inventory completely and reliably. In addition, auditing companies need to focus on improving auditors' professional qualifications in auditing, accounting, and professional ethics, thereby improving the quality of financial statement audit services; 2) Independent audit plays an important role in improving the reliability of financial reporting information of enterprises. Quantitative research results show that the audit subject is big4 companies, which positively influences enterprises' determination of accounting estimates for the decrease in inventory value and recognition of a provision for devaluation. It shows that, if reviewed by reputable audit entities, enterprises have more fully applied and complied with the provisions of accounting standards and regimes; 3) Although an accounting estimate of a decrease in inventory value is an economic transaction with sufficient supporting evidence, it is an accounting estimate highly dependent on subjective judgment and evidence gathered by corporate accountants. At the same time, it relies heavily on the internal control system and inventory management system at the audited entity. Therefore, in order to ensure that the information presented in the financial statements about inventories is complete, transparent, and reliable, the audit firms need to fully carry out the relevant examination procedures, including quantity/volume of ending inventory, checking the reasonableness of the basis for determining the estimated selling price of the inventory under normal business conditions, checking the reasonableness and reliability of the basis Determine the cost estimate required to complete the work in progress and the basis for determining the estimated cost to consume the inventory. Although the study has addressed the research question, there are still some limitations. Firstly, the study only examines internal factors within the business that impact the provision for the devaluation of inventories. External factors such as macroeconomic conditions that may influence the provision for the devaluation of inventories have not been considered in this research. Secondly, the study has not examined endogeneity issues that may arise within the model. Therefore, the authors propose some suggestions for future research: firstly, conducting studies that examine the impact of external factors on the provision for the devaluation of inventories, such as economic growth, interest rates, and inflation. Secondly, future research can be developed using econometric techniques that address endogeneity, such as Generalized Method of Moments (GMM) or Two-Stage Least Squares (2SLS) analysis.

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