Accounting conservatism and financial performance through book value: Evidence from manufacturing enterprises listed in Vietnam

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Abstract

This study examined the relationship between accounting conservatism (AC) and financial performance for 231 manufacturing companies listed in Vietnam on the Hanoi Stock Exchange and Ho Chi Minh Stock Exchange stock exchanges between 2019 and 2022 using book value which includes ROA, ROE, and ROS. Accounting conservatism harms ROA, ROE, and ROS throughout six years from 2017 to 2022, according to a multivariable regression study using Ordinary Least Square (OLS), FEM, REM, and FGLS models on Stata. In addition, the COVID-19 pandemic has affected the global economy in general and manufacturing enterprises listed in Vietnam in particular, so the authors also analyze the influence of AC on financial performance in two periods, before and after COVID-19. The results obtained in the pre-COVID-19 period (from 2017 to 2019) are the same as those of the 6 years. However, from 2020 to 2022, AC has an adverse effect on ROA and ROE. Nonetheless, ROS is unaffected by AC. The article has given some discussion and recommendations to stakeholders including the government, auditors, and accountants at enterprises regarding the level of AC in enterprises to help users of financial information make the most optimal economic decisions.

1. Introduction

The concept of prudence was first introduced in 1989 by the IASB in the Financial Statements Framework and prudence is considered one of the basic requirements of accounting information. Implementation of the prudence principle may change accounting information which can impact people who use the information in the financial statements to make business decisions.

Accountants use AC to handle transactions under uncertain conditions such as receivables that are likely to be irrecoverable, assets that may be impaired in the market, prepaid expenses and the goodwill of enterprises. To limit the situation that enterprises do not accurately reflect the financial position and profit or loss such as when the asset value is higher than the net realizable value or the liabilities are underestimated rather than the amount to be paid. The IASB requires accountants to consider carefully in evaluating, recognizing and presenting factors under uncertainty to avoid an overstatement of assets and income and an underestimation of liabilities and expenses. Moreover, the time to recognize revenue, expenses and potential risks of enterprises is also asymmetric. Good information such as an increase in revenue or an increase in assets is only recorded when there is certain evidence to happen while bad information such as an increase in expenses or falling assets is acknowledged as soon as there is proof that it may happen. This increases the usefulness of financial statements, helping shareholders and investors to identify possible risks early to make the right decisions. The degree of

conservatism in financial statements is considered one of the controversial issues in modern accounting. The purpose of AC is to safeguard creditors' and shareholders' interests and related parties. Although AC has faced strong criticism for conflicts with some qualitative characteristics such as neutral, faithful representation especially after the emergence of concepts of fair value (Sana'a, 2016).

There have been many scientists interested in studying AC in the world while some scientists have measured the level of AC at listed enterprises in Vietnam determining the importance of AC in the preparation of financial statements of enterprises. However, the effect of AC on the financial performance of enterprises in Vietnam is still a gap for researchers especially in manufacturing enterprises. The selection of indicators to measure the financial performance of enterprises plays an important role. The indicators to measure the financial performance of enterprises are very diverse but the most commonly used criteria in the research can be divided into two main groups. The first group includes financial performance measures at book value such as return on assets (ROA), return on equity (ROE), return on sales (ROS), and return on investment (ROI). The second group includes indicators to measure financial performance by market value such as Tobin'Q, economic value added (EVA) and earnings per share (EPS).

Authors have studied the influence of AC on financial performance through measures of book value of listed manufacturing enterprises in Vietnam to contribute to the improvement of theory and practice for manufacturing enterprises in preparing financial statements based on the above issues.

2. Literature Review

Over the last two decades, many scholars worldwide have focused their attention on matters about AC. Numerous empirical investigations have looked into the impact of AC on financial performance through measures of book value. However, these studies' findings are inconsistent. There are three views on the relationship between AC and financial performance, the majority of studies show that AC has a positive relationship with financial performance. However, there are studies showing the opposite results. There are even studies that show that AC has no effect on financial performance.

Nguyen, Nguyen, and Pham (2023) studied the relationship between AC and return on assets (ROA) of 153 listed construction and real estate enterprises in Vietnam. Pearson's correlation test shows that ROA and AC have a negative relationship using descriptive statistics.

Al-Fasfus, Al-Rawashdeh, Al-Theebeh, and Al-Enabi (2022) studied the impact of AC on financial performance in 23 service companies listed on the Amman stock exchange in the period 2015-2019. The research results show that AC has no relationship with ROE by means of descriptive statistics and regression analysis on SPSS.

Regina (2021) examined the influence of factors such as intellectual capital, corporate governance, and AC on the financial performance of 16 companies listed on the Jakarta Stock Exchange, Indonesia over 3 years from 2017 to 2019. Financial efficiency is measured through ROA and regression analysis results show that AC has an insignificant positive relationship with ROA.

Besides, Shubita (2021) studied the relationship between AC and the profitability of banks in Jordan in the period 2010-2019. Profitability is measured by two criteria: ROA, ROE. Quantitative investigation using SPSS software reveals a positive relationship between AC, ROA and ROE.

Research by Aksa and Hallam (2021) at 10 Algerian enterprises in 2010-2019 shows that the results of descriptive statistics show that the level of conservatism in different companies is significant through regression analysis. Results show that AC has a negative relationship with ROA.

In addition, from 2015 to 2023, there are many studies in the research samples of countries worldwide related to AC and its effect on financial performance measured by book value as Table 1 provides a summary of some of the research.

Table 1. Summary of research results on the effect of AC on financial performance through book value.

Authors	Sample sizes	Period	Methodology	Independent variables	Dependent variable	Result
Nguyen et al. (2023)	153 construction and real estate companies listed in Vietnam	2011-2020	Descriptive statistics and Pearson's correlation test	AC	ROA	Negative impact
Abed and Khudair (2022)	Banks listed on the Iraqi stock exchange	2016-2021	Regression analysis	AC	ROE	No impact
Al-Fasfus et al. (2022)	23 service enterprises listed on the Amman stock exchange	2015-2019	Descriptive statistics and regression analysis on SPSS	AC	ROE	No impact

Authors	Sample sizes	Period	Methodology	Independent variables	Dependent variable	Result
Ali, Khan, and Iqbal (2021)	2,664 observe non-financial enterprises listed on the stock exchange of Pakistan	2008-2019	Descriptive statistics regression analysis on SPSS	AC	ROA ROE	Positive impact
Regina (2021)	16 companies listed on the Jakarta stock exchange	2017-2019	Secondary data collection regression analysis	AC	ROA	Possitive impact
Shubita (2021)	Banks in Jordan	2010-2019	Quantitative analysis on SPSS	AC	ROA ROE	Possitive impact
Aksa and Hallam (2021)	10 companies in Algeria	2010-2019	Descriptive statistics and Pearson's correlation test	AC	ROA	Negative impact
Nassar and Al Twerqi (2021)	84 manufacturing companies listed on the Amman stock exchange	2006-2016	Cross-sectional analysis	AC	ROE	Negative impact
Mohd, Farizal, and Zulkepli (2020)	144 observations of Malaysian companies following Shariah	2012-2017	Descriptive statistics, Pearson's correlation test and multicollinearity test	AC	ROA	Positive impact
Purnama (2019)	39 real estate companies listed on the Indonesian stock exchange	2014-2018	Descriptive statistics and regression analysis on SPSS	AC	ROA	Positive impact
					ROE	Negative impact
Leon and Hendrawan (2020)	61 financial companies listed on the Indonesian stock exchange	2011-2015	Descriptive statistics and regression analysis on SPSS	AC	ROA	No impact

Table 1 shows that in Vietnam and around the world, there have been in-depth studies on the relationship between AC and financial performance through measures to measure the book value of companies in different sectors. However, the results of the studies are not consistent among the authors and these studies have only studied in certain areas and the sample size is small, so the consistency is not high, especially in the field of manufacturing in Vietnam. There is still a gap for researchers to continue to research. Therefore, this study used an empirical research design to investigate the impact of AC on financial performance as measured by book value in Vietnam's listed manufacturing enterprises.

3. Theoretical Basis

3.1. Accounting Conservatism (AC)

AC is one of the basic principles and a requirement widely used by accountants. Accountants who practice the principle of prudence when preparing financial statements might affect the determination of the values of the items on the financial statements, so AC might affect the faithful representation, reliability and usefulness of information provided by the accountant. Up to now, there have been many regulatory organizations in the world as well as researchers that have provided a definition of AC, specifically:

The American Financial Accounting Standards Board (FASB) considers AC to be a prudent response to conditions of uncertainty that takes into account the full range of uncertain and potentially risky situations of enterprise. According to the American Financial Accounting Standard paragraph 95, AC does not include deferring revenue recognition and the immediate recognition of a loss even though it is not supported by sufficient reliable evidence.

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International Accounting Standards Board (IASB): Neutrality in accounting is increased by applying the principle of prudence. The IASB defines AC as the degree of prudence in making judgments under conditions of uncertainty. Prudence means not overvaluing assets and income and not underestimating liabilities and expenses.

Bliss (1924) argues that AC is the consideration of all possible losses but excluding profit. According to Watts and Zimmerman (1986) when applying the AC, assets in the financial statements are at the lowest value compared to replacement values while liabilities are reflected at the highest value. In addition, revenue is delayed to be recognised and expenses are recognised earlier. Basu (1997) took a new perspective on AC. According to Basu (1997) when applying AC, accountants when recording good news must have a higher degree of control than recording bad news on financial statements and income reflects good news faster than bad news.

In a nutshell, there is no common definition of AC but it can be seen that the common point in the above definitions is that AC is the principle that makes the value of assets and income recorded at a low value while liabilities and expenses are recognized at the highest value in possible replacement values.

There are two types of AC, including conditional and unconditional. The conditional AC does not depend on the event information it has from before the event occurs. For example, when an enterprise recognizes research and development expenses, delays in revenue recognition and chooses an asset's depreciation method such as accelerated depreciation instead of straight-line depreciation, intangible fixed assets when conditions are not satisfied (Beaver & Ryan, 2000). On the other hand, conditional AC is dependent on events and these events can lead to positive information being recorded faster than negative information. In other words, the characteristic of conditional AC is that the timing and conditions for recognizing positive and negative financial information are not the same when preparing financial statements. Conditional AC is a tool used to enhance the effectiveness of corporate governance regulations and debt arrangements (Beaver & Ryan, 2000; Khan & Watts, 2009).

The measurement of the AC still presents certain difficulties for researchers worldwide because the measurement requires judgments of both financial and non-financial information as well as many different aspects. There are many models to measure the AC when preparing the financial statements of enterprises. The measurement models can be divided into the following groups: Basu (1997) method of measuring the asymmetry in the time to record and the extended Basu measurement method developed by Khan and Watts (2009). The book-to-market ratio (BTM) method was introduced by Feltham (1995) and improved by Beaver and Ryan (2000). Givoly and Hayn (2000) introduced the negative accrual value whereas Ball and Shivakumar (2005) pioneered measuring accounting conservatism through the cash flow method.

3.2. Financial Performance Measured at Book Value

The degree to which financial goals are being or have been attained throughout the period is referred to as financial performance and it is a crucial component of an enterprise's financial risk management. Financial efficiency is a measure of how effectively its assets, equity and investments are used to generate revenue. So, financial performance is essential for every company as most of the economic decisions of the stakeholders depend on financial performance. Analysts and investors use financial performance to measure the financial health of a business over a given period of time. Financial performance can be utilized for comparing companies within the same industry or across other economic sectors.

Return on assets (ROA) is a crucial metric for assessing the financial performance of businesses.

This indicator is used to measure the profitability per total assets of the company; it shows how much profit after tax is earned by the enterprise spending 1 unit of investment assets. The higher this indicator, the better the efficiency of using assets of the enterprise. This factor contributes to improve the efficiency of capital use in the enterprise. This indicator is calculated as follows:

$$\text{Return on assets (ROA)} = \frac{\text{Profit after tax}}{\text{Total assets}}$$

ROE (return on equity) is an important ratio for investors; it measures the profitability per unit of capital of common shareholders. This is an index to measure exactly how much capital is invested, accumulated and how much profit is generated.

$$\text{Return on equity (ROE)} = \frac{\text{Profit after tax}}{\text{Shareholder's equity}}$$

When analyzing the financial performance of enterprises, ROS (return on sales) is one of the basic indicators that many researchers are interested in. This indicator is used to reflect the profitability on sales; it reflects how many units of profit after tax the business earns for every 1 unit of revenue. The larger the ROS, the better the business is and the more profitable it is. This indicator is determined as follows:

$$\text{Return on sales (ROS)} = \frac{\text{Profit after tax}}{\text{Net income}}$$

In addition, financial performance from a book value perspective is also measured through a number of other indicators such as Return on Investment (ROI), Return on Costs (ROC). However, in this study, the authors focus on three main indicators: ROA, ROE and ROS.

4. Research Methods
4.1. Research Model and Hypothesis
4.1.1. Return on Assets (ROA)

In recent years, there have been exploratory as well as experimental studies to find the relationship between AC and ROA such as the study of authors such as Mohd et al. (2020) and Leon and Hendrawan (2020). This study empirically investigates the influence of AC and some other factors on ROA in manufacturing enterprises listed in Vietnam based on the results of the review of previous studies on the relationship between AC and ROA. The proposed research hypothesis is as follows:

H₁: AC has a positive relationship with ROA in manufacturing companies listed in Vietnam.

4.1.2. Return on Equity (ROE)

The results of previous authors' empirical studies on the relationship between AC and ROE are not uniform. There are studies that show that AC has a positive relationship with ROE (Shubita, 2021) while some studies show contradicting results (Purnama, 2019). According to the findings of prior research, the authors propose the following research hypothesis:

H₂: AC has a positive relationship with ROE in manufacturing companies listed in Vietnam.

4.1.3. Return on Sales (ROS)

There have been almost no studies on the effect of AC on ROS. The authors propose the following hypothesis about the relationship between AC and ROS in manufacturing enterprises listed in Vietnam:

H₃: AC has a positive relationship with ROS in manufacturing companies listed in Vietnam.

In addition to AC, there are several other elements that might significantly impact financial performance, such as company size, leverage ratio and the ratio between market capitalizations and the book value of enterprises. In this paper, company size, financial leverage ratio and the ratio between market capitalization and the book value are considered as three control variables that can affect financial performance. Table 2 provides a summary of the control variables.

Table 2. Variables and measures of variables.

CODE	Name	Measure
Independent variable – AC		
AC	AC	$CONACC = \dfrac{EBEXT_{it} + DEP_{it} - OCF_{it}}{TA_{it}} \ X \ (-1)$ $EBEXT_{it}$ is profit before tax and extraordinary items. DEP_{it} is depreciation expense for the year. OCF_{it} is cash flow from operation activities. TA_{it} is total assets.
Dependent variables		
ROA	Return on assets	Profit after tax/Total assets
ROE	Return on equity	Profit after tax / Shareholder's equity
ROS	Return on sales	Profit after tax / Net income
Control variables		
SIZE	Company size	Logarit Total assets
LEV	Financial leverage	Total liabilities/Total assets
ART	Asset turnover ratio	Net revenue / Total assets

The purpose of this paper is to test the influence of the independent variable which is AC and the control variables such as firm size, financial leverage and asset turnover ratio on dependent variables that measure financial performance in terms of book value including ROA, ROE, and ROS. Authors use a regression model to quantify the impact of AC and control variables on ROA as follows:

$$ROA_{it} = \beta 0_i + \beta 1AC_{it} + \beta 2SIZE_{it} + \beta 3LEV_{it} + \beta 4ART_{it} + e_{it}$$

Regression models measure the effect of AC and control variables on ROE.

$$ROE_{it} = \beta 0_i + \beta 1AC_{it} + \beta 2SIZE_{it} + \beta 3LEV_{it} + \beta 4ART_{it} + e_{it}$$

Regression models measure the effect of AC and control variables on ROS.

$$ROS_{it} = \beta 0_i + \beta 1AC_{it} + \beta 2SIZE_{it} + \beta 3LEV_{it} + \beta 4ART_{it} + e_{it}$$

4.2. Research Data

In 2022, there are a total of 726 firms listed on the two stock exchanges, namely HOSE and HNX, of which 196 with 934 observations at enterprises in the manufacturing sector (accounting for 26.9% of the total), so manufacturing enterprises have a large influence on listed companies in general. In this study, data on financial statements of manufacturing companies listed in Vietnam on HNX and HOSE are used.

4.3. Data Processing Techniques

This study aims to examine the influence of AC on financial performance through book value. In this study, the quantitative method is used to clarify the research problem. Authors have built research hypotheses, research models as well as scales of variables in the model based on the overview of previous studies on corporate financial performance. The data processing sequence by Stata 15.1 and the implementation process are as follows with the data collected in the form of panel data to test the impact of factors on the financial performance of enterprises:

- Methods of descriptive statistics and correlation analysis of variables are used to have general judgments about the variables in the model.
- Multivariable regression analysis using the pooled least squares model, fixed effects model (FEM) and random effects model (REM) and comparing the fit between the models to select the optimal model.

Test for variable variance; test for autocorrelation in panel data overcome these phenomena by a feasible generalized least squares (FGLS) method to have a reliable model.

5. Research Results and Discussion

5.1. Results

Figure 1 illustrates the descriptive statistical results for the variable AC (2017-2022). The level of AC in manufacturing enterprises fluctuated strongly in the 6-year period from 2017 to 2022. The average level of AC in 2017 was the lowest from -0.1 to -0.08. However, the level of AC in 2019 and 2020 has increased significantly, possibly in the context of the outbreak of the COVID-19 pandemic at the end of 2019 so the accounting period in 2019 has increased the level of AC when preparing financial statements especially in 2020 when the COVID-19 situation broke out strongly globally in general and Vietnam specifically, 2020 is the year with the highest level of situation breaking out strongly in 6 years. In the post- COVID-19 period from 2020-2022, the level of AC decreases and in 2021 and 2022, there is an insignificant difference in the average level of AC.
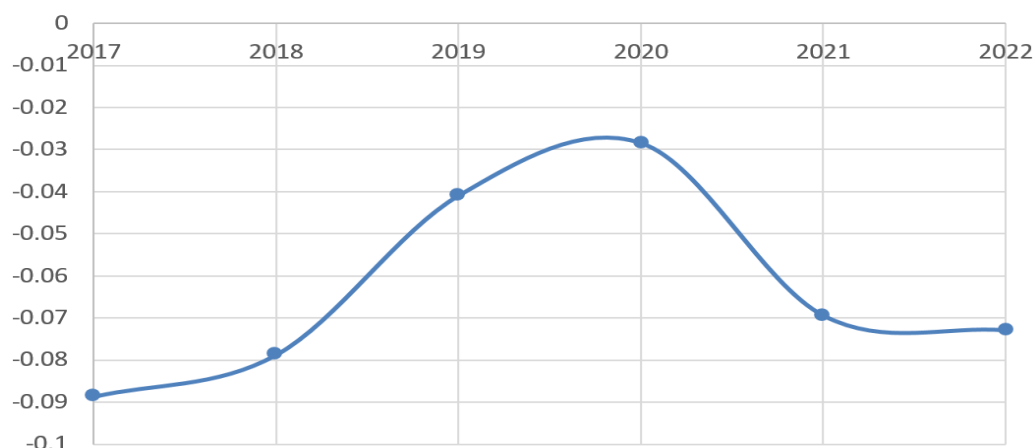

Figure 1. Descriptive statistical results for the variable AC (AC) (2017-2022).
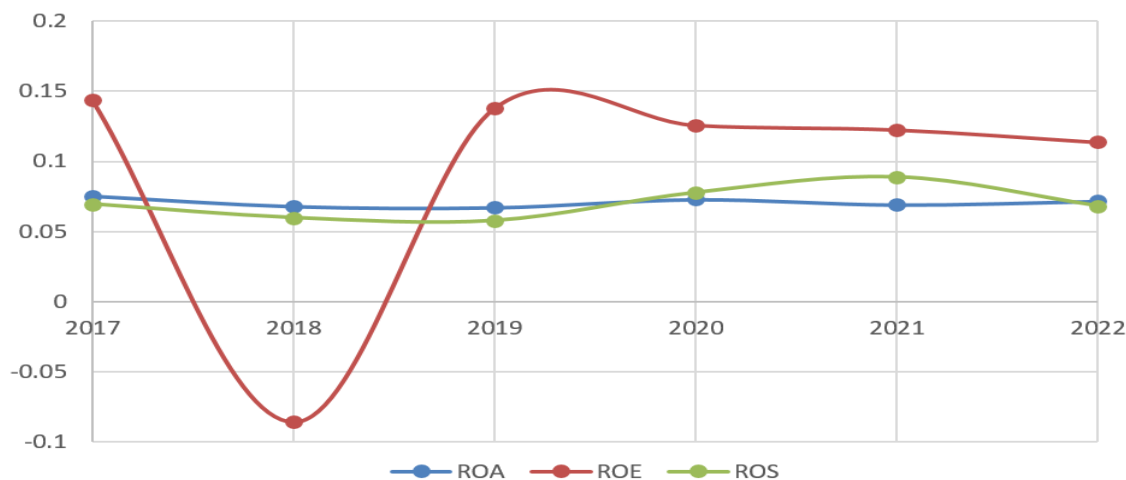

Figure 2. Descriptive statistics for the dependent variable.

Figure 2 shows the descriptive statistics for the dependent variables including ROA, ROE and ROS. Overall, return on equity (ROE) is higher than return on assets (ROA) and return on sales (ROS) from 2017-2022,

excepting the year 2018. Return on assets (ROA) and return on sales (ROS) have slight fluctuations over the past 6 years. ROA and ROS are almost similar in the whole period especially in 2017, 2020 and 2020. ROA and ROS are almost equal. However, there is a strong fluctuation in ROE, 2018 marked a serious decrease in ROE of manufacturing enterprises but increased rapidly in 2019 before entering a stable period from 2019 to 2022.

Table 3. Results of testing correlation between variables.

	ROA	ROE	ROS	AC	LEV	SIZE	ATR
ROA	1						
ROE	0.226	1					
ROS	0.534	0.234	1				
AC	–0.231	–0.125	–0.130	1			
LEV	–0.408	–0.093	–0.325	–0.047	1		
SIZE	0.074	–0.006	0.141	0.027	0.181	1	
ATR	0.149	0.042	–0.143	–0.072	–0.016	–0.270	1

5.1.1. Correlation Test

Table 3 describes the correlation relationship with the variables in the research model including the dependent variables ROA, ROE and ROS and the independent variable AC and the 3 control variables are SIZE, LEV and ART. We can see that most of the variables are correlated with each other and have statistical significance, except for some pairs of variables that may not have correlation such as company size (SIZE) and return on equity (ROE), firm size (SIZE) and AC (AC), financial leverage (LEV) and AC (AC), asset turnover ratio (ART) and return on equity (ROE), asset turnover ratio (ART) and financial leverage (LEV) Based on the above table. According to the results of Table 3, the correlation coefficient between the pairs of independent variables in the model does not have a pair greater than 0.8, so it is less likely that the phenomenon of multicollinearity between the independent variables when included in the model. Therefore, it can be concluded that the model does not have serious multicollinearity.

5.1.2. Regression Estimation by POLS, FEM, REM Model

According to 3 models POLS, FEM and REM, Table 4 shows the results of the regression of factors affecting the corporate financial performance.

Table 4 illustrates the results of the pooled least squares model, fixed effects model (FEM) and random effects model (REM). Then the authors performed the F-test to compare the pair of POLS and FEM, the Hausman test for the pair's models of FEM and REM, REM and POLS (Breusch-Pagan Lagrange test). The REM model is the optimal model for the research.

Table 4. Results of regression by POLS, FEM and REM.

Variables	ROA			ROE			ROS		
	OLS1	FEM1	REM1	OLS2	FEM2	REM2	OLS3	FEM3	REM3
AC	-0.100***	-0.089***	-0.100***	-1.548***	-1.202*	-1.548***	-0.120***	-0.115***	-0.120***
	(-7.37)	(-6.33)	(-7.37)	(-3.93)	(-2.47)	(-3.93)	(-5.48)	(-5.14)	(-5.48)
SIZE	0.009***	-0.000	0.009***	0.024	-0.077	0.024	0.021***	0.018*	0.021***
	-4.11	(-0.02)	-4.11	-0.77	(-0.39)	-0.77	-3.32	-1.97	-3.32
LEV	-0.168***	-0.160***	-0.168***	-0.732**	0.029	-0.732**	-0.218***	-0.214***	-0.218***
	(-12.20)	(-8.55)	(-12.20)	(-3.12)	-0.05	(-3.12)	(-7.97)	(-7.14)	(-7.97)
ATR	0.018***	0.025***	0.018***	0.044	0.073	0.044	0.002	0.007	0.002
	-7.38	-7.22	-7.38	-1.14	-0.6	-1.14	-0.34	-1.19	-0.34
_cons	-0.147*	0.106	-0.147*	-0.405	2.053	-0.405	-0.409*	-0.344	-0.409*
	(-2.31)	-0.68	(-2.31)	(-0.46)	-0.38	(-0.46)	(-2.38)	(-1.38)	(-2.38)
N	934	934	934	934	934	934	934	934	934

Note: t statistics in brackets.
                * $p<0.1$, ** $p<0.05$, *** $p<0.01$.

Table 5. Results of the multicollinearity test.

Variables	VIF	SQRT VIF	Tolerance	R-squared
ROA	1.78	1.34	0.561	0.439
ROE	1.08	1.04	0.923	0.077
ROS	1.58	1.26	0.633	0.367
AC	1.1	1.05	0.91	0.090
SIZE	1.19	1.09	0.841	0.159
LEV	1.36	1.17	0.736	0.264
ATR	1.19	1.09	0.838	0.162
Mean VIF	1.33			

Authors check the variance exaggeration factor VIF in the regression model to get more certainty about whether the collected variables have a multicollinearity phenomenon. The results of the multicollinearity test are shown in Table 5. The results of the Stata 15.1 test on Table 5 show that the average VIF is 1.33. There is no VIF index of the independent and control variables that exceeds 2. Therefore, there is no serious multicollinearity with the variance exaggerated factor criterion VIF on the variables tested for linear relationship.

5.1.3. Test for Heteroskedasticity and Autocorrelation
The authors conduct tests to evaluate whether the REM model has defects. The results of the variance test show that Prob>chi2 (with a value of 0.0000) is less than 0.05, so the model has variable variance.

Next, authors test whether autocorrelation, authors use the Wooldridge test and give the results that the Prob>P value of 0.0000 is less than the significance level of 0.05, so it occurs autocorrelation phenomenon.

5.1.4. Fix the Phenomenon of Heteroskedasticity and Autocorrelation
The authors conduct the FGLS regression to fix the phenomenon of Heteroskedasticity and autocorrelation. The results show that all variables are statistically significant.

Table 6. Results of the FGLS regression.

Variables	ROA	ROE	ROS
AC	–0.159***	–1.548***	–0.182***
	[-8.79]	[-3.94]	[-5.40]
SIZE	0.010***	0.024	0.016***
	[7.25]	[0.77]	[5.82]
LEV	–0.173***	–0.732***	–0.245***
	[-16.12]	[-3.13]	[-12.17]
ATR	0.011***	0.044	–0.012***
	[6.29]	[1.14]	[-3.60]
_cons	–0.165***	–0.405	–0.248***
	[-4.11]	[-0.47]	[-3.30]
N	934	934	934

Note: t statistics in brackets.
        *** p<0.01.

Table 6 presents the results of the feasible general least squares (FGLS) regression. The result shows that AC has a negative relationship with financial performance according to all 3 indicators, ROA, ROE, and ROS contrary to the hypotheses H1, H2 and H3. This shows that the more conservative a company is, the lower its financial performance at book value will be. This result is consistent with the findings of the study conducted by Nguyen et al. (2023) in real estate enterprises in Vietnam Nassar and Al Twerqi (2021). However, AC has a stronger ROE effect on ROA and ROS. Firm size has a positive effect on ROA but ROS has no effect on ROE which means that the larger the company, the higher the ROA and ROS. Financial leverage detrimentally affects ROE, ROS, and ROA which means that the more leverage a company uses, the lower its financial performance. Next, the asset turnover variable has a positive effect on ROA, the faster the company's asset turnover, the higher the ROA. However, the asset turnover ratio has a negative relationship with ROS, the higher the asset turnover, the lower the ROS especially the asset turnover ratio has no impact on ROE.

In December 2019, the COVID-19 pandemic began in Wuhan, China and then spread globally. The COVID-19 pandemic occurred at the end of 2019, so the economy was almost unaffected by the COVID-19 pandemic in 2019. However, in 2020, businesses were greatly affected by the COVID-19 pandemic. Therefore, authors divided the pre- COVID-19 period into 3 years (2017, 2018, 2019) and the post- COVID-19 period into 3 years from 2020-2022 to assess the impact of AC and control variables on financial performance. The following are the findings from the GLS regression analysis conducted both before and after the COVID-19 pandemic:

Table 7. Results of FGLS regression in the pre-COVID-19 period and the post-COVID-19 period.

Variables	ROA		ROE		ROS	
	Before COVID-19	After COVID-19	Before COVID-19	After COVID-19	Before COVID-19	After COVID-19
AC	–0.207***	–0.085***	–2.516***	–0.146***	–0.231***	–0.108
	(–8.73)	[–3.09]	(–3.71)	[–3.17]	(–6.97)	[–1.64]
SIZE	0.010***	0.013***	0.035	0.021***	0.013***	0.019***
	–5.16	[5.85]	–0.63	[5.78]	–4.92	[3.62]
LEV	–0.167***	–0.183***	–1.132**	–0.142***	–0.261***	–0.219***
	(–11.68)	[–11.33]	(–2.77)	[–5.27]	(–13.08)	[–5.66]
ATR	0.014***	0.009***	0.089	0.016***	–0.009*	–0.013**
	–5.1	[4.20]	–1.11	[4.33]	(–2.45)	[–2.46]
_cons	–0.165**	–0.218***	–0.683	–0.427***	–0.188*	–0.333**
	(–3.02)	[–3.62]	(–0.44)	[–4.26]	(–2.47)	[–2.32]
N	537	397	537	397	537	397

Note: t statistics in brackets.
$* p<0.1, ** p<0.05, *** p<0.01.$

Table 7 shows that there were a total of 537 observations in the 3 years before the COVID-19 period and there were 397 observations after the COVID-19 period. Before the COVID-19 period, AC had a negative impact on financial performance through ROA, ROE and ROS. However, after the COVID-19 period, AC has no impact on ROS. In addition, the degree of AC before the COVID-19 period had a stronger effect on financial performance than the period after COVID-19. Firm size (SIZE) and financial leverage (LEV) both pre- and post-COVID-19 have the same impact on financial performance. However, asset turnover in the period before COVID-19 has no impact on ROE, but in the period from 2020-2022, asset turnover has a positive impact on ROE. In a nutshell, there is a difference in the impact of AC on financial performance in the period before and after the COVID-19 which may be due to the end of 2019 when the COVID-19 pandemic broke out, so accountants at enterprises increased the level of AC compared to the previous period.

5.2. Discussion

This research attempts to investigate the effect of AC on financial performance using book values such as ROA, ROE, and ROS of manufacturing firms listed in Vietnam between 2019 and 2022. The descriptive statistics method for independent variable is AC and then authors conduct correlation analysis between variables, multivariate regression analysis using POLS, FEM and REM models and compare reasonable differences between the models and select the REM as the optimal model. Then, authors check the multicollinearity of the FEM and REM models. The results obtained with AC have a negative impact on financial performance measured by ROA, ROE, and ROS. Additionally, the data demonstrate that while firm size has no effect on ROE, it does positively affect ROA and ROS. Financial leverage has a negative effect on ROA, ROE, and ROS but the asset turnover ratio has a positive relationship with ROA but has a negative relationship with ROS and has no relationship with ROE. Besides, in the period from 2020-2022, the world economy is greatly affected by the COVID-19 pandemic and manufacturing enterprises listed in Vietnam are also seriously affected. Therefore, in order to compare the impact of AC on financial performance in the two periods before COVID-19 and after the COVID-19 period, the authors conducted regression analysis and the results obtained are different when studying the entire period from 2017 to 2022 and studying two different phases. When studying the entire 6-year period, AC has a negative relationship to ROA, ROE, and ROS. However, when divided into 2 periods for regression analysis, the period before the COVID-19 period, the results obtained were similar to the overall 6-year period. But in the post- COVID-19 period, AC has a negative impact on ROA and ROE but no impact on ROS. The size of the company and the financial leverage ratio whether the whole period of 6 years or divided into 2 periods, the results are the same. However, the asset turnover ratio has different results when divided into 2 periods. Before the COVID-19 period, the asset turnover ratio had no impact on ROE but after the COVID-19 period, the asset turnover ratio had a positive relationship with ROE. From the above research results, the authors recommend that the government must have policies to control the level of implementation of the AC in enterprises such as requirements for making provision and recognition of appropriate expenses, thereby avoiding the use of AC as a tool to adjust profits. The level of AC affects financial performance; it affects the decision-making of the users of the information in the financial statements. Therefore, auditors when auditing financial statements of enterprises should also give their opinions on the reasonableness of the level of AC in financial statements when performing audits of financial statements. The responsibilities of the audit committee and auditors become very important to ensure the reliability, truthfulness and reasonableness of the information provided to investors. For businesses, it is necessary to improve their knowledge of accounting standards and principles to be able to properly apply the principles when preparing financial statements. In particular, accountants need to understand how to apply the prudence principle, thereby limiting the abuse of the prudence principle to perform the behavior of adjusting profits according to the intentions of the enterprise.

Investors need to understand the impact of the level of AC on financial performance and management's behavior to ensure that they can judge situations before making investment decisions.

However, this study has certain limitations because it only uses data of 196 manufacturing enterprises listed on two stock exchanges, HOSE and HNX but has not studied the entire enterprises in other sectors in Vietnam. Moreover, AC has only been measured according to one model, which is the accrual basis of Givoly, Hayn, and Natarajan (2007) and improved by Ahmed and Duellman (2007) without using many different models to measure. In addition, authors have only considered the financial performance below the book value but have not studied the indicators according to the market value to be able to have the most complete conclusions about the impact of AC on the financial performance of listed manufacturing companies in Vietnam. Researchers in Vietnam should consider these gaps in their future studies.

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