FIRMS' PROFIT INSTABILITY AND THE CROSS-SECTION OF STOCK RETURNS: EVIDENCE FROM SET100 THAILAND

BY

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AN INDEPENDENT STUDY SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE PROGRAM IN FINANCE (INTERNATIONAL PROGRAM) FACULTY OF COMMERCE AND ACCOUNTANCY THAMMASAT UNIVERSITY ACADEMIC YEAR 2024

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ABSTRACT

This research evaluates the relationship between the firm's profit instability and cross-sectional stock returns in SET100 Thailand over the past 10 years from January 2014 to December 2023. Regarding risk-return tradeoff theory, it is suggested that higher profit instability firms measured by InsROA and InsROE are riskier, and should get higher returns to compensate for those risks. By using zero portfolio analysis both value-weighted returns and alpha from Fama-French (1993) three-factor model, the result shows a positive and significant relationship between the firm's profit instability and future return, especially when measured by InsROE. Moreover, even after adjusting for profitability, market beta, size, and value factors using Fama-Macbeth (1973) cross-sectional regression model, the findings measured by InsROE are still robust. These results imply that a higher firm's profit instability tends to have higher future stock returns in SET100 from January 2014 to December 2023. Therefore, this research shows profit instability, representing an operational risk, has unique predictive power to explain future stock returns beyond what is captured by traditional models. Moreover, the risk-return tradeoff theory is also supported by these findings as an investor will expect a higher return when firms' profitability becomes more fluctuating. Additionally, this research offers investors, fund managers, listed company

managers, and policymakers' insightful information to enhance efficient capital markets and effectively diversify portfolios to optimize returns.

Keywords: Profit Instability, Thai Stock Market, SET100, Predictive Power, Future Stock Return

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Symbols/Abbreviations	Terms
Alpha (α)	Risk-Adjusted Return
B/M	Book-to-Market ratio
Beta	Market Beta or Systematic risk
CAPM	The Capital Asset Pricing Model
InsROA	Profit Instability measured by ROA
InsROE	Profit Instability measured by ROE
ROA	Return on Asset
ROE	Return on Equity
SET	The Stock Exchange of Thailand

CHAPTER 1
INTRODUCTION

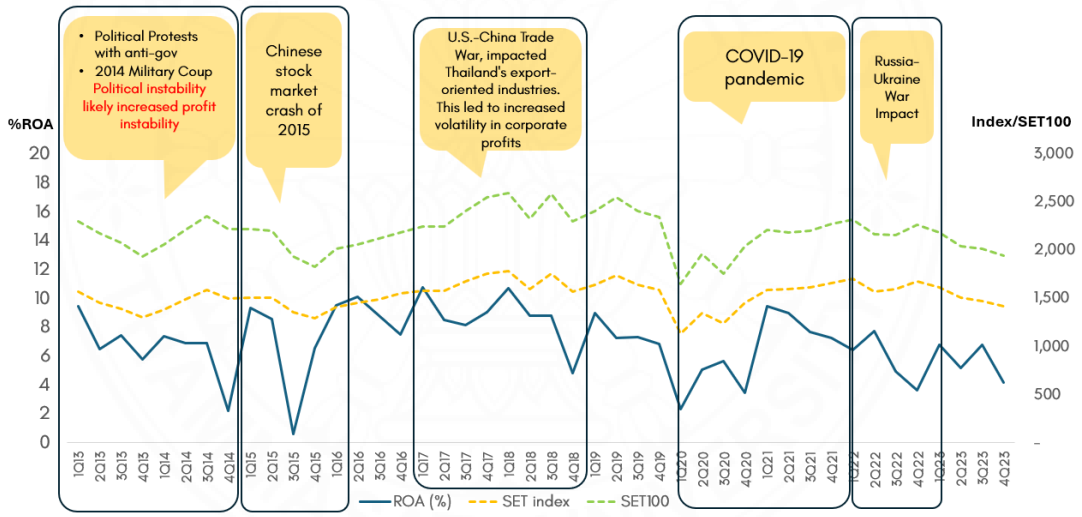
Profitability is commonly recognized as one of the factors for assessing a company's performance. In many financial markets worldwide, the relationship between a company's profitability and stock return has been extensively examined (Novy-Marx, 2013; Akbas, Jiang, & Koch, 2017; Ball et al., 2015). While market risks are the primary focus of the Capital Asset Pricing Model (CAPM) to explain expected stock returns, Novy-Marx (2013) indicated that profitability is also important in explaining future stock returns. Many studies have reviewed that more profitable companies tend to have higher future stock returns (Novy-Marx, 2013; Akbas, Jiang, & Koch, 2017; Kakinuma, 2020). However, the factor of profit instability, which represents unstable and fluctuating in a firm's profitability across time over stock returns, is less examined. Thus, to examine the impact of profit instability on cross-section future stock returns, this research considers profit instability as an additional factor of profitability performance.

Over the past 10 years, from 2013 to 2023, the Thai stock market has been significantly impacted by both domestic and global economic events, as shown by the fluctuation in both Return on Assets (ROA) and SET index and SET100 in Figure 1.1. These situations have caused significant volatility in the profitability of the company listed on the Stock Exchange of Thailand. During 2013-2014, Thailand faced massive anti-government street protests, which were followed by a military coup in May 2014, creating political unrest and having an effect on investor confidence and business operations (Chachavalpongpun, 2014; McCargo, 2015). From the middle of 2015 to early 2016, the Chinese stock market crashed, which had an impact on the Thai market because of the close relationship between the two countries, and since 2013, China has been one of the largest trading partners with Thailand (Rattana-amornpirom, 2020). As a result, financial markets and the economy in Thailand were negatively hit by China's economic crisis, which in turn had an impact on Thai exports and corporate earnings, leading to increased volatility in the Thai stock market (Bank of Thailand, 2016). Then, in 2018, the beginning of the U.S.-China trade war began, affecting Thailand's export

industries. According to the Bank of Thailand (2019), the Thai stock market had increased volatility because of the U.S.-China trade war, which affected manufacturing and exports, especially in electronics and automotive sectors. After that, global financial markets, including Thailand faced with Covid-19 began in early 2020, causing the SET index to decrease by about 29% YoY in March 2020 (SET, 2020). The epidemic also caused the net profit of listed firms on SET to drop by 53% in 2020 (Suwannapak & Chancharat, 2022).

Figure 1.1

The relationship between quarterly data of ROA SET (%) and SET index and SET100 from 2013-2023



Source: SETsmart

This research's main objective is to evaluate the firm's profit instability and cross-sectional stock returns in SET100 over the past 10 years, from January 2014 to December 2023, to offer new perspectives on the predictive ability of profit instability on future stock return. The following are the objectives of this study:

1. To investigate whether a firm's profit instability provides predictive information over future stock return by examining the relationship between firm profits' instability and future stock returns

2. To evaluate the robustness of the effect of profit instability on stock returns after controlling firm-specific factors like profitability, size, value, and market beta.

This research focuses on the Thai stock market as it provides an interesting landscape for exploring how profit instability affects future stock returns. Regarding SET annual report 2023, the stock market in Thailand has been the most liquid in ASEAN since 2012, with its average daily trading value of THB 53.33 billion in 2023 (SET, 2023). Additionally, the SET market capitalization in 2023 was roughly THB 17,859,733 million, ranking it the third biggest market in ASEAN and demonstrating its size and potential for investment research (SET, 2023).

The significance of this research is that it will contribute to stakeholders in many ways. Firstly, this research expands the research on profitability factors and proposes a different way to focus on a firm's profit instability to predict expected stock return in the Thai market context. Secondly, focusing on profit instability will give investors, fund managers, and policymakers more predictive information to develop their financial valuation and pricing models. This research will help them create more appropriate investment strategies, improve risk-adjusted returns, and even effectively diversify their portfolios to maximize returns in the Thai market. Lastly, it will help CFOs or management in understanding the importance of managing financial health to maintain investor confidence and in developing long-term strategy to lessen financial volatility.

CHAPTER 2
REVIEW OF LITERATURE

2.1 Literature review

Profit instability represents the firms' profitability fluctuations, which are unstable over time, and the operational risk of the firm. According to Pástor & Stambaugh (2003), a profit instability of the firm is often caused by economic events and market state, such as shifts in the supply and demand chain or macroeconomic crisis. This section will provide evidence on profitability and profit instability over cross-sectional stock returns, focusing on the additional dimension of the firm's risk that beta alone cannot explain. According to Sharpe (1964), market beta from CAPM measures systematic risk or how sensitive stock returns change in the market. However, Fama and French (1993) indicated that including size and value in the three-factor model improves CAPM's ability with a more comprehensive explanation of stock returns, emphasizing that beta cannot fully explain. Moreover, Fama and French (2015) build more on the previous three-factor model to the five-factor model by including profitability and investment to provide more explanation of stock returns and found that although the five-factor model's explanatory power for stock returns is significantly greater than that of the three-factor model, it cannot explain the low average returns of stock having small market capitalization that perform poorly. However, many researchers expanded factors, which included profitability and profit instability, to offer more predictive information regarding future stock returns, and the evidences are as follows:

2.1.1 The relationship between profitability and expected stock return

Profitability has always been a significant factor in predicting stock return (Fama & French, 1992). The relationship between a company's profitability and stock return has been extensively examined (Novy-Marx, 2013; Ball et al., 2015; Akbas, Jiang, & Koch, 2017). This research observes that more profitability generally raises the firm's value, which results in higher stock returns because they are seen as

outperforming the market; therefore, high profitability of the companies outperforms those with low profitability in terms of expected stock returns. According to Novy-Marx (2013), he examined gross profits to assets as a determinant factor with a cross-section of stock return to investigate the predictive power over future stock return across companies. The results found that profitable companies outperform unprofitable companies by having higher returns and robustness even after being controlled by factors like size and value (Novy-Marx, 2013). Following the results of Novy-Marx (2013), profitability is associated with systematic risks and business fundamentals, which means that CAPM's beta cannot account for all risks. Furthermore, Akbas, Jiang, and Koch (2017) also confirmed the trend in firms' profitability over the expected stock returns by using gross profit as a proxy in NYSE, AMEX, and NASDAQ. The results are the same as Novy-Marx (2013), showing that companies with rising profitability trend do better than those with falling profitability trend, which strongly has predictive power over stock returns (Akbas, Jiang, & Koch, 2017).

Moreover, Ball et al. (2015) further investigated the profitability of all listed companies on the NYSE, AMEX, and NASDAQ to predict a cross-section of stock return by using gross profit and introducing an additional measure of operating profitability as proxies. As a result, this indicator has greater predictive power over the stock returns than gross profitability and net income in the long term (Ball et al., 2015). However, Hou, Xue, and Zhang (2015) demonstrate that two earning factors, ROE and ROA, create more power on cross-sectional stock returns than gross profitability, which is sorted by monthly portfolio in the US market.

In the Thai context, Kakinuma (2020) explored the potential of financial ratios, including gross profit and operating profit, to predict future stock returns of firms in SET between 2002-2019 by applying the Fama-Macbeth regression and the four-factor model. The result found that gross profit provides strong predictive power over future returns as higher gross profitability firms offer the highest risk adjusted return (Kakinuma, 2020). Additionally, Parkatt, Pamornmast, and Thavikitikul (2022) also analyzed how well financial, including P/E and market capitalization, predicts stock returns for 12 firms listed on SET and found that stock returns can be predicted and explained by all economics and financial aspects. However, this research

would like to expand these profitability factors to concentrate on profit instability, which differs from other in the Thai context.

2.1.2 The relationship between profit instability and expected stock return

Profit instability reflects uncertainty in a company's financial performance, which increases financial risk, causing investors to look for higher returns as compensation (Fama & French, 1992). Therefore, to compensate for the risk of this uncertainty, a company with greater profit instability may have higher future returns. Referring to risk-return tradeoff theory, which is the core concept in modern portfolio theory by Markowitz (1952), he found that a diversified portfolio can help investors lower risk, but systematic risk still exists; therefore, investors ought to demand higher returns for taking on more risk. Malkiel and Xu (2004) examined whether the cross-sectional of future stock return included idiosyncratic risk by using U.S. stock data from 1975-2000. Their results show that stocks with greater idiosyncratic risk typically have higher expected returns even when controlled by market risk, size, and value (Malkiel and Xu, 2004). The risk-return tradeoff is supported by this evidence, demonstrating that investors want compensation for higher uncertainty or risk.

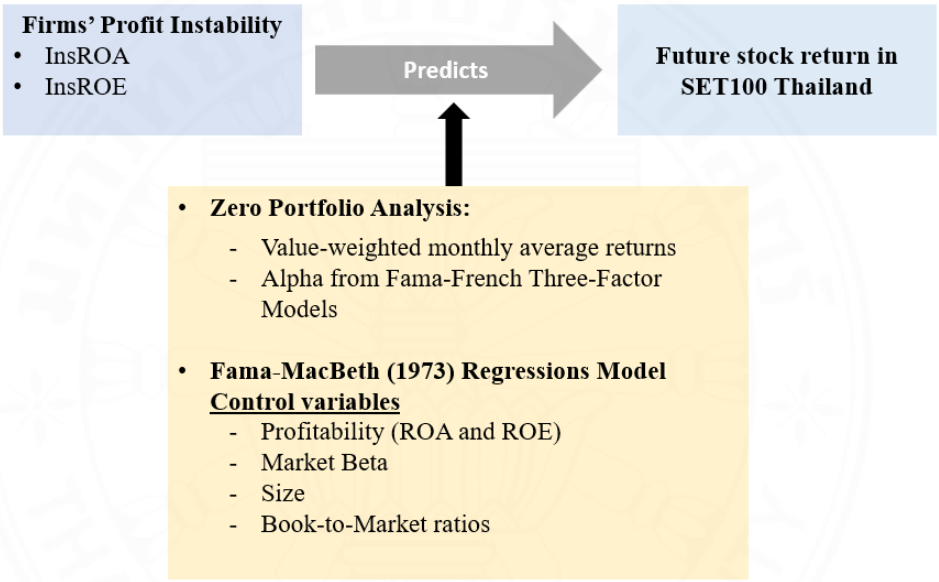
However, the company with higher profit instability might have lower expected returns because of a decrease in consumer confidence and avoid these stocks. Recent research focused more on profit instability as profitability has long been reliable and has predictive power on stock returns. According to Yin & Wei (2020), they investigate whether the impact of aggregate profit instability in the Chinese stock market may be used to predict the changes in momentum returns and how different market states affect predictive power. The results show that momentum returns are lower when facing high aggregate profit instability, whereas momentum returns are higher when facing low instability (Yin & Wei, 2020). Also, Yin & Wei (2020) found that the negative relationship in the ability to forecast profit instability is stronger in the up-market state while weaker in the down-market state. Yin, Wei, & Han (2020) further examine how profit instability affects future stock returns and is caused by mispricing or risk compensation in China A-share firms during 2004-2018. They found that higher profit instability companies are likely to have lower expected returns than more stable

profitability companies, and this negative relationship persisted after adjusting for other factors such as size, book-to-market ratio, and volatility (Yin, Wei, & Han, 2020).

2.2 Theoretical Framework

Figure 2.1

Conceptual framework of this research



In Figure 2.1, this research shows a conceptual framework to investigate whether a firm's profit instability measured by InsROA and InsROE provides predictive information over future stock returns in SET100. Therefore, this research applies the Fama and French three-factor models and the Fama-MacBeth (1973) Regressions Model to evaluate this objective, details are as follows:

2.2.1 Fama and French Three-Factor Models

The three-factor model developed by Fama and French (1993) as an extension of the Capital Asset Pricing Model (CAPM), is crucial for assessing the performance and risk exposures of the portfolio and for explaining returns through market beta, size, and value factors. Size and value contribute to the explanation of

stock return, which CAPM could not fully explain (Fama and French, 1993). Fama and French (1993) indicated that expected stock returns are driven by as follows:

2.2.1.1 Market factor ($R_m - R_f$)

According to Sharpe (1964), he indicated that higher market risk or Beta (β) demands higher expected returns as the premium that investors require in order to assume systematic market risk, which this element is in line with CAPM.

2.2.1.2 Size factor (SMB)

According to Banz (1981), he introduced the size effect because small companies are riskier; therefore, they frequently show higher returns than big companies because they are less diversified.

2.2.1.3 Value factor (HML)

According to Rosenberg, Reid, & Lanstein (1985), they indicated value stocks or high book-to-market ratios are often better than growth stocks or low book-to-market ratios as the compensation for the extra risk involved in investing in undervalued firms, which is reflected in the value firms.

2.2.2 Fama-MacBeth (1973) Regressions Model

In financial research, the Fama-MacBeth (1973) regression model, which is a two-step regression model, is often employed to investigate the cross-section of profitability and future stock returns (Yu & Chen, 2022; Yin, Wei, & Han, 2020; Clara & K, 2021). The cross-sectional association for each period is the first assessed from this two-step regression model, which then averages the beta coefficients over time to get an estimation (Fama-MacBeth, 1973; Yu & Chen, 2022; Yin, Wei, & Han, 2020). Even after risk factors are controlled, Fama-MacBeth's (1973) method can further investigate additional factors that impact stock return to explain better. Adding more firm-specific factors expanded this model from the Capital Asset Pricing Model (CAPM), which uses systematic risk or market bata to explain returns (Sharpe, 1964). According to Fama and French (1992), the assumption of this model indicated that the sensitivity or Beta (β) of stock return to factors or control variables can be used to explain stock returns, which serve as systematic risks.

2.3 Hypothesis development

First hypothesis: During 2014-2023, companies in SET100 with greater profit instability are likely to have higher future stock returns than companies with more stable profits.

The meaning is that there is a positive relationship between firm's profit instability and future stock returns. Companies with high levels of profit instability sometimes have a higher risk premium because their earnings are uncertain, which might result in higher expected returns to compensate for those risks. This hypothesis is supported by a risk-return tradeoff theory from Markowitz (1952). He found that investors demand compensation in exchange for taking on additional risk, which always involves the uncertainty of fluctuating earnings (Markowitz, 1952). For this research, profit instability can represent an operational risk of the company, and investors might demand compensation for those risks. Sharpe (1964) indicated that investors typically are risk-averse and will only assume more risk if they notice higher returns. The evidence was found in the research of Malkiel and Xu (2004) as they examined whether the cross-sectional of future stock return included idiosyncratic risk by using U.S. stock data during 1975-2000, resulting that stocks with greater idiosyncratic risk typically have higher expected return even controlled by market risk, size, and value. Moreover, Pástor & Stambaugh (2003) established systemic liquidity risk as a risk factor in asset returns, expanding traditional risk-return tradeoff. They found that higher liquidity volatility of stocks or high risk tends to yield greater average returns. In contrast to this research's hypothesis, Yin, Wei, and Han (2020) researched the Chinese stock market and found that companies with higher profit instability in the Chinese stock market regularly showed lower expected returns than companies with more stable profits.

Second hypothesis: Even after controlling for other factors such as profitability, size, value, and market beta, the positive relationship between firms' profit instability and future stock return remains significant.

By implying that profit instability reflects a distinct aspect of risk that is not entirely represented by traditional risk factors, this hypothesis then expands the risk-return-based explanation by assuming that companies with greater profit instability still have greater future stock returns compared to those with less profit instability when other factors like profitability, size, value, and market beta are controlled. According to Fama & French (2015), they indicated that the Fama-French five-factor model does not explain all of its cross-sectional return variation. Therefore, this research implies that there is a unique aspect of risks, profit instability or operational risk, that is not explained by asset pricing models. According to Malkiel and Xu (2004), even when controlled by market risk, size, and value, they showed that idiosyncratic risk remains a strong predictor of cross-sectional future stock returns, meaning that more idiosyncratic risk often has higher future stock returns. Similarly, the research of Pástor & Stambaugh (2003) also found that higher liquidity risk of stocks tended to have higher future stock returns even controlled by market risk, size, value, and momentum, confirming liquidity risk is a significant aspect of risk that traditional asset pricing model cannot adequately explain. On the other hand, Yin, Wei, and Han (2020) found that the predictive power over profit instability is further highlighted by including various control factors, and they reviewed that there was still a negative and significant relationship between profit instability and future stock returns.

CHAPTER 3
RESEARCH METHODOLOGY

3.1 Data

This research focuses on the firms in the SET100 index because they represent the most liquid and largest firms on the Stock Exchange of Thailand (SET). The SET100 index is evaluated and revised every six months, and this research focuses on the June 2024 review periods to analyze profit instability and cross-section future stock returns of currently listed firms in the SET100 index. Following Acaranupong (2017) and Tantipanichkul & Supattarakul (2015), this research excludes companies in the financial industry group, including banking, finance & securities, and insurance, because they had different financial reporting requirements. Furthermore, according to Yin, Wei, & Han (2020), the sample data from at least eight quarters or 24 months is used to calculate the firm's profit instability, and this research also winsorized all sample data at 1% and 99% to reduce the impact of outliers. Therefore, this research's sample consists of all 64 listed companies in line with this research's condition and criteria, as shown in Table 3.1. The sample totaled 5,936 firm-month observations. The study period was 120 months, from January 2014 to December 2023, which includes monthly closing price data and market beta from SETSMART. Data on profitability (ROA and ROE), book-to-market ratio, and market capitalization are from Thomson DataStream (Refinitiv).

Table 3.1

Number of samples in this research

Sampling method		**Firms**
Total number of listed companies in SET100 as of June 2024		100
Deduct	Firms in financial industry (FINCIAL)	-18
	Firms with available financial data less than two consecutive years	-3
	Winsorized 1% and 99% outlier	-15
Total number of sample firms		**64**
Number of observation month in the sample firm		**5,936**

3.1.1 Factors

For market excess return (R_{Mt}-R_{ft}), according to Fama and French (1993), the excess return of market portfolio minus risk-free rate is known as the market excess return. This research uses the total return of SET index data as a benchmark for the market portfolio from January 2014 to December 2023. The interest rate for Thai Government Bonds at the beginning of each month data serves as a proxy for the risk-free rate (R_f). Fama-French factor data is obtained from the SET website.

3.2 Methodology

3.2.1 Firms' profit instability measurement

To measure the companies' profit instability, this research applies the method of Yin, Wei, and Han (2020), which employs both Return on Equity (ROE) and Return on Asset (ROA) as the indicators to provide an in-depth explanation of different indicators. To calculate profit instability, this research first acquires ROA and ROE every quarter. Then, the change in profitability from the same quarter last year is computed to reduce the quarterly variable's seasonal effect. The equations are as follows:

$$\Delta ROA_{iq} = ROA_{iq} - ROA_{i(q-4)} \quad (1)$$
$$\Delta ROE_{iq} = ROE_{iq} - ROE_{i(q-4)}$$

Where $\Delta ROA_{iq}\ and\ \Delta ROE_{iq}$ represent the changes of ROA and ROE of firm (i) in quarter (q).

After that, this research uses time trends to reflect the change in profitability over time. Therefore, this research runs rolling regression by using a sample of $\Delta ROA_{iq}\ and\ \Delta ROE_{iq}$ from the recent eight samples or quarters. The regression models by Yin, Wei, and Han (2020) are as follows:

$$\Delta ROA_{iq} = \alpha_{ROA} + b_{i,ROA} Trend + \varepsilon_{iq,ROA} \quad (2)$$

$$\Delta ROE_{iq} = \alpha_{ROE} + b_{i,ROE} Trend + \varepsilon_{iq,ROE}$$

Where $Trend$ represent a time variable (1,2,…,8 quarters), and $\varepsilon_{iq,ROA}$ and $\varepsilon_{iq,ROE}$ are the residuals.

Finally, this research extracts $\varepsilon_{iq,ROA}$ and $\varepsilon_{iq,ROE}$ (residuals) from the regression to compute the variance of residuals to define firms' profit instability as follows (Yin, Wei, and Han, 2020):

$$InsROA_{it} = VAR\left(\varepsilon_{iq,ROA}\right) \quad (3)$$
$$InsROE_{it} = VAR\left(\varepsilon_{iq,ROE}\right)$$

Where $InsROA_{it}$ and $InsROE_{it}$ represent profit instability estimated from residual variance.

For interpreting the result, a greater value of $InsROA_{it}$ and $InsROE_{it}$, a higher firm's profit instability.

3.2.2 Ability of firms' profit instability to predict future stock return

3.2.2.1 Zero portfolio analysis (univariate sort)

Following Yu et al. (2022), this part will examine if a company's profit instability offers predictive information over future stock return by examining the relationship between firm profits' instability and future stock returns. In doing so, this research sorts zero portfolios by $InsROA_{it}$ and $InsROE_{it}$ as proxied of firms' profit instability in increasing order and examines raw returns and risk-adjusted returns (alpha). This research uses value-weighted portfolios instead of equally-weighted ones because Hou, Xue, and Zhang (2015) indicated that many factors tend to be overestimated when employing equally-weighted portfolios.

This research ranks stocks in increasing order according to their profit instability value at the start of each month T and holds for T+1 month. For ranking, quartile portfolios are constructed: low portfolios have the lowest profit instability, while high portfolios represent the highest profit instability. Therefore, this research will compute monthly return at month t+1 as follows:

$$Raw\ return_{t+1} = \frac{P_{t+1}}{P_t} - 1 \quad (4)$$

Where the stock price at month t is represented by P_t, and the stock price at the end of next month is represented by P_{t+1}.

After that, this research computes value-weighted average returns for each portfolio as follows:

$$R_p = \sum_{i=1}^{N} \frac{Market\ Cap_{i,t}\ x\ Return_{i,t+1}}{Market\ Cap_{p,t}} \quad (5)$$

Where the market capitalization of stock i at the end of month t is denoted by $Market\ Cap_{i,t}$, while $Return_{i,t+1}$ denotes the return of stock i at the end of month t+1. And the market capitalization of all stocks in each portfolio (p) at time t is represented by $Market\ Cap_{p,t}$

Utilizing the three-factor model proposed by Fama and French (1993), this research investigates if profit instability and future stock returns can be explained by standard risk factors. According to Fama and French (1993), this research continues to regress profit instability based zero portfolios on size and value factors to examine its predictive power over future stock return, and the focus is on risk-adjusted return or alpha (α). To verify the robustness of the findings on profit instability, a risk-adjusted return or alpha is required. By using market risk, size, and value to explain returns, Fama and French (1993) three-factor model is crucial for assessing the performance and risk exposures of the portfolio. Therefore, value-weighted monthly risk-adjusted return or alpha is computed to see the predictive information over its future stock returns. The excess return of the portfolio can be stated using the three-factor model developed by Fama and French (1993) as follows:

$$R_{pt} - R_{ft} = \alpha_i + \beta_{iM}\left(R_{Mt} - R_{ft}\right) + \beta_{is}SMB_t + \beta_{ih}HML_t + \varepsilon_{it} \quad (6)$$

Where the portfolio's total value-weighted return is R_{pt}, the risk-free is represented by R_{ft}, the portfolio's total market represents R_{mt}, while the excess return of the market portfolio represents R_{Mt} - $R_{ft,}$ size factors stand for SMB_t and value factors stand for HML_t.

After computing value-weighted returns and risk-adjusted returns for all portfolios, this research will calculate hedge portfolios by high minus low, consisting of long stocks that exhibit the most profit volatility stocks and short stocks with the least volatile profits. According to Newey and West (1987), this research applies a t-statistic test adjusted by Newey-West robust standard errors.

3.2.2.2 Fama–MacBeth (1973) regression

This research applies Fama and MacBeth (1973) regressions to further evaluate the robustness check of the effect of profit instability (InsROA and InsROE) on future stock returns after adjusting firm-specific factors. The control variable consists of ROA (ROE), size, book-to-market ratio, and market beta. The explanation of each variable is in Table 3.2. This research's objective is to determine if profit instability is driven by other significant factors in the cross-section of future stock returns. Therefore, this research has six models as follows:

1st model: To test the relationship of profit instability (InsROA) to predict future stock returns.

$$RET_{it+1} = Intercept + \beta_1 InsROA_{it} + \beta_2 Beta_{it} + \varepsilon_{it+1} \quad (7)$$

2nd model: ROA is included to test in the regression analysis.

$$RET_{it+1} = Intercept + \beta_1 InsROA_{it} + \beta_2 ROA_{it} + \beta_3 Beta_{it} + \varepsilon_{it+1} \quad (8)$$

3rd model: Size and B/M are added to evaluate the predictive power over future stock returns.

$$RET_{it+1} = Intercept + \beta_1 InsROA_{it} + \beta_2 ROA_{it} + \beta_3 Beta_{it} + \beta_4 Size_{it} + \beta_5 BM_{it} + \varepsilon_{it+1} \quad (9)$$

4th model: To test the relationship of profit instability (InsROE) to predict future stock returns.

$$RET_{it+1} = Intercept + \beta_1 InsROE_{it} + \beta_2 Beta_{it} + \varepsilon_{it+1} \quad (10)$$

5th model: ROE is included to test in the regression analysis.

$$RET_{it+1} = Intercept + \beta_1 InsROE_{it} + \beta_2 ROE_{it} + \beta_3 Beta_{it} + \varepsilon_{it+1} \quad (11)$$

6th model: Size and B/M are added to examine the predictive power over expected stock returns.

$$RET_{it+1} = Intercept + \beta_1 InsROE_{it} + \beta_2 ROE_{it} + \beta_3 Beta_{it} + \beta_4 Size_{it} + \beta_5 BM_{it} + \varepsilon_{it+1} \quad (12)$$

Where RET_{it+1} represents the monthly return of firm i in month t+1, while the two main variables, InsROA and InsROE, and other independent variables are explained in Table 3.2.

After that, this research will calculate the mean or average Beta coefficients in each time series as follows (Fama and MacBeth, 1973):

$$\bar{\beta} = \frac{1}{T} \sum_{t=1}^{T} \beta_n \quad (13)$$

Where T represents number of months in the study periods which is 120 months, and n represents each Beta coefficient from the regression.

Table 3.2

Control variable and expected sign of this study

Notation	Variable	Construction	Represent	Expected sign	Explanation	Reference
Profit instability measurement variable						
InsROA	Profit Instability measured by ROA	Residual variation from 8 quarters rolling regressions of the time trend's profitability changes in comparison to the prior year	Operational risk of firm	+	A greater value of $InsROA_{it}$ means a higher firm's profit instability, leading to higher risk and higher future returns.	Malkiel and Xu (2004), Pástor and Stambaugh (2003)
InsROE	Profit Instability measured by ROE				A greater value of $InsROE_{it}$, a higher firms' profit instability, leading to higher risk and higher future returns.	
Control variable (to see if they have predictive power on expected stock returns)						
ROA	Return on Asset	Taking the quarterly net profit and dividing it by the average of quarterly total assets	Firm's Profitability	+	More profitability indicates better firm operation and performance with positively correlation with stock return.	Hou, Xue, and Zhang (2015), Chen, Sun, Wei, and Xie (2018)
ROE	Return on Equity	Taking the quarterly net profit and dividing it by the average of quarterly total equity				
Beta	Market Beta	Run regression of monthly stock returns on market returns using a sample from the preceding 1 year.	Market risk or systematic risk	+	Higher risk which implied by higher beta stocks result in higher future returns.	Sharpe (1964)
Size	Market Capitalization	Logarithm of market capitalization	Firm's size	Small (-)	Small-cap firm generally results in higher returns because of size premium.	Fama and French (1993), Banz (1981)

Table 3.2

Control variable and expected sign of this study (Cont.)

Notation	Variable	Construction	Represent	Expected sign	Explanation	Reference
BM	Book-to-Market ratio	Company's book value is divided by market capitalization	Firm's value	+	Value stocks (high BM companies) are typically performed better than growth stocks (low BM companies) because of value premium, leading to greater expected returns.	Fama and French (1993), Rosenberg , Reid and Lanstein (1985)

Each control variable in this research is explained as follows:

Return on Asset (ROA) and Return on Equity (ROE): According to the definition of the SET (2024), Return on Asset (ROA) represents a ratio that illustrates how well a business used its asset to generate profits, while Return on Equity (ROE) represents the profitability of the company compared to its shareholder's equity to see how well a business used its equity to generate returns. Following Novy-Marx (2013), ROA and ROE are metrics used to assess a company's profitability in this research. The formulas are as follows:

$$Return\ on\ Assets\ (ROA) = \frac{Net\ profit}{Average\ total\ assets} \tag{14}$$

$$Return\ on\ Equity\ (ROE) = \frac{Net\ profit}{Average\ shareholders'equity} \tag{15}$$

Size: represents a company's market capitalization, which is measured by multiplying the number of outstanding shares by share price. Banz (1981) indicated the significance of size in asset pricing as smaller companies often yield greater average returns compared to bigger companies. Moreover, the logarithm of market capitalization is typically used to reduce skewness in distribution (West, 2022). The formula is as follows:

$$Size = log(Market\ Capitalization) \quad (16)$$

Book-to-market ratio (BM): is computed by dividing a firm's book value by its market capitalization, according to Fama & French (1993). According to the asset pricing models, which uses the book-to-market ratios to explain stock returns, value stocks normally exhibit greater returns compared to growth stocks (Fama & French,1993). The formula is as follows:

$$BM = \frac{Book\ value\ of\ equity}{Market\ capitalization} \quad (17)$$

Market Beta (Beta): According to the definition of the SET 2024, market beta determines the sensitivity of a stock to the movement of SET's rate of return, computed coefficient by running a regression of stock returns on market returns using a sample from the preceding year. According to Sharpe (1964), who introduced CAPM, he found that a higher beta is linked to higher expected returns because greater systematic risk is denoted by a higher beta. Thus, investors should get higher expected returns in exchange for assuming extra risk.

CHAPTER 4
RESULT

4.1 Statistic summary

Several variables are used to forecast future returns in the Thai stock market, such as InsROA and InsROE, which are controlled by profitability (ROA and ROE), size, book-to-market ratio, and beta. To lessen the influence from extreme values of the variables that might result in erroneous estimations because of data outliers, variables in this research are winsorized at 1% and 99% levels to reduce bias or removed values of 1% lowest and 1% highest using the winsorization process before running a regression. Table 4.1 represents a statistical summary of this research from January 2014 to December 2023, which shows that the average profit instability measured by InsROA is 9.91, and the standard deviation is 22.20. In terms of InsROE, there is a high average of 32.48 and a high standard deviation of 63.44, indicating that they are more volatile. Moreover, there are 5,936 monthly observations in this research.

Table 4.1

Statistic summary

Variables	No. of observation	Mean	Std	Min	Median	Max
InsROA	5,936	9.91	22.20	0.18	2.77	130.46
InsROE	5,936	32.48	63.44	0.54	9.50	334.53
ROA	5,936	9.31	7.03	-4.51	8.15	35.17
ROE	5,936	14.38	14.63	-15.96	12.54	69.97
Size	5,936	11.14	1.27	8.58	11.06	13.89
BM	5,936	0.60	0.44	0.07	0.50	2.14
Beta	5,936	1.09	0.40	0.28	1.07	2.14

Note: Table 4.1 represents the cross-sectional mean, SD, minimum, median, maximum, and observation number in a time series. The variables are InsROA, InsROE, ROA, ROE, Size, BM, and Beta in the period from January 2014 to December 2023.

4.2 Ability of firms' profit instability to predict future stock return

4.2.1 Zero portfolio analysis (Univariate sort)

This section will display the result of zero portfolio analysis sorted by InsROA and InsROE to investigate whether a profit instability factor of the firms provides predictive information over future stock returns by examining the relationship between firm profits' instability and future stock returns.

Table 4.2 and 4.3 represent the outcome of zero portfolio analysis in cross-sectional of profit instability and future stock returns. In this context, the lowest quartile of profit instability measured by InsROA and InsROE denoted "P1" or low-profit instability, while the highest quartile of profit instability denoted "P4" or high-profit instability, and "P4-P1" denoted the hedge portfolio, which consists of short lowest and long highest profit instability of stocks. According to zero portfolio analysis sorted by both InsROA and InsROE in Table 4.2 and 4.3, the results found a positive relationship between profit instability and future stock returns.

Table 4.2

A: Zero portfolio analysis sorted by InsROA (% Value-Weighted Return)

InsROA	**P1**	**P2**	**P3**	**P4**	**P4-P1**
Value-Weighted Return (%)	**0.067**	**0.535**	**0.367**	**0.802***	**0.735***
T-test	*0.157*	*1.092*	*0.736*	*1.667*	*1.738*
P-value	*0.876*	*0.277*	*0.463*	*0.098*	*0.085*

B: Zero portfolio analysis sorted by InsROE (% Value-Weighted Return)

InsROE	**P1**	**P2**	**P3**	**P4**	**P4-P1**
Value-Weighted Return (%)	**-0.059**	**0.573**	**0.385**	**1.059***	**1.118****
T-test	*-0.129*	*1.116*	*0.790*	*1.741*	*2.081*
P-value	*0.898*	*0.267*	*0.431*	*0.084*	*0.040*

Note: Table 4.2 shows the results of zero portfolio analysis sorted by InsROA and InsROE, which reports the percentage of value-weighted monthly average return from January 2014 to

December 2023. The significant level of t-test is indicated at 10%, 5%, and 1% by the symbols *, **, ***, respectively.

Table 4.3

A: Zero portfolio analysis sorted by InsROA (% Alpha)

InsROA	**P1**	**P2**	**P3**	**P4**	**P4-P1**
Alpha (%)	**-0.078**	**0.379***	**0.230**	**0.744****	**0.821***
T-test	*-0.346*	*1.882*	*0.937*	*2.090*	*1.799*
P-value	*0.730*	*0.062*	*0.351*	*0.039*	*0.075*

B: Zero portfolio analysis sorted by InsROE (% Alpha)

InsROE	**P1**	**P2**	**P3**	**P4**	**P4-P1**
Alpha (%)	**-0.189**	**0.399***	**0.246**	**0.991****	**1.180****
T-test	*-0.858*	*1.753*	*0.887*	*2.247*	*2.272*
P-value	*0.393*	*0.082*	*0.377*	*0.027*	*0.025*

Note: Table 4.3 shows the results of zero portfolio analysis sorted by InsROA and InsROE, which reports the percentage of Fama and French three-factor model in alphas from January 2014 to December 2023. The significant level of t-test is indicated at 10%, 5%, and 1% by the symbols *, **, ***, respectively.

The result sorted by InsROA in Table 4.2A shows that the value-weighted average return increases from 0.067% to 0.802%, suggesting that companies with the highest profit instability often yield higher expected returns. The average monthly returns of the hedge portfolio, which is short lowest and long highest profit instability stocks, is 0.735%, showing a marginally significant level of 10% with a t-statistic of 1.738. In terms of risk-adjusted returns on the Fama-French three-factor model (1993), it is reported in Table 4.3A. When controlled by size, market, and value, the alphas maintain significance and meaningful to future expected stock returns. The alphas increase from the lowest quartile of -0.078% to the highest quartile of 0.744%, showing a statistically significant level of 5% with a t-statistic of 2.090. The hedge portfolio of risk-adjusted alphas is 0.821% with a t-statistic of 1.799, showing a marginally significant level of 10%. These results indicated that higher profit instability firms had

generated positive value-weighted returns and abnormal or risk-adjusted returns controlled by market, size, and value.

The results sorted by InsROE in Table 4.2B show a similar trend and an even more robust positive relationship with expected stock returns. The value-weighted average return increases significantly from -0.059% in the lowest quartile to 1.059% in the highest quartile, which displays a marginally significant level of 10% with a t-statistic of 1.741. Even though the lowest profit instability quartile shows a little negative average return, the t-statistic of -0.129 is insignificant, indicating that underperforming firms with stable profitability might not be robust. The hedge portfolio's value-weighted average return is 1.118%, which displays a statistically significant level of 5% with a t-statistic of 2.081. According to the results, the hedging strategy that involves short stable profitability firms and long highest profit instability firms can produce meaningful and statistically robust returns. These findings are further supported by alphas in the Fama-French three-factor model in Table 4.3B. The alphas increase from the lowest quartile of -0.189% to the highest quartile of 0.991%, showing a statistically significant level of 5% with a t-statistic of 2.247. The hedge portfolio of risk-adjusted alphas is 1.180% with a t-statistic of 2.272, showing a statistically significant level of 5%. It indicates that InsROE reflected a component of risk that cannot explained by traditional risk factors. These results confirmed that higher profit instability firms had generated positive value-weighted returns and abnormal or risk-adjusted returns controlled by market, size, and value. When comparing zero portfolio analysis sorted by InsROA and InsROE, InsROE offers stronger, more reliable, and robust variables of profit instability as a risk factor in explaining the expected stock return. The reason might be that the return on equity (ROE) focuses on how well companies generate returns to shareholders and is directly related to residual claims and equity risk; therefore, investors may react more strongly to the fluctuation in ROE rather than ROA. Acaranupong (2017) indicated that the equity-based metric is more important to Thai investors since it accurately reflects shareholder value in SET100 firms in Thailand. Furthermore, regarding the range of data samples, InsROE has a wider range and bigger dispersion than InsROA, which improves their ability to predict future stock returns.

These results strongly support the first hypothesis of this research, which is that companies in SET100 with greater profit instability are likely to have higher future stock returns than companies with more stable profits during 2014-2023. The findings indicate that there is a positive relationship or rising trend between profit instability and future stock return when using both the value-weighted return and alpha in the Fama-French three-factor model. These results align with the risk-return tradeoff theory, implying that firms with higher profit instability tend to have higher future stock returns.

4.2.2 Fama-MacBeth (1973) regression

Table 4.4

Cross-sectional model by using Fama-Macbeth (1973) technique

Beta Coefficient	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
InsROA	**0.0086**	**0.0116**	**0.0085**			
	(0.6800)	*(0.9700)*	*(0.7253)*			
InsROE				**0.0065****	**0.0065****	**0.0056***
				(2.0300)	*(2.0500)*	*(1.7316)*
ROA		**0.0400**	**0.0048**			
		(1.5600)	*(0.1674)*			
ROE					**0.0222***	**0.0107**
					(1.8000)	*(0.8002)*
B/M			**-1.7763*****			**-1.6529*****
			(-4.1842)			*(-3.9143)*
Size			**-0.6076*****			**-0.6115*****
			(-4.3959)			*(-4.2903)*
Beta	**0.4568**	**0.5567**	**0.7950***	**0.4314**	**0.5822**	**0.9091****
	(1.0700)	*(1.3600)*	*(1.7985)*	*(1.0200)*	*(1.4700)*	*(2.1299)*
Intercept	**0.3047**	**-0.1427**	**7.7657*****	**0.2133**	**-0.2269**	**7.4169*****
	(0.6900)	*(-0.2400)*	*(4.3434)*	*(0.4900)*	*(-0.4200)*	*(4.0112)*
No. of observation	5,936	5,936	5,936	5,936	5,936	5,936
No. of Period	120	120	120	120	120	120
F-test	0.81	1.47	7.46***	2.57*	2.84**	8.81***
Avg. R-squared	0.0651	0.1078	0.1997	0.0811	0.1089	0.2018

Note: Table 4.4 shows the results of average monthly coefficients from the Fama-MacBeth (1973) cross-sectional regression over future stock returns for six distinct models with various

independent variables from January 2014 to December 2023. The significant level of t-statistic is reported in parentheses which is indicated at 10%, 5%, and 1% by the symbols *, **, ***, respectively. The F-test of each model is also shown at the bottom, adhering to the same significance level condition.

This section will display the result of the Fama-MacBeth (1973) regression analysis, which evaluates the robustness of the effect of profit instability on stock returns after controlling for factors, such as profitability, size, value, and beta.

For the first three models in Table 4.4, the results show that the mean coefficient of InsROA is still statistically insignificant, suggesting that future stock returns are not significantly explained by profit instability measured by InsROA. In the first model, there is far from significance as the coefficient InsROA is 0.0086 with a t-statistic of 0.68. In the second model, when the profitability factor, ROA, is added, the coefficient InsROA slightly increases to 0.0116 but remains insignificant as a t-statistic of 0.97. In the third model, when including all independent variables, the coefficient InsROA of 0.0085 with a t-statistic of 0.73 remains insignificant, but other control variables, B/M, and size, are highly significant. In particular, beta in the third model is marginally significant at 10%, which has a beta coefficient of 0.7950 with a t-statistic of 1.80, indicating that systematic risk considerably impacts predictive power over future stock returns. Nevertheless, the result shows a positive relationship between profit instability measured by InsROA and future stock returns, but it is insignificant. Therefore, InsROA is unable to provide any further explanatory power over future stock returns.

For models 4-6 in Table 4.4, it represents the mean coefficient model using InsROE. When compared to the models using InsROA, the finding shows a positive and significant relationship between profit instability measured by InsROE and future stock returns. The mean coefficient of InsROE has significant predictive power over future stock returns. In the fourth model, the coefficient InsROE is 0.0065, which displays a statistically significant level of 5% with a t-statistic of 2.03. It means that InsROE alone provides explanatory power over future stock returns. However, the Beta in the fourth model is insignificant, indicating that it does not reflect systematic risk. In terms of F-statistic and average R-squared, they are 2.57 and 8.1%, respectively, greater

than the first model. In the fifth model, when the profitability factor, ROE, is added, the coefficient InsROE of 0.0065 still maintains a positive relationship with future stock returns and a statistically significant level of 5% with a t-statistic of 2.05. Even when controlled by ROE, the InsROE still maintains significance, indicating that profit instability measured by InsROE has distinct predictive power beyond only profitability (ROE). Also, the F-statistic and average R-squared increase to 2.84 and 10.9%, respectively. In the last model, the mean coefficient InsROE of 0.0056 continues to be marginally significant at 10% with a t-statistic of 1.73, having a positive relationship with future stock returns after controlling for all independent variables, including B/M, size, and beta. This result means that companies with higher profit instability tend to earn higher expected returns. For the size effect, the mean coefficient od size of -0.6115 is negative and highly significant at 1% with a t-statistic of -4.29, indicating that smaller companies often provide higher future returns even controlled by other factors in SET100. For value effect, the mean coefficient of the book-to-market ratios of -1.6529 is negative and highly significant at 1% with a t-statistic of -3.91, indicating that growth stocks or low book-to-market ratios tend to have higher future returns even controlled by other factors. Moreover, the last model also yields the highest F-test and average R-squared of 8.81 and 20.2%, respectively, demonstrating the most robust model in this analysis. Again, even when controlled by profitability (ROE), B/M, size, and beta, the InsROE still maintains significance, indicating that profit instability measured by InsROE has additional predictive power beyond only these control variables.

These results strongly support the second hypothesis of this research: even after controlling for other factors such as profitability, size, value, and market beta, the positive relationship between firms' profit instability and future stock return remains significant. The findings consistently demonstrate that InsROE is more effective in explaining the relationship between profit instability and future stock returns. The reason of these findings is that ROE more accurately reflects the operational risk of the company, which is more closely related to the return's volatility given to equity holders as a result of the performance of the company, ROE has a stronger predictive information than InsROA. Therefore, regarding the risk-return

tradeoff theory, the investors expect a higher return as profitability fluctuates, and InsROE is more accurately represents the company’s operational risk.

CHAPTER 5
CONCLUSION

5.1 Conclusion

This research evaluates profit instability of the company and cross-sectional stock returns in SET100 over the past 10 years, from January 2014 to December 2023, to offer new perspectives on the predictive ability of profit instability on future stock returns. The following are the main objective of this study: (1) to investigate whether a firm's profit instability provides predictive information over future stock return by examining the relationship between firm profits' instability and future stock returns by using zero portfolio analysis, and (2) to evaluate the robustness of the effect of profit instability on stock returns after controlling for firm-specific factors like profitability, size, value, and market beta by using Fama-Macbeth regression analysis. The results found a positive and significant relationship between profit instability, especially measured by InsROE, and future stock returns, suggesting that higher profit instability companies in SET100 Thailand during 2014-2023 tend to have higher future stock returns. The two hypotheses of this research are supported by the findings as follows:

First hypothesis: During 2014-2023, companies in SET100 with greater profit instability are likely to have higher future stock returns than companies with more stable profits.

By forming zero portfolio analysis sorted by InsROA and InsROE using value-weighted return and the Fama-French three-factor model, the results strongly support the first hypothesis. The results show a positive relationship between profit instability and future stock returns, indicating that higher profit instability firms have generated positive value-weighted returns. In the hedge portfolios sorted by both InsROA and InsROE, it is found a positive and statistically significant returns, with a higher effect on InsROE. Furthermore, as value-weighted returns do not have much statistical power, this research further applies the Fama-French three-factor model to

examine risk-adjusted returns, providing more framework by controlling for market risk, size, and value. The results still found a positive relationship between profit instability and future stock returns, which is quite strong and more significant, especially in InsROE portfolios. These results suggest that higher profit instability firms have generated higher abnormal returns even when controlled by market risk, size, and value, which is more significant in InsROE portfolios. These results mean that profit instability accounts for operational risk, which is not entirely considered by traditional risk factors.

Second hypothesis: Even after controlling for other factors such as profitability, size, value, and market beta, the positive relationship between firms' profit instability and future stock return remains significant.

By using the Fama-Macbeth regression analysis, the findings strongly support the second hypothesis again. Across all models, the results show the positive relationship between profit instability and future stock returns, but it is effective only InsROE based models. The results show that InsROE continuously shows a statistically significant and positive relationship with future stock returns. Therefore, InsROE, as an operational risk, has a unique explanatory power to explain the relationship between profit instability and future stock returns beyond what is captured by traditional risk factors such as profitability, B/M, size, and beta. Because ROE more accurately captures operational risk and fluctuation of returns due to equity holders, profit instability measured by InsROE is a more effective predictor than InsROA.

5.2 Discussion

First hypothesis: During 2014-2023, companies in SET100 with greater profit instability are likely to have higher future stock returns than companies with more stable profits.

The result found that profit instability and future stock return in SET100 Thailand from 2014 to 2023 are positive relationships according to forming zero portfolio analysis, which is sorted by InsROA and InsROE. Furthermore, even when market beta, size, and value are controlled, the alpha from the Fama-French three-factor

model still further supported this result, showing that a significantly positive relationship exists between profit instability and future stock returns.

These results are in line with Markowitz (1952) and Sharpe (1964), who approached the risk-return tradeoff theory, indicating that investors seek compensation for taking on more risk in exchange for higher future returns. Regarding the result of this research, as profit instability or operational risk cannot be completely mitigated by diversification, investors must receive higher future returns as compensation. It aligns with the finding that higher profit instability tends to have higher future stock returns in SET100 during 2014 - 2023.

Compared to other research, the positive relationship between profit instability and future stock returns is also found in the research of Malkiel and Xu (2004); even when controlled by market beta, size, and value, they showed that higher idiosyncratic risk stocks provided higher expected returns. These results, however, go against Yin, Wei, and Han (2020), who found that firms with more earning volatility often had lower future stock returns on the Chinese Stock Market. Moreover, this result also contrasts Yin, Wei, and Han (2020)'s results because Thai and Chinese markets might differ in market efficiency and investor behavior. According to Allen et al. (2023), more than 80% of the trading volume in China's A-share market came from retail investors, who frequently display behavioral biases, including lottery seeking and following trends. The Thai stock market, in contrast, has a more balanced investor composition, with foreign investors accounting for 51%, local individual investors for 34%, local institutional investors for 8%, and proprietary trading for 7% of the total trading value, regarding SET annual report 2023. This result showed that 66% of trading value comes from professional investors, fostering highly skilled market players which impact on pricing.

Second hypothesis: Even after controlling for other factors such as profitability, size, value, and market beta, the positive relationship between firms' profit instability and future stock return remains significant.

The second hypothesis is well supported by the Fama-MacBeth regression analysis. Across all models, InsROE continuously displayed a strong positive relationship with future stock returns, whereas InsROA exhibited positive but

insignificant. Significantly, InsROE has a stronger to explain future returns than InsROA. This research implied that Thai investors might focus more on equity-based profit instability, which in turn impacts shareholders' returns. According to Acaranupong (2017), he analyzed SET100 and showed that Thai investors are more interested in accounting data measured by equity than assets as it represents shareholder value.

These results offer evidence to support the extension of the traditional asset pricing model by showing that profit instability measured by InsROE provided a distinct aspect of risk that cannot be well explained by the traditional asset pricing model. This result is consistent with Fama & French (2015), who indicated that there are still other risk factors because the Fama-French five-factor model is unable to fully explain cross-sectional stock returns. The finding of this research supports the idea that profit instability is a unique operational risk that affects investor's expectations. Moreover, this research also found the size effect, which aligns with the theory from Fama & French (1993) and Banz (1981), indicating that smaller companies often provide higher future returns even being controlled by other factors in SET100. On the other hand, the book-to-market ratios are negative and highly significant with future stock returns, indicating that growth stocks or low book-to-market ratios tend to have higher future returns even being controlled by other factors, which is in contrast with Fama & French (1993). Thailand's macroeconomics during this research study period can be used to explain this. Thailand experienced a strategic transition during 2014 to 2023, moving forward driven by digital and innovation through the Thailand 4.0 policy to transform the economy (Ministry of Industry, 2018) and speed up by the Covid-19 pandemic as the Thai government focused more on e-commerce and tech-driven companies with focusing on digital transformation by investing in infrastructure and providing soft loans (World Bank, 2020). Therefore, growth stock firms might greatly benefit from this transformation.

The findings of Malkiel and Xu (2004), who found that idiosyncratic risk is still a powerful forecaster of cross-sectional expected stock returns even controlled by market beta, size, and value, are consistent with this research, focusing on the significance of profit instability after controlled by traditional risk factors. Likewise, after adjusting for other risk factors, Pástor & Stambaugh (2003) also found that

liquidity risk remained significant, demonstrating that some risk factors cannot be sufficiently captured by traditional asset pricing models. The findings of this research, however, contrast the research of Yin, Wei, and Han (2020), who found that even after being controlled by other risk factors, profit instability and future stock returns show a negative relationship in the Chinese market.

5.3 Recommendations to Stakeholders

According to the results of this research, it is advised that all stakeholders should consider the idea of profit instability as a risk factor when formulating investment strategies. When making an investment decision, investors and fund managers should take profit instability, particularly InsROE, into account as a significant operational risk of the company.

Investors and fund managers should include high-profit instability companies in SET100 in their portfolios as this research found that higher profit instability companies tend to earn higher future stock returns. These results indicate that firms with fluctuating profitability may compensate with higher stock returns. However, this is a high risk, so investors should diversify their portfolios to optimize returns in the Thai stock market. For listed company managers, they should focus on and monitor the profit stability of the company because it may boost investor trust and enhance business valuation if they can maintain appropriate profit fluctuation.

Furthermore, in order to improve investment decisions and contribute to the development of a more resilient and effective capital market, policymakers and regulators should extend policies that include profit instability to assess risk profile of the company and enhance them to release more information about operational risk and profit instability. Moreover, they should establish more effective guidelines for earning management that encourage financial stability rather than manipulating earnings.

Finally, for the researchers, it is recommended to further investigate the relationship between profit instability and future stock returns in other markets, different time periods, and using other earning quality measures. As this research focuses on SET100 Thailand, future research should expand the area of analysis to the

whole market in the Stock Exchange of Thailand or international markets to compare and confirm the results with this research.

REFERENCES

Book

Chachavalpongpun, P. (2014). *Good Coup Gone Bad: Thailand's Political Development since Thaksin's Downfall*. Singapore: ISEAS Publishing. https://doi.org/10.1355/9789814459617

Articles

Acaranupong, K. (2017). Comparative value relevance of earnings, book values and cash flows: Empirical evidence from listed companies on SET100 in Thailand. *Journal of the Accounting Profession, 13*(38), 95–114.

Akbas, F., Jiang, C., & Koch, P. D. (2017). The trend in firm profitability and the cross-section of stock returns. *The Accounting Review, 92*(5), 1–32. http://dx.doi.org/10.2139/ssrn.2538867

Allen, F., Qian, J., Shan, C., & Zhu, J. (2023). Dissecting the long-term performance of the Chinese stock market. *Journal of Finance, 79*(2), 993–1054. https://doi.org/10.2139/ssrn.2880021

Ang, A., Hodrick, R. J., Xing, Y., & Zhang, X. (2006). The cross-section of volatility and expected returns. *The Journal of Finance, 61*(1), 259–299. https://doi.org/10.1111/j.1540-6261.2006.00836.x

Ball, R., Gerakos, J., Linnainmaa, J. T., & Nikolaev, V. V. (2015). Deflating profitability. *Journal of Financial Economics, 117*(2), 225–248. https://doi.org/10.1016/j.jfineco.2015.02.004

Banz, R. W. (1981). The relationship between return and market value of common stocks. *Journal of Financial Economics, 9*(1), 3–18. https://doi.org/10.1016/0304-405X(81)90018-0

Berggrun, L., Cardona, E., & Lizarzaburu, E. (2020). Firm profitability and expected stock returns: Evidence from Latin America. *Research in International Business and Finance, 51,* 101119. https://doi.org/10.1016/j.ribaf.2019.101119

Chen, T. F., Sun, L., Wei, K. C. J., & Xie, F. (2018). The profitability effect: Insights from international equity markets. *European Financial Management, 24*(4), 545–580. https://doi.org/10.1111/eufm.12189

Chordia, T., Roll, R., & Subrahmanyam, A. (2001). Market liquidity and trading activity. *The Journal of Finance, 56*(2), 501–530. http://dx.doi.org/10.2139/ssrn.237674

Clara, N., & Kim, S. S. (2021). The effect of firm profitability on expected stock return in ASEAN stock market. *Jurnal Keuangan dan Perbankan, 25*(3), 642–655. https://doi.org/10.26905/jkdp.v25i3.5598

Cooper, M. J., Gutierrez, R. C., & Hameed, A. (2004). Market states and momentum. *The Journal of Finance, 59*(3), 1345–1365. https://doi.org/10.1111/j.1540-6261.2004.00665.x

Fama, E. F., & French, K. R. (1992). The cross-section of expected stock returns. *Journal of Finance, 47*(2), 427–465. https://doi.org/10.2307/2329112

Fama, E. F., & French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics, 33*(1), 3–56. https://doi.org/10.1016/0304-405X(93)90023-5

Fama, E. F., & French, K. R. (2015). A five-factor asset pricing model. Journal of Financial Economics, 116(1), 1–22. https://doi.org/10.1016/j.jfineco.2014.10.010

Frazzini, A., & Pedersen, L. H. (2014). Betting against beta. *Journal of Financial Economics, 111*(1), 1–25. https://doi.org/10.1016/j.jfineco.2013.10.005

Harvey, C. R. (1995). Predictable risk and returns in emerging markets. *The Review of Financial Studies, 8*(3), 773–816. https://www.jstor.org/stable/2962239

Hou, K., Xue, C., & Zhang, L. (2015). Digesting anomalies: An investment approach. *The Review of Financial Studies, 28*(3), 650–705. https://doi.org/10.1093/rfs/hhu068

Hsin-Yi Yu, Li-Wen Chen, & Chang-Yi Chen. (2022). The profitability effect: An evaluation of alternative explanations. *Pacific-Basin Finance Journal, 72*, 101711. https://doi.org/10.1016/j.pacfin.2022.101711

Jegadeesh, N., & Titman, S. (1993). Returns to buying winners and selling losers: Implications for stock market efficiency. *The Journal of Finance, 48*(1), 65–91. https://doi.org/10.1111/j.1540-6261.1993.tb04702.x

Kakinuma, Y. (2020). Empirical evidence of profitability anomaly in the Thai stock market. *Journal of International Studies, 13*(4), 89–100. https://doi.org/10.14254/2071-8330.2020/13-4/6

Markowitz, H. (1952). Portfolio selection. *The Journal of Finance, 7*(1), 77–91. https://doi.org/10.2307/2975974

McCargo, D. (2015). Peopling Thailand's 2015 draft constitution. *Contemporary Southeast Asia, 37*(3), 329–354. https://doi.org/10.1355/cs37-3a

Meesuwan, N. (2015). Stock return predictability with financial ratios: A panel data analysis in the Stock Exchange of Thailand (SET) (Senior Research). *Chulalongkorn University, Faculty of Economics*.

Newey, W. K., & West, K. D. (1987). A simple, positive semi-definite, heteroske-dasticity and autocorrelation consistent covariance matrix. *Econometrica, 55*, 703–708. https://doi.org/10.2307/1913610

Novy-Marx, R. (2013). The other side of value: The gross profitability premium. *Journal of Financial Economics, 108*(1), 1–28. https://doi.org/10.1016/j.jfineco.2013.01.003

Parkatt, G., Pamornmast, C., & Thavikitikul, Y. (2022). Economic and financial factors as predictor factors of stock returns of listed companies in the sSET Index in the Stock Exchange of Thailand. *Rajapark Journal, 16*(49), 146–163.

Pástor, L., & Stambaugh, R. F. (2003). Liquidity risk and expected stock returns. *Journal of Political Economy, 111*(3), 642–685. http://dx.doi.org/10.2139/ssrn.279804

Peerapongpipath, P., & Hensawang, S. (2019). The influence of institutional shareholdings on corporate governance: Empirical evidence of the listed companies on the Stock Exchange of Thailand in the SET100. *Asian Administration and Management Review, 2*(1), 150–161.

Rattana-amornpirom, O. (2020). The impacts of ACFTA on export of Thai agricultural products to China. *Journal of ASEAN PLUS Studies, 1*(1), 1–15.

Rhee, S. G., & Wang, J.-X. (2009). Foreign institutional ownership and stock market liquidity: Evidence from Indonesia. *Journal of Banking & Finance, 33*(7), 1312–1324. https://doi.org/10.1016/j.jbankfin.2009.01.008

Rosenberg, B., Reid, K., & Lanstein, R. (1985). Persuasive evidence of market inefficiency. *The Journal of Portfolio Management, 11*(3), 9–16. https://doi.org/10.3905/jpm.1985.409007

Sharpe, W. F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *The Journal of Finance, 19*(3), 425–442. https://doi.org/10.1111/j.1540-6261.1964.tb02865.x

Suwannapak, S., & Chancharat, S. (2022). Stock market volatility response to COVID-19: Evidence from Thailand. *Journal of Risk and Financial Management, 15*(12), 592. https://doi.org/10.3390/jrfm15120592

Tantipanichkul, P., & Supattarakul, S. (2015). Historical accounting information and future stock returns: Thai evidence. *Journal of Accounting Profession, 11*(30), 51–65.

West, R. M. (2022). Best practice in statistics: The use of log transformation. *Annals of Clinical Biochemistry, 59*(3), 162–165. https://doi.org/10.1177/00045632211050531

Xu, Y., & Malkiel, B. G. (2004). Idiosyncratic risk and security returns. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.255303

Yin, L., & Wei, Y. (2020). Aggregate profit instability and time variations in momentum returns: Evidence from China. *Pacific-Basin Finance Journal, 63*, 101276. https://doi.org/10.1016/j.pacfin.2020.101276

Yin, L., Wei, Y., & Han, L. (2020). Firms' profit instability and the cross-section of stock returns: Evidence from China. *Pacific-Basin Finance Journal, 68*, 101619. https://doi.org/10.1016/j.pacfin.2021.101619

Electronic Media

Bank of Thailand. (2016). *Thailand's financial stability report*. https://www.bot.or.th/en/research-and-publications/reports/financial-stability-report.html

Bank of Thailand. (2019). *Economic and monetary conditions in 2019: External shocks and implications for Thailand*. https://www.bot.or.th/content/dam/bot/documents/en/thai-economy/state-of-thai-economy/annual-report/annual-econ-report-en-2019.pdf

Ministry of Industry. (2018). *Annual report fiscal year 2017*. https://www.industry.go.th/web-upload/1xff0d34e409a13ef56eea54c52a291126/m_magazine/12668/373/file_download/b29e16008a87c72b354efebef853a428.pdf

Stock Exchange of Thailand. (2020). *SET market report for March 2020* (SET News No. 21/2020). https://media.set.or.th/common/research/21.pdf

Stock Exchange of Thailand. (2023). *Annual report 2023*. https://media.set.or.th/set/Documents/2024/May/SET_Annual_Report_2023_ENG.pdf

Stock Exchange of Thailand. (2024). *SETSMART glossary* (Version 3.7). https://www.set.or.th

World Bank. (2020). *Thailand economic monitor: Thailand in the time of COVID-19*. https://documents1.worldbank.org/curated/en/456171593190431246/pdf/Thailand-Economic-Monitor-Thailand-in-the-Time-of-COVID-19.pdf

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