Research Article

Equity Valuation Models: A Comparative Analysis of Book Value, Earnings and Residual Income Approaches in the Thai Stock Market

Received: *June 30, 2025*
Revised: *August 1, 2025*
Accepted: *September 10, 2025*

Dr.Chitrath Changlaw
Assistant Professor of Financial Reporting and Assurance Group,
School of Accountancy, University of the Thai Chamber of Commerce (UTCC)

ABSTRACT

Equity valuation plays a critical role in investment decision-making, financial reporting, and capital market efficiency. This study compares the relative performance of three accounting-based valuation models: the Book Value Model (BVM), the Capitalized Earnings Model (CEM), and the Residual Income Valuation Model (RIM). Each model embodies a distinct theoretical perspective on how accounting information reflects firm value – through the statement of financial position (BVM), the income statement (CEM), or a combination of both (RIM). This parallel evaluation offers insight into which model best reflects firm value as perceived by the market. Using data from firms listed on the Stock Exchange of Thailand between 2003 and 2022, the models are assessed based on their predictive accuracy and explanatory power. Analysts' earnings forecasts are incorporated as forward-looking inputs.

The findings indicate that RIM consistently outperforms both BVM and CEM in terms of predictive accuracy and explanatory power. In the price-prediction analysis, RIM significantly mitigates the underestimation bias inherent in BVM. In the regression analysis, while all models are significantly associated with market prices, RIM demonstrates the highest explanatory power. These results have practical implications for investors and financial analysts, highlighting RIM's superiority in estimating firm value in an emerging market context such as Thailand, thereby supporting more informed investment decisions.

Keywords: Equity Valuation, Book Value, Earnings, Residual Income, Analysts' Forecast, Thai Stock Market

บทความวิจัย

แบบจำลองการประเมินมูลค่าหลักทรัพย์ : การวิเคราะห์เชิงเปรียบเทียบระหว่างแนวทางที่อิงมูลค่าตามบัญชี กำไร และกำไรส่วนที่เหลือ หลักฐานจากตลาดหลักทรัพย์แห่งประเทศไทย

วันที่ได้รับต้นฉบับบทความ : *30 มิถุนายน 2568*
วันที่แก้ไขปรับปรุงบทความ : *1 สิงหาคม 2568*
วันที่ตอบรับตีพิมพ์บทความ : *10 กันยายน 2568*

ดร.จิตรัตน์ ช่างหล่อ
ผู้ช่วยศาสตราจารย์ประจำกลุ่มวิชาการรายงานการเงินและการให้ความเชื่อมั่น
คณะบัญชี มหาวิทยาลัยหอการค้าไทย

บทคัดย่อ

การประเมินมูลค่าหลักทรัพย์มีบทบาทสำคัญต่อการตัดสินใจลงทุน การรายงานทางการเงิน และประสิทธิภาพของตลาดทุน งานวิจัยนี้เปรียบเทียบประสิทธิภาพของแบบจำลองการประเมินมูลค่าหลักทรัพย์ที่อิงจากข้อมูลทางบัญชี 3 แบบ ได้แก่ แบบจำลองมูลค่าตามบัญชี (Book Value Model: BVM) แบบจำลองการคิดลดกำไรในอนาคต (Capitalized Earnings Model: CEM) และแบบจำลองรายได้ส่วนที่เหลือ (Residual Income Valuation Model: RIM) โดยแต่ละแบบจำลองสะท้อนทฤษฎีที่แตกต่างกันเกี่ยวกับวิธีที่ข้อมูลทางบัญชีสะท้อนมูลค่าของกิจการ – ผ่านงบแสดงฐานะการเงิน (BVM) งบกำไรขาดทุน (CEM) หรือการผสานทั้งสองแหล่งข้อมูล (RIM) การประเมินแบบจำลองเหล่านี้ควบคู่กันให้ข้อมูลเชิงลึกว่ารูปแบบใดสะท้อนมูลค่ากิจการตามการรับรู้ของตลาดได้ดีที่สุด งานวิจัยนี้ใช้ข้อมูลจากบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทยระหว่างปี พ.ศ. 2546 ถึง 2565 การวิเคราะห์ประเมินผลโดยพิจารณาความแม่นยำในการคาดการณ์ราคาหลักทรัพย์ (Predictive Accuracy) และความสามารถในการอธิบายราคาตลาด (Explanatory Power) โดยได้มีการนำประมาณการกำไรของนักวิเคราะห์มาใช้เป็นข้อมูลคาดการณ์ล่วงหน้า

ผลการศึกษาพบว่า RIM มีประสิทธิภาพเหนือกว่า BVM และ CEM ทั้งในด้านความแม่นยำในการคาดการณ์ และความสามารถในการอธิบายราคา ในการวิเคราะห์การคาดการณ์ราคา RIM สามารถลดปัญหาการประเมินต่ำเกินไปที่พบใน BVM ได้อย่างมีนัยสำคัญ ขณะที่ในการวิเคราะห์สมการถดถอย แม้ทั้งสามแบบจำลองมีความสัมพันธ์เชิงบวกกับราคาตลาดอย่างมีนัยสำคัญ แต่ RIM มีค่าการอธิบายที่สูงที่สุด ผลลัพธ์ดังกล่าวมีนัยสำคัญเชิงปฏิบัติสำหรับนักลงทุนและนักวิเคราะห์ทางการเงิน โดยเน้นให้เห็นว่า RIM เป็นแบบจำลองที่ให้ผลลัพธ์ที่เหนือกว่าแบบจำลองอื่น ในการประเมินมูลค่ากิจการในบริบทของตลาดเกิดใหม่ เช่น ประเทศไทย และสนับสนุนให้การตัดสินใจลงทุนมีข้อมูลรองรับมากยิ่งขึ้น

คำสำคัญ : การประเมินมูลค่าหลักทรัพย์ มูลค่าตามบัญชี กำไร กำไรส่วนที่เหลือ การคาดการณ์ของนักวิเคราะห์ ตลาดหลักทรัพย์แห่งประเทศไทย

1. INTRODUCTION

Equity valuation lies at the heart of capital market research and practice. It refers to the process of estimating the intrinsic value of a firm's equity based on available financial and non-financial information. Accurate equity valuation is essential for a wide range of economic decisions, including investment selection, corporate financing, performance evaluation, and market regulation. In efficient markets, prices should reflect the fundamental value of firms, and valuation models provide a framework for comparing market prices with estimated values to identify mispricing and guide decision-making (Fama, 1970; Kothari, 2001; Ohlson, 1995; Penman, 2009).

Accounting-based valuation models have received increasing attention in recent decades, as they offer theoretically grounded alternatives to traditional cash flow and dividend-based models. Ohlson's (1995) residual income valuation model (RIM) is one of the most influential frameworks in this area. By integrating earnings, book value, and other value-relevant information under a clean surplus assumption, the model links accounting fundamentals to firm value in a systematic and empirically testable way. Penman (2009) emphasizes that accounting-based models such as RIM are not only theoretically appealing but also more practical, particularly in cases where reliable cash flow forecasts are unavailable. Empirical studies, including Francis, Olsson, and Oswald (2000) and Penman and Sougiannis (1999), find that residual income models often outperform dividend and free cash flow approaches in explaining stock prices and valuation estimates.

While valuation models have been widely studied in developed markets, their performance in emerging markets – where accounting quality, investor behavior, and institutional settings differ – remains a subject of growing academic interest. Supattarakul and Khanthavit (2011) examine equity valuation in Thailand and find that residual income models perform better than traditional dividend discount models. More recently, Changlaw (2024) highlights the importance of combining other information such as accounting, market, and macroeconomic variables to improve valuation accuracy in the Thai context. Although local studies (e.g., Changlaw, 2024; Supattarakul & Khanthavit, 2011) provide preliminary support for RIM, they have not systematically contrasted RIM with other accounting-based valuation models.

Building on this literature, this study compares the relative performance of three accounting-based valuation models including the Book Value Model (BVM), the Capitalized Earnings Model (CEM), and the Residual Income Model (RIM). The three accounting-based valuation models are grounded in different theoretical perspectives regarding how accounting information reflects firm value. The BVM is rooted in the statement of financial position-oriented theory, emphasizing net asset value as a proxy for equity worth. In contrast, the CEM adopts an income statement perspective by assuming that a firm's value is proportional to its sustainable earnings, often assuming earnings persistence and ignoring book value. The RIM synthesizes both perspectives by incorporating book value and residual income (earnings in excess of the cost of capital), aligning closely with the clean surplus accounting relation

and the concept of value creation over time (Ohlson, 1995; Penman & Sougiannis, 1999). Using a sample of firms listed on the Stock Exchange of Thailand between 2003 and 2022, the models are evaluated based on their stock price prediction accuracy and their ability to explain contemporaneous market prices. Analysts' earnings forecasts are employed as proxies for expected future earnings.

Comparing these models is theoretically and practically important because each captures different dimensions of value and may perform differently depending on market conditions, accounting quality, and investor expectations (Francis et al., 2000). If empirical evidence shows that RIM consistently outperforms BVM and CEM, this supports the theoretical argument that valuation models incorporating both statement of financial position and income statement information – and adjusting for the cost of equity – provide a more complete and decision-useful estimate of firm value. Such findings not only validate the underlying theoretical assumptions of RIM but also guide practitioners toward models that enhance valuation accuracy in capital markets (Courteau, Kao, & Richardson, 2001).

The remainder of this paper is organized as follows. Section 2 reviews previous literature including theoretical framework and review of previous empirical studies. Section 3 describes model specifications, sample selection and data. Empirical results are presented in section 4. Section 5 presents a summary of findings, discussion and conclusions.

2. LITERATURE REVIEW

2.1 Theoretical Framework

Equity valuation is fundamentally grounded in capital market theories that describe how information is incorporated into stock prices. One of the most influential frameworks is the Efficient Market Hypothesis (EMH), proposed by Fama (1970), which posits that asset prices fully reflect all available information. In an efficient market, securities are neither consistently underpriced nor overpriced, and abnormal returns cannot be systematically earned through information-based strategies. The EMH is typically categorized into three forms: weak, semi-strong, and strong, depending on the type of information presumed to be reflected in prices (Fama, 1991).

Under the semi-strong form, prices adjust rapidly to publicly available information, including financial statements. This implies that accounting numbers, such as earnings and book value, should already be incorporated into market prices. Nevertheless, the role of accounting in equity valuation remains critical because it forms the basis for fundamental analysis and value estimation. Penman (2009) argues that while market efficiency suggests that prices reflect available information, it does not preclude the usefulness of valuation models. On the contrary, these models serve to quantify intrinsic value, identify potential mispricing, and improve investment decision-making.

Valuation theory, particularly the present value framework, provides a conceptual foundation for linking firm value to expected future benefits. Traditional models such as the Dividend Discount Model (DDM) and Discounted Cash Flow (DCF) assume that firm value equals the present value of expected future dividends or free cash flows, respectively (Brealey, Myers, & Allen, 2011). However, these models often face implementation challenges due to difficulties in forecasting future cash flows and terminal values.

Building on the limitations of traditional valuation methods and the foundational role of accounting information in equity valuation, researchers have increasingly turned to accounting-based models that directly utilize financial statement components (Ohlson, 1995; Penman, 2009). These models offer a practical alternative by relying on observable accounting data rather than uncertain cash flow projections (Francis et al., 2000). Accounting-based valuation models enable analysts to assess firm value using different dimensions of financial performance – statement of financial position strength, earnings capacity, and residual profitability. This study focuses on three such models: the Book Value Model (BVM), the Capitalized Earnings Model (CEM), and the Residual Income Model (RIM). Each of these models reflects a distinct perspective on how accounting numbers convey firm value and is grounded in different theoretical and empirical assumptions.

1. Book Value Model (BVM)

The book value model is grounded in the statement of financial position perspective, which views the firm's value as captured by its net assets. This approach is theoretically justified in the case where the accounting system provides mark-to-market valuations and where future abnormal earnings (residual income) are transitory or zero (Ohlson, 1995). Under these conditions, the book value alone sufficiently summarizes the firm's intrinsic value:

$$V_t = bv_t$$

where V_t is intrinsic value of equity at time t, bv_t is book value of equity at time t

This model assumes minimal forecasting and appeals to the idea that in certain settings – such as liquidation scenarios or mark-to-market accounting regimes – asset values dominate earnings in conveying firm value.

2. Capitalized Earnings Model (CEM)

The capitalized earnings model reflects the income statement perspective, which treats the firm as a going concern and emphasizes the sustainability of earnings. If earnings are assumed to be permanent, and dividends are a stable proportion of earnings, then the value of the firm can be approximated by capitalizing current earnings at an appropriate discount rate (Ohlson, 1995). This model can be represented as:

$$V_t = \sum_{\tau=1}^{\infty} \frac{E_t[x_{t+\tau}]}{R^{\tau}}$$

where V_t is intrinsic value of equity at time t, x_t is earnings for period time t, $R = 1 + r$ is one plus cost of capital and $E_t[.]$ is the expected value operator conditioned on the period t information.

This model abstracts from the statement of financial position and assumes that all future performance is effectively captured by a single-period earnings number, making it attractive in settings where book values are less informative due to conservative accounting or historical cost measurement.

3. Residual Income Valuation Model (RIM)

The residual income valuation model (RIM) integrates both the income statement and the statement of financial position by decomposing firm value into two components: current book value and the present value of future residual income. RIM builds upon the clean surplus accounting relation, which states:

$$bv_t = bv_{t-1} + x_t - d_t$$

where x_t is earning for the period t, d_t is the dividend net of capital contribution paid for the period t and bv_t is book value of equity at time t

Applying this to the traditional dividend discount model (DDM):

$$V_t = \sum_{\tau=1}^{\infty} \frac{E_t[d_{t+\tau}]}{R^{\tau}}$$

where V_t is intrinsic value of equity at time t, d_t is the dividend net of capital contribution paid for the period t, $R = 1 + r$ is one plus cost of capital and $E_t[.]$ is the expected value operator conditioned on the period t information.

and transforming it through the clean surplus relation leads to RIM. The RIM expresses the value of the firm as the sum of the current book value adjusted for its future profitability, as measured by the present value of expected residual income, where residual income is defined by earnings minus a charge for the use of capital as measured by beginning-of-period book value multiplied by the cost of capital. It can be expressed algebraically as:

$$V_t = bv_t + \sum_{\tau=1}^{\infty} \frac{E_t[x^a_{t+\tau}]}{R^{\tau}}$$

where V_t is intrinsic value of equity at time t, bv_t is book value of equity at time t, the residual income for the period t is given by $x^a_t = x_t - rbv_{t-1}$ where x_t is earning for the period t, $R = 1 + r$ is one plus cost of capital and $E_t[.]$ is the expected value operator conditioned on the period t information.

This model was formalized by Ohlson (1995), building on earlier work by Edwards and Bell (1961). RIM has strong theoretical appeal because it satisfies the principles of valuation theory – linking intrinsic value to expected future returns – while relying on accounting numbers that are generally observable and auditable. Its strength lies in its ability to separate value from book value and capture ongoing profitability (value creation) relative to the required return.

2.2 Review of Empirical Studies

A number of prior studies have investigated the theoretical foundations and empirical performance of equity valuation models, particularly the dividend discount model (DDM), the discounted cash flow model (DCF), and the residual income model (RIM). Among the most influential are Francis et al. (2000) and Penman and Sougiannis (1999), who established that while these models are grounded in the same valuation principle – the present value of expected future benefits – they differ markedly in practical implementation due to their reliance on different financial inputs and assumptions.

Penman and Sougiannis (1999) offer both a theoretical and empirical assessment of DDM, DCF, and RIM in the U.S. setting using data from 1973 to 1990. Their theoretical framework argues that RIM provides more accurate and robust valuations because it incorporates earnings information in a way that is (1) anchored to book value, (2) forward-looking through the concept of residual income, and (3) consistent with the way accounting systems allocate value over time. In contrast, they highlight that DDM suffers from its dependence on dividend payouts, which are shaped by firm policy rather than fundamentals, while DCF is hampered by difficulties in forecasting cash flows and estimating terminal values. Their empirical results align with these theoretical expectations, showing that RIM consistently outperforms DDM and DCF in valuation accuracy.

Building on this foundation, Francis et al. (2000) empirically examine the accuracy and explanatory power of the three models for U.S. firms during 1989–1993. Their results reinforce the findings of Penman and Sougiannis (1999), demonstrating that RIM produces superior value estimates. They attribute this superiority to the reliability of book value and the predictability of residual income, which together offer a more stable and informative basis for valuation than dividends or cash flows. Importantly, they conclude that there is limited incremental benefit in valuing dividends or free cash flow once residual income are properly accounted for.

These U.S.-based studies provide strong support for RIM in developed markets, but their relevance to emerging markets with different institutional and informational characteristics remains an open question. In response, Supattarakul and Khanthavit (2011) examine the performance of RIM and DDM in Thailand and find that although both models underestimate stock prices, RIM better predicts cross-sectional variation. Extending this work, Changlaw (2024) extends the empirical testing of RIM by applying Ohlson's (1995) residual income framework – which integrates accounting dynamics and other

information variables – to Thai firms over a longer period (2003–2022). The study finds that the Ohlson (1995) model has substantial empirical validity in Thailand, particularly when additional information beyond book value and residual income is incorporated. This reinforces the importance of adapting valuation models to local accounting contexts.

Further support for the relevance of accounting-based models in emerging markets comes from Boonlert-U-Thai, Saudagaran, and Sen (2022), who examine the role of earnings, book value, and dividends in firm valuation across seven Asian markets, including Thailand. Their findings confirm that both earnings and book value retain significant value relevance, lending empirical justification to models like RIM that combine both components. Similarly, Phansawadhi (2013) adapts RIM by estimating the cost of equity using accounting-based variables, improving model applicability in Thai settings where market-based inputs may be unreliable.

In more recent developments, Haboub, Kartsaklas, and Sarafidis (2025) provide evidence from the U.S. market that residual-income-based valuation-to-price (V/P) ratios are predictive of future stock returns. This suggests that RIM not only performs well in explaining value ex-post but also holds promise for investment decision-making. Complementing this, Hooy and Brahmana (2022) demonstrate that in emerging markets, combining accrual-based and cash-flow-based models can enhance valuation accuracy, highlighting the growing interest in hybrid valuation approaches.

Parallel to valuation model research, studies on the value relevance of accounting information in Thailand emphasize the continued importance of book value and earnings. For example, Acaranupong (2017) and Tungsriwong (2022) find that earnings remain the most informative component of financial reports, particularly following IFRS adoption, which has increased earnings relevance but diminished that of book value. However, while these studies affirm the informational content of accounting numbers, they do not directly evaluate the performance of full valuation models like BVM, CEM, or RIM.

Despite growing interest in model-based valuation in emerging markets, much of the evidence remains fragmented. While existing Thai studies – such as Changlaw (2024), Phansawadhi (2013) and Supattarakul and Khanthavit (2011) – offer preliminary support for RIM, there has been limited head-to-head comparison of BVM, CEM, and RIM in the context of Thailand's evolving financial reporting and capital market environment. This creates a critical gap in understanding which model most effectively captures firm value.

To address this gap, this present study evaluates and compares the performance of three accounting-based valuation models – BVM, CEM, and RIM – using data from Thai listed firms over the 2003–2022 period. The analysis focuses on both predictive accuracy and explanatory power of the models relative to market prices, using analysts' earnings forecasts as forward-looking inputs. By bridging valuation model literature with the value relevance perspective and incorporating emerging market

dynamics, this research aims to provide updated empirical evidence to guide investors, analysts, and policymakers in their valuation practices.

3. RESEARCH DESIGN

3.1 Research Questions and Hypotheses

Accounting-based valuation models are widely used to estimate firm value by transforming financial statement data into measures of intrinsic equity value. Among the most prominent are the Book Value Model (BVM), the Capitalized Earnings Model (CEM), and the Residual Income Model (RIM), each of which is grounded in distinct theoretical foundations and emphasizes different components of financial reporting (Ohlson, 1995; Penman, 2013). While prior empirical studies consistently support the superior performance of RIM in both developed and emerging markets (Francis et al., 2000; Haboub et al., 2025; Penman & Sougiannis, 1999), few studies – particularly in the context of Thailand – have conducted direct comparative evaluations of BVM, CEM, and RIM using consistent, forward-looking inputs such as analysts' earnings forecasts and standardized performance metrics (Changlaw, 2024; Supattarakul & Khanthavit, 2011). To address this gap, this study aims to evaluates and compares the performance of three accounting-based valuation models – BVM, CEM, and RIM – in the context of Thai listed firms during 2003 and 2022. The research is guided by the following questions:

- **Question 1**: Which accounting-based valuation model – BVM, CEM, or RIM – provides the highest predictive accuracy in estimating market prices of Thai listed firms?
- **Question 2**: Which model offers the greatest explanatory power in capturing cross-sectional variations in stock prices in Thailand?

Building on the theoretical strengths of the Residual Income Model (RIM) – which integrates both book value and forward-looking earnings in a theoretically coherent framework (Ohlson, 1995; Penman, 2013) – as well as its strong empirical performance in prior studies, this study posits the following hypotheses:

- **H1**: The Residual Income Model (RIM) provides more accurate estimates of equity value than the Book Value Model (BVM) and the Capitalized Forward Earnings Model (CEM), as measured by (1) lower prediction errors and inaccuracy relative to actual market prices, and (2) valuation-to-price (V/P) ratios that are statistically closer to one.
- **H2**: The Residual Income Model (RIM) exhibits greater explanatory power (i.e., higher R^2 in price regressions) than the BVM and CEM.

3.2 Empirical Tests

3.2.1 Price-predicting Ability

After the intrinsic values are estimated using the proposed valuation models, as outlined in Section 2.1, they are compared with actual market prices to assess the models' predictive ability. Consistent with prior studies (Changlaw, 2024; Choi, O'Hanlon, & Pope, 2006; Dechow, Hutton, & Sloan, 1999; Supattarakul & Khanthavit, 2011), the predictive ability is evaluated using two metrics: valuation bias (i.e., signed valuation error) and valuation inaccuracy (i.e., absolute valuation error). One model has higher predictive ability than the others if it produces less valuation bias and less valuation inaccuracy. For each observation, valuation error is measured as:

$$e_{it} = \frac{e_{it} - P_{it}}{P_{it}}$$

where e_{it} is valuation error of firm i at time t, P_{it} is actual market price per share of firm i at time t, and V_{it} is intrinsic value of firm i at time t that estimates from proposed valuation model.

In addition to assessing valuation bias and inaccuracy, valuation-to-price (V/P) ratios are calculated for each observation to evaluate the closeness of estimated intrinsic values to actual market prices. This approach follows Myers (1999), who similarly used V/P ratios to assess model performance. A V/P ratio equal to one indicates that the model's valuation perfectly matches the observed market price. Accordingly, a valuation model is considered to demonstrate superior predictive ability if it consistently produces V/P ratios that are statistically closer to one.

3.2.2 Explainability of Equity Values

To examine the relative performance of the BVM, CEM, and RIM in explaining cross-sectional variations in stock prices, the following regression models are estimated. Firm size is included as a control variable. Similar approach for controlling for size is used in Thailand in Acaranupong (2017, 2021), Changlaw (2024) and Tungsriwong (2022).

Stock prices and BVM Equity Value:

$$P_{it} = \alpha_0 + \alpha_1 V_{it}^{BVM} + \alpha_2 SIZE_{it} + \varepsilon_{it} \quad (1)$$

Stock prices and CEM Equity Value:

$$P_{it} = \alpha_0 + \alpha_1 V_{it}^{CEM} + \alpha_2 SIZE_{it} + \varepsilon_{it} \quad (2)$$

Stock prices and RIM Equity Value:

$$P_{it} = \alpha_0 + \alpha_1 V_{it}^{RIM} + \alpha_2 SIZE_{it} + \varepsilon_{it} \quad (3)$$

A comparison of the adjusted R-squared values across the models provides evidence on the relative explanatory power of equity values generated by BVM, CEM, and RIM.

3.3 Data and Variable Measurement

Data used in this study are obtained from three databases. Accounting data are obtained from Worldscope. The market data are from Datastream, and analysts' earnings forecast data are from I/B/E/S. All databases are accessed via Eikon & Datastream database. The initial population of firms consists of all non-financial firms listed on the Stock Exchange of Thailand from fiscal year 2003 to 2022. Firms entered in the initial population must report financial statement in Thai Baht and fiscal year ended at 31 December.

Table 1 summarizes the sample formation procedure. Population is from 2003 to 2022 and is in total 10,779 observations. Cases with missing data and cases that do not pass logical validation are then removed. The availability of analysts' one-year-ahead earnings forecasts that is required in measuring V_{it}^{CEM} and V_{it}^{RIM} at 3 percent growth reduces the sample to 2,825 observations or 26.21% of the population. It is worth highlighting that the number of samples in the final dataset is small in comparison to other empirical studies and bias towards bigger firms.

Table 1: Summary of data Used in Estimated Equity Valuation Model

Non-financial firms listed on the Stock Exchange of Thailand during 2003–2022	10,779	100.00%
Less Cases with missing value of following market and accounting variables: P_{it}, BV_{it}, E_{it}, and TA_{it}	1,299	
Cases with complete market and accounting variables	9,480	87.95%
Less Cases that do not pass logical validation, which are P_{it} and BV_{it} are positive	288	
Cases with complete and logical market and accounting variables	9,192	85.28%
Less Cases with missing value of I/B/E/S one-year ahead forecasts of earnings (F_{it+1})	6,367	
= Total number of observations in the sample	2,825	26.21%

Notes: P_{it} is price at time t measured three months after fiscal year end, BV_{it} is book value of equity at time t, E_{it} is the earnings for the period t and TA_{it} is total assets at time t.

Table 2 reports variable definitions with include the summary of all variables used in this analysis, their label and their definitions. All data, except total assets which represent the size of firm, are collected and estimated in per share basis.

Table 2: Variable Definitions

Variable	Label	Definitions
Price	P_{it}	Closing price per share of firm i three months after fiscal year ended t
Book value of equity	BV_{it}	Book value of equity per share of firm i at fiscal year ended t
Earnings	E_{it}	Earnings per share of firm i for the fiscal year t
One-year-ahead analysts' forecast of earnings	F_{it+1}	Mean value of analysts' forecast of EPS of firm i at year t for year $t+1$. The EPS forecast is revised monthly. The figure used is the forecast at six months after the fiscal year end.
BVM equity value	V_{it}^{BVM}	Intrinsic value of firm i at fiscal year ended t estimated under book value model (BVM).
CEM equity value	V_{it}^{CEM}	Intrinsic value of firm i at fiscal year ended t estimated under capitalized forward earnings model (CEM).
RIM equity value	V_{it}^{RIM}	Intrinsic value of firm i at fiscal year ended t estimated under residual income valuation model (RIM).
Firm size	$SIZE_{it}$	Size of firm i year t and is measured by the natural logarithm of total assets of firm i at year ended t

The estimation of the Capitalized Earnings Model (CEM) and the Residual Income Valuation Model (RIM) is subject to measurement error in discount rates and forecast error in growth rates. For the discount rate, the main analysis employs an annual average of the Thai 10-year government bond yield, as reported by the Bank of Thailand, plus an average equity risk premium of 6%. This rate is constant across firms within each year but varies over time. A similar approach is used in Changlaw (2024). For sensitivity analysis, two alternative discount rates are applied: a firm-specific cost of equity derived from the Capital Asset Pricing Model (CAPM), and a fixed rate of 10%.

With respect to earnings growth, two assumptions are tested: 0% and 3%. Under the 0% growth scenario, it is assumed that there is no subsequent growth in earnings, thereby representing a case in which valuation is based solely on current accounting information. A similar approach is adopted in Penman (2009). When no growth is expected, current earnings serve as a sufficient proxy for forward earnings. Accordingly, the forecasted earnings at time $t+1$ (F_{it+1}) are substituted with current-year earnings (E_{it}) and the growth rate (g) is set to zero. Under this assumption, the CEM (V_{it}^{CEM}) and RIM (V_{it}^{RIM}) yield equivalent valuation estimates. Restating the RIM equation under zero-growth yields the following expression:

$$V_{it}^{RIM} = BV_{it} + \frac{E_{it} - rBV_t}{r_t}$$

$$= BV_{it} + \frac{E_{it}}{r_t} - \frac{r_t BV_t}{r_t}$$

$$= \frac{E_{it}}{r_t}$$

$$= V_{it}^{CEM}$$

In the case with earnings growth, a 3 percent growth rate is assumed, reflecting the average annual GDP growth in Thailand during the study period (2003–2022). Under this assumption, one-year-ahead earnings forecasts from I/B/E/S are used as the forecasted earnings at year $t+1$ (F_{it+1}) and earnings growth (g) is set to 3 percent.

As a result, four valuation estimates are examined in this study:

1. the Book Value Model (BVM),
2. CEM and RIM under the 0% growth assumption,
3. CEM with a 3% growth rate, and
4. RIM with a 3% growth rate.

4. RESULTS

4.1 Descriptive Statistics

Table 3 reports the descriptive statistics of all variables, i.e. market price, intrinsic value estimates and size, included in the analysis. The descriptive statistics include number of observations, mean, median, minimum, maximum and standard deviation. Mean (median) of market price are 21.4160 (8.1800) baht, higher compared to 10.9745 (3.9200) baht of book value of equity. The mean (median) of market price also shows higher than intrinsic value estimates under CEM and RIM, except for that of CFE at 3% growth. This suggests that all models, except CFE (g = 3%), tend to underestimate security prices. High standard deviation is shown for stock price which indicates the wide range between the minimum (0.05 baht per share) and maximum stock price (540 baht per share). The wide range of book values of equity and intrinsic values estimates are also shown in the sample firms. Size is measured by the natural logarithm of total assets and its wide range indicates that sample firms range from a very small firm to a very big firm.

Table 3: Descriptive Statistics of Variables

Variable	Obs.	Mean	Median	Minimum	Maximum	Std. Dev.
P_{it} (Baht per share)	2,825	21.4160	8.1800	0.0500	540.0000	44.5769
BV_{it} (Baht per share)	2,825	10.9745	3.9200	0.0020	311.8790	26.2797
V_{it}^{CEM} & V_{it}^{RIM} (g = 0%)[1] (Baht per share)	2,825	15.2519	5.1279	(251.6999)	571.3570	44.3243
V_{it}^{CEM} (g = 3%) (Baht per share)	2,825	25.7552	8.9286	(58.9587)	821.2500	64.9979
V_{it}^{RIM} (g = 3%) (Baht per share)	2,825	20.2860	6.7773	(65.8182)	704.6887	52.9679
$SIZE_{it}$	2,825	10.1438	10.1188	7.8998	12.5270	0.6924

Table 4 reports the correlation between variables included in the regression analysis. Correlation shows the positive and significant correlation between stock price and all variables.

Table 4: Correlation between Variables, with Pearson (Spearman) Correlation above (below) the Diagonal

Variable	P_{it}	BV_{it}	V_{it}^{CEM} & V_{it}^{RIM} (g = 0%)	V_{it}^{CEM} (g = 3%)	V_{it}^{RIM} (g = 3%)	$SIZE_{it}$
P_{it}		0.7899***	0.7744***	0.8128***	0.7694***	0.4541***
BV_{it}	0.7733***		0.7055***	0.8075***	0.7146***	0.5169***
V_{it}^{CEM} & V_{it}^{RIM} (g = 0%)	0.8418***	0.8257***		0.8502***	0.8336***	0.3515***
V_{it}^{CEM} (g = 3%)	0.8710***	0.9170***	0.9124***		0.9793***	0.3672***
V_{it}^{RIM} (g = 3%)	0.8710***	0.8692***	0.9092***	0.9932***		0.3040***
$SIZE_{it}$	0.3705***	0.3141***	0.2798***	0.3097***	0.2959***	

*** = significant level at 0.01 level, ** = significant level at 0.05 level, * = significant level at 0.10 level

There was no correlation between independence variables that have value greater than 0.8 indicating that there is no multicollinearity problem. In addition, VIF is tested in all regressions and no VIF value is shown to be greater than two. The VIF value is reported in table 6 where regression results are reported. Inference on all regression estimations is based on the Newey-West (1987) standard error to correct for heteroscedasticity and autocorrelation.

[1] When no earning growth is expected (g = 0%), V_{it}^{CEM} is mathematically equivalent to V_{it}^{RIM} as explained in section 3.1.

4.2 Empirical Results

4.2.1 Price-predicting Ability (Bias and Inaccuracy of Equity Values)

Table 5 reports predictive abilities, the medians of valuation bias (signed valuation error) and valuation inaccuracy (absolute valuation error) for the prediction of the four-valuation model estimates. The median valuation bias of book value model is reported –0.4426, compared with –0.3248, 0.2055, and –0.1014 for CEM & RIM (g = 0%), CEM (g = 3%) and RIM (g = 3%), respectively. All are reported to be significantly different from zero, at 0.01 level. Comparing each of the four models with the other three model estimates, the differences are reported to be significant at 0.01 level for all pairs. This indicates that all models, except CEM (g = 3%), underestimate security prices. The underestimation is most severe for book value model and the bias is smallest for RIM (g = 3%).

Table 5: Predictive Errors of Valuation Estimates

Panel A: Bias (signed valuation error)

Value estimate	N	Median	Versus V_{it}^{CEM} & V_{it}^{RIM} (g = 0%)	Versus V_{it}^{CEM} (g = 3%)	Versus V_{it}^{RIM} (g = 3%)
BV_{it}	2,825	**–0.4426**	(0.0000)	(0.0000)	(0.0000)
V_{it}^{CEM} & V_{it}^{RIM} (g = 0%)	2,825	**–0.3248**		(0.0000)	(0.0000)
V_{it}^{CEM} (g = 3%)	2,825	**0.2055**			(0.0000)
V_{it}^{RIM} (g = 3%)	2,825	**–0.1014**			

Panel B: Inaccuracy (absolute valuation error)

Value estimate	N	Median	Versus	Versus	Versus
BV_{it}	2,825	0.5251	(0.8526)	(0.0000)	(0.1372)
V_{it}^{CEM} & V_{it}^{RIM} (g = 0%)	2,825	0.4753		(0.0000)	(0.8164)
V_{it}^{CEM} (g = 3%)	2,825	0.4945			(0.0000)
V_{it}^{RIM} (g = 3%)	2,825	0.4723			

Notes: Valuation errors are measure as the intrinsic value estimate less actual market price measured three months after fiscal year ended, all scaled by market price.

For each of the four-model median bias, I test the null hypothesis that the distribution is centred on zero, using nonparametric signed rank test (Wilcoxon). For the cases that are presented in bold, I reject the null hypothesis at 1 percent level. For each bias and inaccuracy, I test the null hypothesis that the distribution of the difference between the model and the other three-model is centred on zero, using a nonparametric signed rank test. P-value for the test of the difference for noted row-column combination is given in brackets.

The median valuation inaccuracy of book value model is reported 0.5251, compared with 0.4753, 0.4945, and 0.4723 for CEM & RIM (g = 0%), CEM (g = 3%) and RIM (g = 3%), respectively. Comparing each of the four models with the other three model estimates, the median inaccuracy of RIM (g = 3%) is significantly smaller than that of CEM (g = 3%), but not significantly smaller when compared with the other two models (book value and g = 0% models). This indicates that RIM (g = 3%) outperforms CEM (g = 3%) in term of accuracy.

4.2.2 Explainability of Equity Values

The author also examines the ability of the value estimates to explain cross-sectional variation in securities prices. Table 6 reports the results of regressions of market price on each value estimate. Four regressions are reported. Model (1) is regression of stock price on book value. Model (2) is regression of stock price on CEM and RIV at g = 0%. Model (3) and (4) are regression of stock price on CEM and RIM, respectively, at g = 3%. Size is put in all regressions as controlled variable.

Table 6 shows that for regression with all samples, as predicted, the estimated coefficient of each value estimate is significantly positive for all four models. The estimated coefficient of book value is reported at 1.2448 in model (1). The estimated coefficients of intrinsic values are reported at 0.7952, 0.5727 and 0.6991, for model (2)–(4), respectively. The variation in adjusted R-square of the four models shows between 65.93% (for regression on book value) and 79.76% (for regression on RIM with g = 3%) suggesting that RIM (g = 3%) value estimates performing best compared to the other three value estimates in term of explanatory power.

Table 6: Results of Regression of Stock Prices on Intrinsic Value Estimates

$P_{it} = \alpha_0 + \alpha_1 V_{it} + \alpha_2 SIZE_{it} + \varepsilon_{it}$ Model 1–4

		constant	BV_{it}	V_{it}^{RIM}	V_{it}^{CEM}	V_{it}^{RIM}	Size	N	Adj. R^2	F stat
BV_{it}	Coeff.	−88.9468	1.2448				9.9896	2,825	0.6593	25.69***
	t-stat	−7.45***	13.83***				8.06***			
	VIF		1.24				1.85			
V_{it}^{RIM} (g = 0%)	Coeff.	−95.4832		0.7952			10.3903	2,825	0.7549	36.27***
	t-stat	−9.48***		18.85***			10.01***			
	VIF			1.19			1.82			
V_{it}^{CEM} (g = 3%)	Coeff.	−71.3722			0.5727		7.8971	2,825	0.7968	44.59***
	t-stat	−8.79***			21.31***		9.64***			
	VIF				1.23		1.85			

Table 6: Results of Regression of Stock Prices on Intrinsic Value Estimates (Cont.)

$P_{it} = \alpha_0 + \alpha_1 V_{it} + \alpha_2 SIZE_{it} + \varepsilon_{it}$ **Model 1–4**

		constant	BV_{it}	V_{it}^{RIM}	V_{it}^{CEM}	V_{it}^{RIM}	Size	N	Adj. R^2	F stat
V_{it}^{RIM} (g = 3%)	Coeff.	−78.3778				0.6991	8.6282	2,825	0.7976	47.04***
	t-stat	−9.59***				22.38***	10.67***			
	VIF					1.21	1.84			

*** = significant level at 0.01 level, ** = significant level at 0.05 level, * = significant level at 0.10 level. All regressions are estimated on pooled data with industry and year fixed effects. T-statistics is based on the Newey-West (1987) standard error to correct for heteroscedasticity and autocorrelation.

4.2.3 The valuation-to-price (V/P) ratio

For each proposed model, I estimate the valuation-to-price (V/P) ratio. If intrinsic value estimates are equal to market price on average, the V/P ratio should equal to one. Table 7 reports the median of the V/P ratio. The median V/P ratio for book value model is reported 0.5574, compared to 0.6752, 1.2055 and 0.8986 for CEM & RIM (g = 0%), CEM (g = 3%) and RIM (g = 3%), respectively. All are reported to be significantly different from one, at 0.01 level. Comparing each of the four models with the other three model estimates, the differences are reported to be significant at 0.01 level for all pairs. This suggests that the underestimation is most severe for book value model and RIM (g = 3%) outperforms other models as the V/P ratio is closest to one.

Table 7: Median of the Valuation-to-Price Ratio

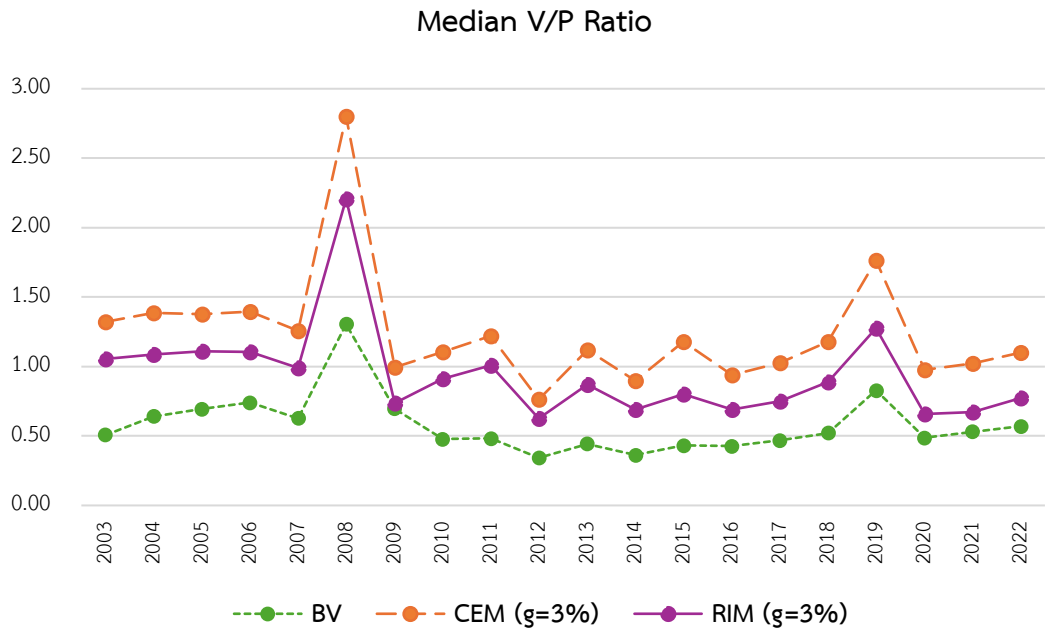
Value estimate	N	BV_{it}	V_{it}^{CEM} & V_{it}^{RIM} (g = 0%)	V_{it}^{CEM} (g = 3%)	V_{it}^{RIM} (g = 3%)
Median	2,825	**0.5574**	0.6752	1.2055	0.8986
Versus					
V_{it}^{CEM} & V_{it}^{RIM} (g = 0%)		(0.0000)			
V_{it}^{CEM} (g = 3%)		(0.0000)	(0.0000)		
V_{it}^{RIM} (g = 3%)		(0.0000)	(0.0000)	(0.0000)	

Notes: Valuation-to-price (V/P) ratio are measure as the intrinsic value estimate divided by market price. For each of the four-model V/P ratio, I test the null hypothesis that the distribution is centred on one, using nonparametric signed rank test (Wilcoxon). For the cases that are presented in bold, I reject the null hypothesis at 1 percent level. For each bias and inaccuracy, I test the null hypothesis that the distribution of the difference between the model and the other three-model is centred on zero, using a nonparametric signed rank test. P-value for the test of the difference for noted row-column combination is given in brackets.

The V/P ratio is also estimated annually. Graph 1 shows the median of annual V/P ratio of year 2003 to 2022 of three valuation models: book value model, CEM (g = 3%) and RIM (g = 3%). The CEM & RIM (g = 0%) is excluded from the graph because it only shows a slightly upwards shift from the book value model as it assumes steady-state earnings. From the graph, the median of V/P ratio in 2008 and 2019 are abnormally high across all models compared to other years. This is because the market prices of firms listed on the Stock Exchange of Thailand were significantly impacted by two major global events: the subprime mortgage crisis in the United States, which began in 2007 and leading to worldwide financial crisis in 2008, and the coronavirus disease (COVID-19) pandemic in 2019 (Al-Awadhi et al., 2020; Baker et al., 2020; Chit & Kamely, 2011; Gorton, 2008; Stock Exchange of Thailand, 2008, 2019). Both events caused sharp declines in market prices, resulting in market prices falling below valuation estimates. When the years 2008 and 2019 are excluded, the annual V/P ratio of book value models ranges from 0.3428 to 0.7405, compared to from 0.7629 to 1.3962 and from 0.6260 to 1.1121 for CEM (g = 3%) and RIM (g = 3%), respectively.[2]

[2] In addition to the main results reported in Tables 4–6, the author conducts a robustness test by excluding the years 2008 and 2019, which correspond to periods of global financial crisis. The findings remain qualitatively similar to the main results, suggesting that the conclusions are not sensitive to the inclusion of these crisis years.

The graph also shows that across all models, the V/P ratio tends to decline after the adoption of International Financial Reporting Standards (IFRS) in Thailand, which began in 2011. This trend may be attributed to the more conservative nature of IFRS compared to the local accounting standards previously used in Thailand (PWC Thailand, 2011). IFRS places greater emphasis on fair value measurement, transparency, and the recognition of potential losses, which can result in lower reported earnings or asset values in certain cases (Ball, 2006; Choi & Meek, 2011). Consequently, valuation models based on accounting figures may produce lower estimates relative to market prices than under the prior Thai accounting standards. Although IFRS adoption enhanced the comparability and transparency of Thai financial statements with international standards, it likely influenced investor perceptions and valuation patterns in the Thai stock market during the post-2011 period (Ball, 2006).



Graph 1: Graph of Median Valuation-to-Price (V/P) Ratio from Year 2003 to 2022

5. CONCLUSION AND DISCUSSION

Equity valuation models are analytical tools used to estimate the intrinsic value of a firm's equity based on financial statement data, playing a central role in both academic research and practical investment analysis (Penman, 2013). Using data from listed companies on the Stock Exchange of Thailand during 2003–2022, this study compares the relative performance of three equity valuation models based on financial statement information: (1) the book value model (BVM), which is a statement of financial position-based valuation; (2) the capitalized forward earnings model (CEM), an income statement-based valuation; and (3) the residual income valuation model (RIM), which combines statement of financial position and income statement information. The comparison focuses on both the accuracy of stock

price prediction (price-predicting analysis) and the ability to explain contemporaneous stock prices (regression analysis). Data for expected earnings in earnings-based models is based on analysts' forecasts of next period earnings.

The main findings indicate that RIM value estimates outperform those of both BVM and CEM in terms of accuracy and explanatory power. In the price-predicting analysis, RIM shows the smallest valuation bias. BVM exhibits the most severe underestimation. CEM, by contrast, tends to overestimate stock prices. Valuation inaccuracy is also lowest for RIM. The difference in inaccuracy between RIM and BVM is, however, not statistically significant. The results of the analysis of valuation-to-price (V/P) ratios suggest that RIM produces value estimates closest to market prices, as its V/P ratio is closest to one. In the regression analysis, all models show a significant positive correlation with market prices, with RIM delivering the highest explanatory power among the models.

The finding that book value underestimates security prices is consistent with prior empirical studies in both the U.S. and Thailand (e.g., Changlaw, 2024; Choi et al., 2006; Dechow et al., 1995; Myers, 1999; Supattarakul & Khanthavit, 2011). This underestimation arises because book value reflects net assets based on historical transactions and does not capture a firm's ability to generate future profits above the required return on equity. Furthermore, firms often create value through intangible assets — such as brands, R&D, and customer relationships — which are not fully reflected in book value but are incorporated in forecasts of future residual income. RIM explicitly begins with book value but adds the present value of expected residual income — the portion of earnings that exceeds the cost of capital — thereby capturing the value of future profitability not represented in book value (Francis et al., 2000; Ohlson, 1995; Penman, 2009; Penman & Sougiannis, 1999). Moreover, RIM distinguishes between normal earnings (the required return on book value) and residual income (the excess value created), enabling it to adjust for firm size and focus on value added rather than the level of earnings. As a result, RIM implicitly accounts for growth and reinvestment more effectively than CEM, as it integrates both earnings power and the capital required to generate it (Ohlson, 1995; Penman & Sougiannis, 1999).

5.1 Contribution of the Study

This study contributes to the equity valuation literature in several important ways. First, it extends existing research by offering a systematic and direct comparison of three accounting-based valuation models — Book Value Model (BVM), Capitalized Earnings Model (CEM), and Residual Income Model (RIM) — within the context of an emerging market. While prior studies in developed markets (e.g., Francis et al., 2000; Penman & Sougiannis, 1999) consistently report the superiority of RIM, similar comprehensive evidence remains scarce in emerging economies, where institutional characteristics, accounting quality, and investor behavior may differ.

Second, this study addresses a critical methodological gap by employing forward-looking inputs — namely, analysts' earnings forecasts — instead of relying solely on historical data. This approach enhances the practical relevance of the valuation models and aligns the analysis more closely with how market participants form expectations about firm value.

Third, the study contributes to the Thai and broader ASEAN accounting literature by providing updated empirical evidence on the value relevance of accounting-based models over a two-decade period (2003–2022), encompassing changes in financial reporting standards (e.g., IFRS adoption), regulatory reforms, and shifts in investor sentiment.

Finally, the findings have practical implications for investors, financial analysts, and policymakers seeking robust valuation tools in settings where market inefficiencies and accounting constraints are prevalent. The study offers guidance on which accounting-based model performs best under these conditions, thereby supporting more informed investment decision-making and valuation practices in emerging markets.

5.2 Limitations and Future Research Suggestions

A key limitation of this study is the use of a constant growth assumption (0% and 3%) for valuation estimates across a long-time horizon. This simplification may distort intrinsic value estimates, particularly during periods of economic volatility, structural change, or across industries with different growth trajectories. Future studies could address this limitation by incorporating variable growth rates that reflect not only changing macroeconomic conditions but also sector-specific dynamics. Additionally, future research could examine whether integrating other sources of information — such as cash flow data or non-financial indicators — can further improve the accuracy and explanatory power of valuation models in the Thai context. It may also be valuable to conduct cross-industry comparisons, as valuation performance may vary across sectors due to differences in growth characteristics, accounting practices, and investor expectations.

REFERENCES

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

Acaranupong, K. (2021). International financial reporting standards convergence and value relevance of accounting information: Evidence from ASEAN. *Asian Journal of Business and Accounting, 14*(2), 31–68.

Al-Awadhi, A. M., Alsaifi, K., Al-Awadhi, A., & Alhammadi, S. (2020). Death and contagious infectious diseases: Impact of the COVID-19 virus on stock market returns. *Journal of Behavioral and Experimental Finance, 27*, 100326.

Baker, S. R., Bloom, N., Davis, S. J., & Terry, S. J. (2020). *COVID-induced economic uncertainty* (NBER Working Paper No. 26983). National Bureau of Economic Research Working Paper.

Ball, R. (2006). International Financial Reporting Standards (IFRS): Pros and cons for investors. *Accounting and Business Research, 36*(sup1), 5–27.

Boonlert-U-Thai, K., Saudagaran, S. M., & Sen, P. K. (2022). Fundamental valuation in seven Asian countries: Role of earnings, book value, and dividends. *Journal of Accounting, Auditing & Finance, 37*(3), 447–472.

Brealey, R. A., Myers, S. C., & Allen, F. (2011). *Principles of Corporate Finance (10th ed.)*. New York: McGraw-Hill.

Changlaw, C. (2024). The role of accounting and other information in equity valuation: Evidence from listed companies on the Stock Exchange of Thailand. *Journal of Accounting Profession, 20*(67), 58–87.

Chit, M. M., & Kamely, A. (2011). Stock market volatility and contagion: Evidence from Asia. *Journal of Asian Economics, 22*(6), 556–563.

Choi, F. D. S., & Meek, G. K. (2011). *International accounting (7th ed.)*. Pearson.

Choi, Y. S., O'Hanlon, J. F. & Pope, P. F. (2006). Conservative accounting and linear information valuation models. *Contemporary Accounting Research, 23*(1), pp. 73–101.

Courteau, L., Kao, J. L., & Richardson, G. D. (2001). Equity valuation employing the ideal versus ad hoc terminal value expressions. *Contemporary Accounting Research, 18*(4), 625–661.

Dechow, P. M., Hutton, A. P. & Sloan, R. G. (1999). An empirical assessment of the residual income valuation model. *Journal of Accounting and Economics, 26*(1–3), 1–34.

Edwards, E. O. & Bell, P. W. (1961). *The Theory of and Measurement of Business Income*, California, CA: University of California Press.

Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *Journal of Finance, 25*(2), 383–417.

Fama, E. F. (1991). Efficient capital markets: II. *Journal of Finance, 46*(5), 1575–1617.

Francis, J., Olsson, P., & Oswald, D. R. (2000). Comparing the accuracy and explainability of dividend, free cash flow, and abnormal earnings equity value estimates. *Journal of Accounting Research, 38*(1), 45–70.

Gorton, G. B. (2008). The subprime panic. *European Financial Management, 15*(1), 10–46.

Haboub, A., Kartsaklas, A., & Sarafidis, V. (2025). Residual income valuation and stock returns: Evidence from a value-to-price investment strategy. preprint. Retrieved July 26, 2025, from https://arxiv.org/abs/2506.00206

Hooy, C.-W., & Brahmana, R. K. (2022). The equity valuation accuracy among multiple screening models: A study from an emerging stock market. *SAGE Open, 12*(1), 1–13.

Kothari, S. P. (2001). Capital markets research in accounting. *Journal of Accounting & Economics, 31*(1–3), 105–231.

Myers, J. N. (1999). Implementing residual income valuation with linear information dynamics. *The Accounting Review, 74*(1), 1–28.

Newey, W. K., & West, K. D. (1987). A simple, positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix. *Econometrica, 55*(3), 703–708.

Ohlson, J. A. (1995). Earnings, book values, and dividends in equity valuation. *Contemporary Accounting Research, 11*(2), 661–687.

Penman, S. H. (2009). Accounting for intangible assets: There is also an income statement. *Abacus, 45*(3), 358–371.

Penman, S. H. (2013). *Financial statement analysis and security valuation (5th ed.)*. New York, NY: McGraw-Hill Education.

Penman, S. H., & Sougiannis, T. (1999). A comparison of dividend, cash flow, and earnings approaches to equity valuation. *Contemporary Accounting Research, 15*(3), 343–383.

Phansawadhi, T. (2013). Equity valuation approach based on accounting variables. *Journal of Finance and Economics, 1*(3), 36–40.

PWC Thailand. (2011). Thailand's transition to IFRS: An overview. Retrieved June 14, 2025, from https://www.pwc.com/th/en/publications/assets/ifrs-thailand.pdf

Stock Exchange of Thailand. (2008). Annual report 2008. Retrieved June 14, 2025, from https://www.set.or.th/en/about/annual/annual_p1.html

Stock Exchange of Thailand. (2019). Annual report 2019. Retrieved June 14, 2025, from https://www.set.or.th/en/about/annual/annual_p1.html

Supattarakul, S., & Khanthavit, A. (2011). Empirical evidence on equity valuation in Thai firms. *Asian Academy of Management Journal of Accounting and Finance, 7*(1), 41–65.

Tungsriwong, S. (2022). Value relevance of IFRS-based accounting information adoption in Thailand Listed Company. *Journal of Business, Economics and Communications, 17*(1), 181–193.