Market Anomalies in Stock Returns: A Comparative Analysis of Kompas 100 Index Companies and Investor33 Index

Dayanti
Faculty of Economics and Business, Pamulang University, South Tangerang

Nofryanti
Faculty of Economics and Business, Pamulang University, South Tangerang

Iin Rosini
Faculty of Economics and Business, Pamulang University, South Tangerang

Abstract : *This research aims to analyse the impact of the week-four effect and the January effect on stock returns, focusing on companies listed in the Kompas 100 and Investor33 indices, with respective sample sizes of 150 and 125, spanning the period from 2018 to 2022. Hypothesis testing was performed using panel data regression analysis, revealing that neither the week-four effect nor the January effect significantly influences stock returns within the Kompas 100 index. In contrast, both effects have a notable impact on stock returns in the Investor33 index, which is also projected to yield better stock returns in the future compared to the Kompas 100. These findings underscore that stock returns serve as an indicator of a company's appeal to investors, with companies demonstrating strong future prospects typically attracting greater investor interest.*

Keywords: *Week four effect; January effect; Company size; Stock returns*

Introduction

The market is often described as a dynamic and multifaceted platform where buyers and sellers engage in transactions, creating an environment essential for the smooth functioning of the economy. It acts as a critical venue that facilitates the exchange of goods, services, and financial assets, thereby influencing economic growth and stability. Specifically, the capital market plays a significant role as a funding mechanism for corporations and institutions, including governments. It not only enables these entities to raise necessary capital for expansion, innovation, and operational activities but also provides a structured investment avenue for individuals. Investors are primarily driven by the objective of securing high returns while minimizing associated risks, making informed decisions based on market conditions and financial analyses. According to Indonesia's Capital Market Law No. 8 of 1995, the capital market encompasses a wide range of activities such as public offerings, securities trading, the issuance of securities by public companies, and the operations of institutions or professionals connected with securities transactions. Through this market, investors allocate their funds to issuers who require capital, with the expectation of receiving profitable returns on their investments.

The capital market operates within the theoretical framework of the Efficient Market Hypothesis (EMH), a concept introduced by Eugene Fama in 1970. This hypothesis asserts that financial markets are efficient when the prices of securities fully and accurately reflect all available information at any given time. According to EMH, prices adjust instantaneously and without bias in response to new data, ensuring that no investor can consistently achieve higher-than-average returns without taking on additional risk. This principle implies that it is impossible to outperform the market through expert stock selection or market timing, as all known information is already incorporated into current prices. Investors' aspirations for high returns on their stock investments significantly influence market dynamics, shaping trends and price movements based on collective behaviors and expectations (Kasjan et al., 2017). Furthermore, Ardiyanti (2015) emphasizes that companies must strive for high operational efficiency to maintain their competitiveness in the marketplace. Achieving such efficiency allows

firms to maximize their net profits, which in turn makes them more attractive to discerning investors who meticulously evaluate their options to allocate capital effectively.

Testing the validity of the EMH often leads to insightful discussions surrounding market irregularities or anomalies that appear to challenge the core assumptions of the hypothesis. While efficient markets are theoretically expected to reflect all available information in fair and accurate prices, the existence of anomalies suggests otherwise, presenting unique opportunities for investors to earn abnormal or excess returns. These anomalies are regarded as deviations from the principles of efficient market theory, highlighting inconsistencies that have piqued the interest of researchers, financial analysts, and market participants alike. For instance, anomalies can manifest in various forms, such as calendar effects, momentum effects, or market overreactions, each providing potential strategies for achieving superior returns. Jones (1998) identified such market anomalies as specific techniques or investment strategies that do not align with the fundamental tenets of EMH, yet offer the possibility of abnormal gains under certain market conditions or events. These contradictions continue to drive academic inquiry and practical exploration within the field of finance, as experts seek to understand the underlying causes and implications of market inefficiencies.

Research conducted by Kusno et al. (2021) defines market anomalies as deviations from the expected behaviour in an efficient market. In an efficient market, all available information is presumed to be fully reflected in security prices, and thus, investors should not be able to consistently achieve returns above the average market returns on a risk-adjusted basis. However, market anomalies challenge this notion, as they present opportunities where investors can earn abnormal returns. These anomalies suggest that certain patterns or irregularities in the market can be exploited, contradicting the Efficient Market Hypothesis (EMH) which posits that price movements are inherently random and unpredictable. The continuous existence and observation of these anomalies have fueled ongoing debates within the field of financial research, with empirical studies providing evidence both supporting and challenging the fundamental principles of the EMH.

The historical performance of the Indonesia Composite Stock Index (IHSG) serves as a practical illustration of market dynamics and their susceptibility to external influences. Between 2018 and 2022, the IHSG experienced significant fluctuations, reflecting the broader economic environment. In 2020, the index saw a notable decline primarily due to the adverse impacts of the COVID-19 pandemic, which disrupted global markets and economies. This sharp downturn highlighted the vulnerability of financial markets to external shocks and uncertainties. However, in the years following 2020, the IHSG demonstrated a strong recovery, driven by economic stimulus measures, improved investor sentiment, and efforts toward global economic recovery. These trends underscore the market's responsive nature to global events, uncertainties, and the resilience built through recovery initiatives.

This study employs signaling theory as a conceptual framework to understand the influence of management decisions and corporate information on investor behaviour. Signaling theory suggests that the actions and disclosures made by company management act as critical signals to investors, conveying valuable information about a company's future prospects. In the context of market anomalies such as the January effect and the week four effect, these signals can significantly impact stock price movements. For instance, investor reactions to financial statements, corporate announcements, and macroeconomic indicators are often influenced by the perceived implications of such information. According to Anjum (2020), these signals shape investor expectations and decisions, while Opu et al. (2022) highlight that both financial and non-financial information play a role in enhancing a company's market value. By fostering positive perceptions, companies can influence investor behaviour to their advantage.

This research specifically focuses on the Kompas100 and Investor33 indices, examining their performance from 2018 to 2022. The Kompas100 index represents 100 selected stocks listed on the Indonesia Stock Exchange (IDX), chosen based on criteria such as strong liquidity, substantial market capitalization, and solid fundamentals. It offers a broad overview of market performance and investor trends. Similarly, the Investor33 index comprises 33 stocks from public companies that exhibit high liquidity, strong fundamentals, and

consistent returns. By analyzing these indices, the study aims to provide insights into market behaviour, particularly in relation to seasonal anomalies like the January effect and the week four effect. Observing these indices helps in understanding how specific market segments react to different temporal patterns and economic conditions.

The January effect, first observed by Wachtel (1942), describes a recurring phenomenon in financial markets where stock prices tend to experience an upward trend in January compared to other months of the year. This price increase is generally attributed to the behavior of investors engaging in tax-loss selling at the end of the fiscal year. Investors often sell off underperforming stocks to realize capital losses for tax deduction purposes. Following this, they reinvest in the market once the new year begins, creating increased demand and, consequently, driving stock prices higher in January. Supporting this observation, several studies, such as those conducted by Lenggono (2020) and Pradnyaparamita and Rahyuda (2018), have confirmed the presence of the January effect, particularly on stocks listed on the Indonesia Stock Exchange (IDX). However, there are contrasting findings as well. Research conducted by Yunita (2019) and Ulfarizty and Komariah (2022) did not find evidence supporting the existence of this anomaly in various other markets, suggesting that the January effect may not be universally applicable across all financial environments.

The week four effect is another notable market anomaly, specifically a trading-day anomaly that influences stock returns within a given month. This effect is closely related to the well-documented Monday effect, where returns on Mondays tend to be negative compared to other weekdays, which generally yield positive returns. This pattern is thought to be linked to investor sentiment and behavior over the weekend, leading to increased sell-off activities on Mondays. Notably, Wang Li and Erickson (1997), as cited by Tansar (2016), identified significantly negative returns occurring on the second-to-last Monday of each month, highlighting a specific temporal pattern within the broader Monday effect. Empirical research, including studies by Kusno et al. (2021), has provided evidence supporting the significant impact of the week four effect on stock returns, emphasizing that temporal factors within a month can influence market performance.

Market anomalies, such as the January effect and the week four effect, present a challenge to the Efficient Market Hypothesis (EMH), which asserts that financial markets are fully efficient, with asset prices reflecting all available information at any given time. The existence of these anomalies implies that there are opportunities for investors to achieve abnormal returns, exploiting patterns and inefficiencies in the market. This research focuses on investigating these phenomena within the context of the Kompas100 and Investor33 indices, aiming to contribute valuable insights to the ongoing discourse on market efficiency and investor behavior. By examining how these anomalies manifest in specific indices, this study seeks to enhance the understanding of market dynamics and the factors that influence investor decision-making.

Literatur Review

Signalling Theory

Signaling theory is applied in this study to explain stock returns in a nuanced manner. Kusno et al. (2021) state that signaling theory elucidates the rationale behind companies disclosing pertinent information to external stakeholders. This disclosure is crucial as it directly influences investor decisions through market price fluctuations. Investors rely heavily on accurate, relevant, and timely information to conduct comprehensive analyses and make informed investment decisions. The provision of such information reduces information asymmetry and enhances market efficiency. Positive announcements, such as increased earnings or strategic partnerships, are anticipated to elicit favorable market reactions, thereby benefiting both investors in their decision-making processes and company management in formulating future strategic directions.

Kuncorowati et al. (2021) highlight that signaling theory, rooted in the pragmatic accounting theory framework, focuses on the behavioral implications of disclosed financial data. This theory posits that accounting information acts as a critical signal, significantly influencing the behavior of information users, particularly investors. These signals manifest in stock price fluctuations, as market participants interpret financial

disclosures to adjust their expectations and investment strategies accordingly. Similarly, Sevitiana et al. (2021) argue that internal parties, such as company executives and managers, inherently possess superior and timelier insights into the company's future prospects compared to external investors. This disparity in information access underscores the issue of information asymmetry, which signaling theory aims to address by encouraging transparent and effective communication of essential corporate information.

The week four effect describes distinctive patterns of abnormal stock returns observed during the fourth week of a month, often attributed to institutional practices like window dressing. Signaling theory interprets this phenomenon as a reflection of prevailing market sentiment or as strategic activities undertaken by market participants to influence perceptions. Smaller firms, characterized by higher volatility and less predictable performance, tend to signal greater levels of uncertainty to investors. In contrast, larger firms, owing to their established market presence and diversified operations, exhibit greater stability and are less susceptible to the fluctuations observed during the week four effect (Cahyaningdyah & Faidah, 2017). This differentiation underscores the role of firm size in moderating the impact of temporal market anomalies.

The January effect pertains to the observed trend of rising stock prices in January, particularly pronounced among small-cap firms. This effect is often driven by year-end tax-loss selling, where investors offload underperforming stocks to realize tax benefits, followed by repurchasing them in the new year. Signaling theory suggests that the signals emanating from this anomaly are more robust for small firms due to their perceived growth potential and the relative inefficiencies in markets where they operate. Consequently, these firms present higher return opportunities as investors respond to the signals indicating potential for future growth and recovery (Dwialesi & Darmayanti, 2016). This dynamic highlights the interplay between market anomalies and investor behavior as explained by signaling theory.

Firm size emerges as a pivotal signal in the context of risk evaluation and investment decision-making. Larger firms generally signal financial stability, operational resilience, and consistent performance, making them attractive to institutional investors seeking lower-risk investments. Conversely, smaller firms, while signaling higher growth potential, are often associated with greater inherent risks due to limited resources and market exposure (Meryati, 2020). This duality suggests that signaling theory effectively links phenomena such as the week four effect, January effect, firm size, and stock returns. These interdependent factors collectively shape investor perceptions and decisions, underscoring the comprehensive explanatory power of signaling theory in the context of financial markets.

Stock Return

One primary goal of investors is to achieve returns, which represent the difference between stock purchase and sale prices. This difference forms the core reason behind investment activities, as it reflects the financial gain or loss experienced by the investor. According to Herlambang & Kurniawati (2022), stock return is the rate of return obtained by investors over a specific period, indicating how effectively the investment has performed during that time. Jogiyanto (2017) further defines it as the reward earned from investments, serving as compensation for the risks undertaken. This implies that investors expect to be rewarded for exposing their capital to potential market fluctuations. Higher returns often come with higher risks, underscoring the principle of risk-return trade-off, where the potential for substantial gains is usually accompanied by the possibility of significant losses. This relationship makes return a crucial factor driving investment decisions, as investors continuously balance the desire for high profits against their risk tolerance.

Saraswati & Wirakusuma (2017) emphasize that returns motivate investors to invest in securities, including stocks. The anticipation of earning profits encourages individuals and institutions to allocate resources in various financial instruments. Stock returns are derived from capital gains, which occur when stock prices increase, leading to profits upon selling the shares at a higher price than the purchase price. Conversely, capital losses happen when stock prices decrease, resulting in a loss if the shares are sold for less than the

original purchase price. These returns are calculated by determining the difference between the current stock price and its previous price, then relating this difference to the earlier price. This calculation provides a clear measure of the stock's performance, allowing investors to assess the effectiveness of their investment strategies and make informed decisions about future transactions.

The return concept highlights the trade-off between risk and reward—higher expected returns involve greater risks, while lower expected returns carry less risk. This fundamental investment principle guides investors in evaluating potential investments based on their risk tolerance and return expectations. Returns can be either realized, representing the actual gains or losses experienced after completing a transaction, or expected, referring to the anticipated future gains based on market analysis and predictions. The actual stock return (Ri,t) is calculated by subtracting the closing stock price at time t−1 (Pi,t−1) from the closing price at time t (Pi,t), then dividing the result by the closing price at time t−1 (Pi,t−1). This formula provides a precise quantification of the stock's performance over a specific period, enabling investors to analyze historical data for performance tracking and to forecast potential future returns based on past trends.

Week Four Effect

According to Masitoh & Rahayu (2015), the "Week Four Effect" refers to a specific financial phenomenon observed in the stock market. This effect highlights how the well-documented "Monday Effect," where stock returns tend to be lower on Mondays compared to other days of the week, is not evenly distributed throughout the month. Instead, it is concentrated specifically on Mondays that fall during the last week of each month. In contrast, Mondays in the first three weeks generally display returns that are statistically insignificant or hover around zero, indicating minimal impact. This suggests that there is a unique factor influencing stock performance at the end of each month, making the negative returns during the fourth week both noteworthy and distinct from other periods.

Suprayetno (2023) provides further insights into the underlying causes of the Week Four Effect. According to his analysis, this phenomenon primarily arises due to increased selling pressure from individual investors. At the end of the month, many investors face liquidity needs driven by obligations such as bill payments, rent, and other monthly expenses. To meet these financial demands, they tend to liquidate some of their stock holdings, leading to a surge in stock sales during the last week of the month, which could be either the fourth or fifth week, depending on the calendar. This sudden increase in the supply of stocks without a corresponding rise in demand creates an imbalance, exerting downward pressure on stock prices. Consequently, this results in noticeably negative returns for that period, distinguishing it from the relatively stable returns observed earlier in the month.

The Week Four Effect represents a clear example of a seasonal anomaly within the stock market, driven largely by predictable human behaviour and financial cycles. The recurring pattern of negative returns at the end of each month can be attributed to liquidity pressures faced by individual investors. As they sell off stocks to fulfill end-of-month financial obligations, the market experiences a temporary excess in supply, pushing prices downward. This cyclical behaviour underscores the influence of investor psychology and routine financial needs on market trends, making the Week Four Effect a significant point of study for those interested in market anomalies and behavioural finance.

January Effect

Darman (2018) highlights that the January effect was first observed by Sidney (1942), who noted a consistent rise in stock prices during January, particularly affecting small-cap stocks, starting from 1925. This trend was identified through historical data analysis, where Sidney observed that smaller companies experienced more significant price movements compared to larger firms during this month. According to Darman, this phenomenon occurs because investors often engage in tax strategies at the end of the year, selling off underperforming stocks to realize capital losses and minimize their tax liabilities. This selling activity exerts downward pressure on stock prices in December. However, as the new year begins, these same investors tend to repurchase the previously sold stocks due to renewed optimism about market prospects. This repurchasing

activity contributes to price corrections, a process often referred to as 'window dressing,' where the rebound in stock prices reflects not just fundamental value but also the reversal of temporary year-end pressures.

Ulfarizty and Komariah (2022) expand on this by describing the January effect as a recurring phenomenon where stock returns in January are consistently higher compared to other months. They suggest that this pattern is not random but influenced by predictable investor behavior tied to fiscal year-end activities. Similarly, Woo et al. (2020) attribute the January effect to the practice of year-end tax-loss selling. Here, investors sell off losing stocks to reduce their taxable income, thus lowering their tax obligations. This selling leads to suppressed stock prices in December. Once the new tax year commences, investors often buy back these undervalued stocks, creating a price rebound in January. Furthermore, institutional investors amplify this effect by rebalancing their portfolios at year-end. They may sell off underperforming assets to improve the appearance of their financial statements, a practice known as 'window dressing.' This large-scale selling and subsequent buying further depresses prices in December and fuels recoveries in January.

Woo et al. (2020) identify two key theories explaining the January effect: Tax-Loss Selling Hypothesis: This theory posits that individual and institutional investors sell underperforming stocks at the end of the fiscal year to offset capital gains from other investments, thereby reducing their overall tax liabilities. This mass selling causes stock prices to dip temporarily. As the new year begins, these investors often repurchase the same stocks, especially if they still believe in their long-term potential. This renewed buying interest drives stock prices higher in January. Window Dressing Hypothesis: According to this theory, institutional investors, such as mutual funds and hedge funds—sell off poorly performing stocks before closing their annual financial reports to make their portfolios appear more profitable to clients and stakeholders. They replace these underperforming stocks with 'winner' stocks that have performed well during the year. This strategic maneuvering causes temporary downward pressure on the prices of the sold stocks. However, after the reporting period ends, these institutional investors may repurchase the previously sold stocks, leading to a price rebound in January as demand increases once again.

Studies by Poterba and Weisbenner (2001) and Chen and Singal (2004) provide strong empirical support for the Tax-Loss Selling Hypothesis. Their research involved analyzing trading patterns and stock returns around the turn of the year, finding significant evidence that tax considerations drive much of the January effect. These studies observed that stocks experiencing heavy selling pressure in December often showed marked recoveries in January, consistent with tax-related selling and repurchasing behaviors. Further research by Starks et al. (2006), which focused specifically on municipal bond funds, reinforced the Tax-Loss Selling Hypothesis as the primary explanation for the January effect. Their findings highlighted consistent patterns across various asset classes, suggesting that while window dressing plays a role, tax-loss selling remains the dominant factor.

This seasonal phenomenon fosters positive investor sentiment at the start of the year. The anticipation of higher returns in January often leads to increased market participation, contributing to the upward movement of stock indices such as Indonesia's IHSG. The January effect has been consistently observed globally, including in Indonesia, where it manifests as a recurring market trend linked to increased stock returns at the beginning of the year. This effect underscores the influence of behavioral finance principles, illustrating how predictable investor actions tied to fiscal calendars can create systematic patterns in financial markets.

Firm Size

Firm size refers to the classification of companies as either large or small, typically measured by their total assets (Hery, 2017). Total assets encompass everything a company owns, including cash, inventory, property, and equipment. This measure provides a comprehensive snapshot of a company's financial strength and operational capacity. It is often represented as the average net sales over a specific period, such as a year or several years (Brigham & Houston, 2015). Average net sales account for the revenue generated after deducting returns, allowances, and discounts, offering a clearer picture of consistent revenue streams. According to Weston and Brigham

(1998), when a company's sales exceed its fixed and variable costs, it generates pre-tax profits; otherwise, it incurs losses. Fixed costs, such as rent and salaries, remain constant regardless of production levels, while variable costs fluctuate with production volume. This dynamic underscores the importance of efficient cost management relative to sales.

Firm size is a critical determinant of financial structure for several reasons. The financial structure, which includes debt and equity proportions, significantly influences a company's risk profile and funding flexibility. Larger firms often have better access to organized capital markets for issuing bonds or stocks, unlike smaller firms, which face higher barriers due to limited market access and higher issuance costs (Veronika, 2020). Organized capital markets provide more liquidity and investor confidence, making it easier for large firms to raise funds at lower costs. Additionally, securities from smaller firms may be less marketable, requiring higher returns to attract investors. The perceived higher risk associated with smaller firms necessitates offering investors higher potential returns to compensate for potential liquidity issues and financial instability.

According to the National Standardization Agency (Badan Standarisasi Nasional), firm size categorizes businesses into small, medium, or large enterprises based on factors like net profit, total sales, capital, and total assets (Ayem & Astuti, 2019). These criteria provide a standardized framework to compare businesses across industries and regions. Net profit reflects profitability after all expenses, total sales indicate revenue generation capability, capital represents financial resources invested, and total assets showcase the scale of operations. Larger firms, with higher asset values, are more likely to attract investors and access external funding, including loans, more easily than smaller firms (Dinson, 2019). Their established market presence and financial stability reduce perceived risks for lenders and investors, facilitating better financing terms and opportunities for growth and expansion.

Dinson (2019) also suggests that firm size can be quantified using the natural logarithm of total assets, as calculated with the formula: Firm Size = Ln (Total Assets). This logarithmic transformation helps normalize data, making it easier to analyze and compare companies of vastly different sizes. This metric serves as a standard tool for assessing a company's relative size in financial studies. It allows researchers and analysts to identify trends, evaluate financial performance, and understand the impact of firm size on various economic indicators, enhancing the robustness of financial analyses and strategic decision-making.

Research Methods

Types of Research

This study adopts a quantitative research approach, which is primarily concerned with generating empirical findings through rigorous statistical procedures and various methods of quantification. Quantitative research is designed to systematically investigate phenomena that exhibit specific, measurable characteristics, known as variables, and it focuses on analysing the relationships and patterns between these variables within a structured, objective theoretical framework. This approach allows for the formulation of hypotheses, testing of theories, and identification of correlations or causations in a precise manner. In the context of this research, data pertinent to the study's objectives were meticulously gathered from secondary sources to ensure a comprehensive analysis. These data, covering the period from 2018 to 2022, were sourced from publicly accessible publications available on the Indonesia Stock Exchange (IDX) website, providing a reliable and extensive dataset to support the study's analytical endeavours.

Data and Analysis Technique

This study utilizes secondary data collection, which involves obtaining data through online sources such as the official IDX website (www.idx.co.id) or company websites. Secondary data collection refers to the process of gathering existing information that has already been produced, recorded, or published by others, often for purposes different from the current research. In this case, the data are primarily derived from credible and authoritative online platforms, ensuring reliability and accuracy. The documentation method is employed as part of the data collection process, which entails systematically

reviewing, classifying, and analyzing relevant secondary data to extract meaningful information. This process includes a detailed examination of various resources such as literature, academic journals, previous research studies, and financial reports published by companies listed in the Kompas100 and Investor33 indices on the Indonesia Stock Exchange (IDX), thus providing a comprehensive basis for the study's analysis.

The data analysis employs quantitative methods using the EViews software. Quantitative analysis involves the application of statistical techniques to measure variables and analyze numerical data. EViews, as described by Winarno (2017), is a powerful statistical and econometric software designed to facilitate the processing and analysis of different data types. Specifically, it handles time series data, which refers to data points collected at consistent intervals over multiple periods, cross-sectional data, representing observations from multiple subjects at a single time point, and panel data, which integrates both time series and cross-sectional elements. In this study, panel data are of particular importance as they encompass both temporal and cross-sectional dimensions, allowing for a more nuanced and comprehensive statistical analysis. EViews enables the application of sophisticated econometric models to conduct statistical calculations, test hypotheses, and derive conclusions based on empirical evidence.

The data processing techniques employed in this study can be summarized as follows. Initially, secondary data are meticulously collected from reliable sources, including financial reports, official stock trading databases, and company disclosures. The focus is on companies listed in the Kompas100 and Investor33 indices, covering a specific observation period to ensure data consistency and relevance. Following data collection, a rigorous data cleaning and transformation process is conducted to enhance data quality. This involves identifying and rectifying errors, removing duplicate entries, and addressing outliers that could potentially skew the analysis. Additionally, the study normalizes returns, converting them into percentage or logarithmic formats when necessary to facilitate comparison and analysis. The data are then categorized based on specific timeframes, such as weekly periods to investigate the Week Four effect and monthly periods to explore the January effect, allowing for targeted seasonal analysis.

Descriptive statistical analysis was conducted to summarize the data, providing an overview of the fundamental characteristics of stock returns. This type of analysis includes calculating measures of central tendency, such as the mean and median, which indicate the average and middle values of the data distribution, respectively. Furthermore, measures of dispersion, including the standard deviation, are utilized to assess the variability or spread of the data around the central values. These statistical descriptors help in understanding the data's overall distribution, trends, and patterns, providing a foundational insight into the behavior of stock returns over the observed periods. To further validate the findings, hypothesis testing is performed using t-tests, a statistical method used to determine whether there are significant differences between groups or conditions. The significance of the Week Four and January effects is evaluated by comparing p-values against a predefined significance level of 0.05. This comparison determines whether to accept or reject the null hypotheses, thereby assessing the statistical relevance of the observed effects.

Regression models, either simple or multiple linear regression, were applied to analyze the relationships between seasonal variables and stock returns. Simple linear regression examines the impact of a single independent variable on a dependent variable, while multiple linear regression considers the influence of multiple independent variables simultaneously. These models help quantify the strength and direction of the relationships, with regression coefficients indicating whether the effects are positive or negative and the extent of their impact. In cases involving time-series or panel data, the study employs specialized techniques to address potential issues such as autocorrelation, where past values influence current values, and fixed effects, which account for unobservable factors that may vary across companies but remain constant over time. By incorporating these considerations, the regression analysis provides robust insights into the seasonal patterns affecting stock returns, enhancing the study's overall analytical rigor.

Variables and Definitions

Kusno et al. (2021) define the Week Four Effect as a distinct pattern observed in daily stock returns across each week of the month, which notably manifests as negative stock returns on Mondays during the fourth and fifth weeks. This phenomenon highlights a recurring trend where stock prices tend to decline at the start of these specific weeks. To quantify this effect, Afifatiningsih and Poerwati (2023) employ a specific calculation method that involves determining the closing price on Monday (CPMonday) and comparing it to the closing price on the preceding Friday (CPFriday). The return is calculated as the percentage change between these two closing prices, and the data is segmented into two groups: weeks 1–3 and weeks 4–5, to facilitate a focused analysis of the Week Four Effect. This analytical approach helps in identifying whether the downturn is consistent and statistically significant during the latter part of the month, thereby offering insights into stock market behaviour patterns.

Lenggono (2020) describes the January Effect as a financial market anomaly characterised by a consistent increase in stock prices during the month of January. This phenomenon suggests that average monthly returns in January tend to be higher compared to those in other months throughout the year. The January Effect is often attributed to various factors, such as tax-related strategies executed by investors, portfolio rebalancing, and increased market activity following the holiday season. To measure this effect accurately, analysts typically examine the closing prices of stocks during the first seven days of January, as this period is believed to capture the most significant price movements associated with the phenomenon.

According to Sugiyono (2016), control variables are maintained consistently to isolate the impact of the independent variable on the dependent variable, ensuring that external factors do not interfere with the study's outcomes. In this research, two control variables are utilised to achieve this objective. The first is firm size, which, as described by Suwardika and Mustanda (2017) and Rahmawati et al. (2015), signifies the scale of a company measured through equity, total sales, or total assets. Firm size is a crucial factor as it significantly influences investor decision-making processes, with its calculation represented by the formula Size = Ln (Total Assets). The second control variable is firm age, incorporated to consider the company's maturity, which may potentially affect its performance. By controlling for these variables, the study aims to provide more accurate and reliable results, clearly delineating the specific impact of the independent variable on the dependent variable without extraneous influences.

Results and Discussion

Comparative Analysis

Based on the comparison Table 1, which includes Descriptive Statistics, Classical Assumption, and Hypothesis Testing, the analysis reveals that stock performance on the Kompas 100 index exhibited higher volatility compared to the Investor 33 index. This is evident from the minimum stock return on Kompas 100 reaching -95.28%, indicating a drastic decline in certain stocks, while the Investor 33 index recorded an even greater maximum loss of -99.43%, highlighting significantly poor performance in some stocks. Despite this, the Kompas 100 index showed a maximum stock return of 854.81%, demonstrating substantial profit potential during the study period, whereas the Investor 33 index recorded an even more remarkable maximum return of 3663.99%, indicating extreme variation between its best- and worst-performing stocks.

The average stock return in Kompas 100 stood at 37.50%, reflecting reasonably strong aggregate performance across its listed stocks. This suggests that investors in this index experienced moderate gains, benefiting from a diversified portfolio with balanced risk levels. In contrast, the average return in Investor 33 was significantly higher, reaching 187.50%. This stark difference indicates that stocks within Investor 33 offered substantially greater profit potential, likely appealing to investors seeking higher returns. However, such impressive gains typically come with elevated risks, implying that the volatility and potential for loss in Investor 33 were considerably higher compared to Kompas 100. The disparity between these two indices underscores the trade-off between risk and return, where higher profits are often associated with greater investment risks.

The analysis of the Week Four Effect and January Effect highlights distinct patterns in

the Kompas 100 and Investor 33 indices. The Week Four Effect showed minimal influence on stock returns, with average values of 0.0265 for Kompas 100 and 0.0290 for Investor 33, indicating marginal fluctuations. In contrast, the January Effect exhibited a more pronounced impact, with average figures of 2920.71 for Kompas 100 and a significantly higher 4884.72 for Investor 33. This disparity suggests that the January seasonal effect plays a more dominant role in Investor 33, implying that investors focusing on seasonal trends might find greater opportunities for optimal gains within this index compared to Kompas 100.

Table 1. Comparative Test Overview of Kompas 10 and Investor33

	Test Overview	
	Kompas 100	Investor33
Descriptive Statistics		
Maximum		
Week four effect	1,719	1,932
January effect	67230	227009
Stock Return	8,548	36,639
Minimum		
Week four effect	-0,566	-0,591
January effect	0,990	1022
Stock Return	-0,952	-0,994
Mean		
Week four effect	0,026	0,029
January effect	2920	4884
Stock Return	0,374	1,875
Classical Assumption Test		
Multicollinearity Test		
Week four effect (X1) and January effect (X2)	0,292	-0,025
Week four effect (X1) and Firm Size (C1)	-0,062	0,110
January effect (X2) and Firm Size (C1)	-0,357	-0,171
Heteroskedastisitas Test	0,0811	0,6189
Model Accuracy Test		
Coefficient of Determination	51%	75%
F-Test	0,000	0,000
Hypothesis Test		
Week four effect	0,790	0,018
January effect	0,466	0,029

The results of the multicollinearity test highlighted distinct relationships among the independent variables within both indices, Kompas 100 and Investor 33. In the case of Kompas 100, the correlation coefficient between the Week Four Effect (X1) and the January Effect (X2) was found to be 0.292, which signifies a weak yet positive correlation. This indicates that while there is some degree of association, the influence of one variable on the other is minimal. On the other hand, for Investor 33, the correlation coefficient between the same variables was recorded at -0.025. This negligible and slightly negative value suggests an almost nonexistent linear relationship between the Week Four Effect and the January Effect, implying that these variables operate independently within this index without significant mutual influence. These contrasting correlation patterns underscore the differing dynamics of variable interactions in the two indices, which could be attributed to variations in their constituent stocks, market responses, or other external economic factors.

The analysis of the relationship between the Week Four Effect (X1) and firm size (C1) in the Kompas 100 and Investor 33 indices reveals contrasting yet weak correlations. In Kompas 100, a very weak negative correlation of -0.062 was observed, suggesting a minimal inverse relationship, while in Investor 33, the correlation turned slightly positive at 0.110, indicating a marginal direct association. Similarly, the January Effect

(X2) demonstrated weak negative correlations with firm size (C1) in both indices: -0.357 for Kompas 100 and -0.171 for Investor 33. These weak correlations across both effects and indices suggest the absence of severe multicollinearity, thereby supporting the robustness and validity of the regression model used in the analysis.

The heteroscedasticity test results indicated that both indices met the homoscedasticity assumption, which is vital for the reliability of regression analyses. Specifically, for the Kompas 100 index, the Chi-Squared probability value was calculated at 0.0811. This value is notably higher than the conventional threshold of 0.05, signifying that the residual variances are consistent and no heteroscedasticity is present. Similarly, for the Investor 33 index, the Chi-Squared probability value was even higher at 0.6189, again surpassing the 0.05 benchmark. This consistency across both indices suggests that the data exhibit uniform residual variance, affirming the robustness of the regression model and indicating that the variances of the error terms are stable and do not distort the model's predictive capabilities.

In evaluating model accuracy, the tests revealed distinct differences in the coefficient of determination (R^2) between the two indices. For the Kompas 100 index, the R^2 value stood at 51%, implying that just over half of the variation in stock returns can be attributed to the independent variables within the model, namely the Week Four Effect and January Effect. In contrast, the Investor 33 index demonstrated a significantly higher R^2 value of 75%, indicating that three-quarters of the stock return variability is explained by the same set of independent variables. This marked difference underscores that the model for Investor 33 possesses superior predictive capability compared to that for Kompas 100, suggesting that the factors considered in the model have a stronger influence on Investor 33's stock returns.

The F-test results further supported the significance of the regression models for both indices. The significance values obtained were 0.000 for both Kompas 100 and Investor 33, which is well below the 0.05 alpha level, confirming statistical significance at a 95% confidence level. These findings substantiate that the independent variables—Week Four Effect and January Effect—have a meaningful and simultaneous impact on stock returns across both indices. While both indices reflected significant influences from these factors, the variations in hypothesis testing outcomes highlight the comparative strengths and nuances of each model. This suggests that while the underlying effects are universally significant, their specific impact and the model's sensitivity to these factors can differ between indices.

From the t-test results, In the Kompas 100 index, the Week Four Effect had a significance value of 0.790, which is greater than 0.05, indicating no significant effect on stock returns. In contrast, for the Investor 33 index, the Week Four Effect had a significance value of 0.018, which is less than 0.05, indicating a significant effect on stock returns. This shows that the seasonal effect is more relevant and influential in the Investor 33 index than in Kompas 100. For the Kompas 100 index, the January Effect had a significance value of 0.466, which is greater than 0.05, indicating no significant effect on stock returns. However, in the Investor 33 index, the January Effect had a significance value of 0.029, which is less than 0.05. Therefore, the January Effect significantly influenced stock returns in the Investor 33 index, while its influence on Kompas 100 was relatively insignificant.

The analysis results clearly demonstrate that the model for the Investor 33 index exhibits superior strength and greater relevance compared to the model for the Kompas 100 index. This superiority is evidenced by a notably higher coefficient of determination, recorded at 75% for the Investor 33, in contrast to only 51% for the Kompas 100. A higher coefficient of determination implies that a larger proportion of the variance in stock returns can be explained by the model's independent variables. Specifically, the significant influence of the Week Four Effect and the January Effect on stock returns underscores the robustness of the Investor 33 model. The pronounced impact of these independent variables indicates that the model effectively captures the seasonal patterns that play a critical role in influencing the stock returns within this index.

Furthermore, the Investor 33 index demonstrates heightened responsiveness to seasonal effects, with particular sensitivity to the Week Four Effect and the January Effect. This heightened responsiveness suggests that the stocks included in this index are more susceptible to fluctuations driven by seasonal

factors. In contrast, the stocks within the Kompas 100 index exhibit less sensitivity to these seasonal variables. Although the Kompas 100 model is characterized by a lower coefficient of determination, this does not diminish its value; instead, it highlights that the stock returns in this index are influenced by a broader array of factors beyond the seasonal effects considered in this study. These other factors could include macroeconomic indicators, company-specific performance, and global financial trends. Consequently, the Kompas 100 index reflects greater stability, as its performance is less volatile and not as heavily swayed by seasonal fluctuations. On the other hand, the Investor 33, while exhibiting higher volatility due to its pronounced reaction to seasonal effects, presents investors with potentially greater profit opportunities due to the dynamic nature of its stock movements.

The Effect of Week Four on Stock Returns: Kompas 100 Index Companies

The first hypothesis, which posits that the Week Four effect influences stock returns, is rejected. The t-test results show a significance value of 0.7909, exceeding the $\alpha = 0.05$ threshold, indicating no significant impact of the Week Four effect on stock returns in Kompas 100 Index companies. This high significance value implies that any observed variations in stock returns during the fourth week could be attributed to random chance rather than a consistent, underlying pattern. The lack of statistical significance suggests that the Week Four effect does not offer predictive power or a reliable basis for investment strategies within these companies, reaffirming the importance of evidence-based approaches in financial analysis.

The Week Four effect typically refers to the phenomenon where stock returns in the fourth week of a month are expected to be higher. However, this pattern is not evident in Kompas 100 Index companies. This suggests that stock price movements during the fourth week do not exhibit a consistent or reliable pattern for investors to base their decisions on. Investors looking for predictable trends would find little support from the Week Four effect in this context, indicating that other factors, such as macroeconomic indicators or company-specific news, play a more dominant role in influencing stock returns during this period. This absence of a clear pattern underscores the complexity of market dynamics and the limitations of relying on simple temporal anomalies for investment decisions.

From a signaling theory perspective, these findings indicate that the market does not derive strong signals from stock price movements in the fourth week. Kompas 100 Index, composed of large and liquid companies in the Indonesian stock market, generally exhibits higher price stability. Consequently, investors do not react excessively to weekly fluctuations. The lower volatility of these large-cap companies means their stock movements are more influenced by fundamental and macroeconomic factors rather than short-term cyclical patterns like the Week Four effect. This stability reflects the maturity and resilience of these companies, where investor confidence is anchored in long-term performance metrics rather than transient market behaviors. As a result, the absence of exaggerated reactions to weekly changes further diminishes the potential impact of the Week Four effect.

The characteristics of Kompas 100 Index companies diverse sectors and substantial market capitalizations may explain why the Week Four effect does not significantly impact stock returns. The market likely prioritizes long-term strategies and disregards short-term patterns that fail to provide clear signals. Investors in this index tend to focus on fundamentals, making seasonal trends less relevant in their decision-making process. This focus on fundamentals, such as earnings reports, growth potential, and economic conditions, ensures that investment decisions are grounded in substantive analysis rather than speculative trends. Additionally, the diversity across sectors helps dilute any isolated temporal effects, reinforcing the conclusion that the Week Four effect holds minimal significance in this context.

The Effect of Week Four on Stock Returns: Investor33 Index Companies

The second hypothesis, asserting that the Week Four effect influences stock returns, is accepted. The t-test conducted to evaluate this hypothesis reveals a significance value of 0.0186, which is below the commonly accepted threshold of $\alpha = 0.05$. This statistical result indicates a strong likelihood that the Week Four effect has a tangible and significant impact on stock returns

among companies listed in the Investor 33 Index. The low significance value reduces the probability that this finding occurred by random chance, thereby lending robust support to the hypothesis and underscoring the Week Four effect as a noteworthy phenomenon in stock market behavior.

This significant coefficient suggests a distinct and measurable pattern in stock returns during the fourth week of the month for these companies. Drawing from signaling theory, such a pattern can be considered a valuable indicator for investors, providing critical insights that aid in making informed investment decisions. The recurring nature of this effect implies that it could serve as a predictive tool, helping investors anticipate market movements based on historical performance trends. Seasonal trends like the Week Four effect are often shaped by predictable market forces and investor behaviors, such as end-of-month portfolio rebalancing. These adjustments can create substantial buying or selling pressures, which in turn influence stock prices and contribute to the observed effect.

These findings align closely with well-documented seasonal patterns in capital markets, highlighting phenomena such as "window dressing" practices. Window dressing refers to the strategic manipulation of financial statements and portfolio holdings by fund managers and companies to present an enhanced financial position at the end of reporting periods, typically month-end or quarter-end. This practice often results in increased transaction volumes and heightened market volatility as companies and fund managers make last-minute trades to adjust their portfolios. The surge in trading activity associated with window dressing can significantly impact stock returns, creating short-term price movements that reflect not just fundamental values but also strategic positioning by market participants. Consequently, the Week Four effect observed in this study appears to be part of a broader pattern of seasonal influences driven by both institutional behavior and investor psychology.

The Effect of January Effect on Stock Returns in: Kompas 100 Index Companies

The third hypothesis, which suggests that the January effect influences stock returns, is rejected based on statistical analysis. The t-test conducted for this hypothesis reveals a significance value of 0.466. This value is notably higher than the standard significance threshold of $\alpha = 0.05$. A significance value exceeding this threshold implies that the observed results are not statistically significant, meaning there is insufficient evidence to support that the January effect has an impact on stock returns for companies listed in the Kompas 100 Index. Hence, the data does not confirm the presence of a January effect in influencing stock performance within this context.

The January effect is generally understood as a phenomenon where stock returns tend to be higher in January, often attributed to increased investor optimism following the year-end holidays. This effect is thought to be driven by factors such as tax-related stock selling in December and subsequent repurchasing in January, as well as renewed investment strategies at the beginning of the year. However, in the case of the Kompas 100 companies, this typical pattern is not observed. The analysis indicates that stock returns in January do not show significant deviations attributable to the January effect. This absence suggests that investor behaviour in the context of the Kompas 100 does not strongly align with the seasonal trends often seen in other markets.

Considering signaling theory, which posits that markets react to signals or information that may influence investor decisions, the lack of a January effect suggests that such signals at the start of the year do not have a pronounced impact on the Kompas 100 Index. Companies within this index are generally mature entities with a broad and diverse investor base that relies heavily on fundamental analysis rather than speculative or seasonal factors. The robustness of these companies, coupled with their focus on long-term performance indicators, diminishes the impact of transient, seasonal fluctuations. Furthermore, the Kompas 100 Index encompasses a variety of sectors, each with different levels of sensitivity to seasonal changes. This diversity likely dilutes any singular seasonal effect, such as the January effect, leading to its overall insignificance in the index's performance.

The Effect of January Effect on Stock Returns: Investor33 Index Companies

The fourth hypothesis, asserting that the January effect influences stock returns, is accepted based on statistical evidence derived from the t-test analysis. The calculated significance value of

0.0295 falls below the commonly accepted α threshold of 0.05. This statistical outcome implies that the likelihood of observing such an effect due to random chance is minimal, thus confirming the hypothesis. The January effect, therefore, exerts a substantial and quantifiable influence on stock returns, particularly within companies listed on the Investor33 Index. This finding underscores the importance of considering seasonal anomalies when analyzing stock market performance.

In the context of signaling theory, the January effect can be interpreted as a manifestation of investor optimism that typically emerges at the beginning of each new year. This optimism is often fueled by fresh expectations surrounding economic growth prospects and anticipated improvements in corporate performance. As investors anticipate positive developments, they adjust their investment strategies accordingly, leading to a surge in buying activity. This collective behavior results in increased demand for stocks, which, in turn, drives up stock prices and yields higher returns during January. The psychological factors underpinning this optimism, including New Year resolutions to invest more strategically, also play a crucial role in shaping market trends during this period.

Practically speaking, the January effect is more pronounced in companies within the Investor33 Index. These companies generally possess medium market capitalizations, making them more sensitive to seasonal fluctuations compared to larger, more stable corporations. The susceptibility of these companies to seasonal trends is partly due to their market dynamics, where investor sentiment can have a more pronounced impact on stock prices. Additionally, the phenomenon known as "tax-loss selling" significantly contributes to this pattern. Towards the end of the fiscal year, investors often sell off underperforming stocks to realize capital losses for tax benefits. After the new year begins, these same investors frequently repurchase the sold stocks, creating a surge in demand and contributing to the January effect.

This observed January effect highlights predictable patterns in market behavior, indicating that both global and Indonesian capital markets are not entirely efficient. The existence of such seasonal anomalies suggests that market prices do not always fully reflect all available information, as posited by the efficient market hypothesis. Instead, collective investor actions, driven by behavioral and psychological factors, introduce recurring patterns such as increased returns in January. Recognizing these patterns can provide valuable insights for investors and financial analysts aiming to optimize their investment strategies.

Conclusion

This study meticulously explored the impact of market anomalies, specifically the Week Four and January effects, on stock returns of companies listed on the Kompas 100 and Investor33 indices over a five-year period from 2018 to 2022. The key findings reveal distinct behavioural patterns between the two indices regarding these anomalies. For the Kompas 100 index, the Week Four effect was found to have no significant impact on stock returns. This conclusion is supported by a t-test significance value of 0.7909, which is well above the conventional threshold of 0.05 for statistical significance. This indicates that weekly patterns, such as the Week Four effect, are unreliable predictors for investors in this index. Instead, stock returns within the Kompas 100 are predominantly shaped by fundamental factors such as company performance, financial health, and macroeconomic conditions like economic growth rates, interest rates, and inflation. These factors outweigh seasonal or weekly trends, highlighting the index's resilience to short-term market fluctuations.

Conversely, the study observed a significant impact of the Week Four effect on the Investor33 index. The t-test yielded a significance value of 0.0186, which falls below the 0.05 threshold, indicating a meaningful correlation. This finding suggests that the Investor33 index is more susceptible to seasonal patterns, including the "window dressing" phenomenon, where fund managers adjust portfolios towards the end of reporting periods to improve the appearance of performance. Additionally, portfolio rebalancing activities, often conducted in the final week of the month to align with investment strategies and risk profiles, contribute to heightened volatility and returns during this period. Such behavioural tendencies among institutional and individual investors amplify the Week Four effect's influence on the Investor33 index.

Similarly, when examining the January effect, the study found no significant influence on stock returns within the Kompas 100 index.

The t-test significance value of 0.466 reinforces this conclusion, suggesting that investors in this index are less swayed by seasonal market optimism typically observed at the start of the year. Instead, these investors tend to adopt a long-term investment horizon, focusing on companies' growth prospects, stable earnings, and sustainable competitive advantages rather than short-term market fluctuations. This investor behaviour contributes to the Kompas 100's stability and reduced sensitivity to seasonal anomalies.

In contrast, the January effect significantly influences the Investor33 index, as evidenced by a t-test significance value of 0.0295. This outcome reflects heightened investor optimism and increased trading activity at the beginning of the year. Psychological factors, such as the "new year, new strategy" mindset, drive investors to reallocate assets, anticipating favourable economic conditions and corporate performance. Additionally, strategies like "tax-loss selling," where investors sell underperforming stocks at year-end for tax benefits and reinvest in January, further amplify this effect. Such seasonal dynamics contribute to higher volatility and returns within the Investor33 index during this period.

A comparative analysis between the two indices underscores the Investor33's heightened responsiveness to seasonal anomalies. The index exhibits higher average returns and greater variability, with significant impacts from both the Week Four and January effects. This suggests that the Investor33 index is more attractive to investors with a preference for high-risk, high-return opportunities, as it offers the potential for substantial gains driven by market anomalies and investor behaviour. In contrast, the Kompas 100 index demonstrates lower volatility, with returns primarily influenced by non-seasonal factors. This stability appeals to conservative investors who prioritise consistent, long-term growth over short-term gains.

Regression models employed in the study further support these observations. The Investor33 index showed a stronger explanatory power, with an R^2 value of 75%, indicating that a substantial portion of its return variability can be attributed to the examined market anomalies. Meanwhile, the Kompas 100 index exhibited an R^2 of 51%, suggesting that other factors beyond seasonal effects play a more significant role in explaining its stock return patterns. These findings highlight the contrasting risk-return profiles of the two indices, guiding investors in aligning their strategies with their risk tolerance and investment goals.

The study acknowledges several limitations that may have influenced the results. Firstly, the limited body of existing research on the Week Four effect constrained the depth of analysis and comparison with prior studies. Secondly, the use of aggregated sector data may have introduced biases, as sector-specific dynamics could have been masked, impacting the accuracy of the results. Lastly, inconsistencies in the use of control variables across different models may have affected the robustness of the findings. To address these limitations, future research is recommended to expand literature references on market anomalies, incorporate sector-specific samples to enhance the precision of results, and introduce moderating or intervening variables. Such methodological enhancements will contribute to a more comprehensive understanding of seasonal effects and their implications for diverse investment strategies.

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