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The role of the net purchase of stocks by foreign investors in boosting stock returns: Evidence from the Indonesian stock market☆

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ABSTRACT

Low reporting quality, as demonstrated by lower earnings informativeness, can exacerbate the information asymmetry gap, particularly in emerging markets. Although recent research shows that aggregate earnings can predict future economic growth, accruals, an important earnings component, are more likely to be manipulated in less sophisticated markets. Using data from Indonesia, we examine the impact of foreign stock investors' activities and accruals on stock returns. Our findings show that foreign stock investors' optimism, as measured by their net purchases of stocks, leads to higher excess returns. Foreign investors improve the quality of financial information. They provide benefits through two channels. First, foreign investors' trading value significantly impacts stock prices in a thin market. Second, net stock purchases by foreign investors can help reduce information asymmetry. Our results contribute to the investment strategy by examining the relationship between sentiment generated by foreign investors and stock returns.

1. Introduction

This study examines the combined ability of sentiment (represented by foreign investor transactions) and accrual to explain stock returns in Indonesia. Despite the financial liberalization implemented since the 1980s, Indonesia's market has not demonstrated any signs of efficiency (Kim and Shamsuddin, 2008). Trading rules have more predictive power in emerging markets like Indonesia than in the more developed stock market (Yu et al., 2013; Fifield et al., 2005; Ahmed et al., 2000; McKenzie, 2007). These studies conclude that weak-form efficiency is not supported in Indonesia's stock market. According to those studies and behavioral finance theory, we believe that a trading strategy can be built on public sentiment represented by foreign investor transactions and fundamental information represented by earnings components in financial reports.

Recent literature suggests that aggregate accounting earnings significantly influence macroeconomic indicators, particularly gross domestic product (GDP) (Kausar and Park, 2023). The Bureau of Economic Analysis (BEA) (2007) defines GDP as the leading indicator of economic activity. Henderson et al. (2012) emphasize the importance of GDP when analyzing economic growth. Corporate earnings are included in the computation of GDP, accounting for at least 10% globally (Kausar and Park, 2023). In Europe, nominal corporate earnings and GDP fluctuate similarly (European Central Bank, 2007).

Significant literary works establish a relationship between accounting earnings and other macroeconomic parameters, such as inflation, market returns on equity, and unemployment estimates (Gaertner et al., 2020). Macroeconomic projections are crucial in shaping policy decisions related to investment, fiscal, and monetary policies. BEA (2004)

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asserts that corporate economic activity is the primary driver of macroeconomic growth. Hence, whether accounting earnings, which serve as a measure of corporate economic activity, have the potential to boost macroeconomic growth must be determined. Furthermore, we must identify the specific factors influencing this mechanism.

In addition, Bose et al. (2020) find that foreign funding plays a vital role in improving company performance. Access to foreign funding enables companies to invest in technology and innovation, resulting in a better information environment. This situation, in turn, reduces information asymmetry between firms and third parties.

Accruals provide information on previous transactions and other crucial occurrences for making economic decisions. Investors are interested in financial reporting because it provides decision-making information. When investors become fixated on earnings information, they fail to disentangle the information content of earnings components consisting of accruals and cash flow from operations. Financial statements are prepared on an accrual basis, thus reporting transactions in the period they occur rather than when cash is paid or received. This is important for users of financial statements, especially investors, to understand. In this study, we use accruals to represent financial information items.

Managers exploit the opportunity to include accruals in reported earnings to meet market expectations. Assuming the naive investors' hypothesis, higher accruals stimulate higher returns. According to data from the Indonesia Central Securities Depository (ICSD) for January 2023, 58.55% of individual stock investors are under 30 years old. Individual investors completed high school at a rate of 63.16%, with only 2.55% having a master's or doctorate degree. These statistics show that most Indonesian stock investors are young and inexperienced individuals.

Drawing on the extensive literature on the market mispricing of accruals, we also use foreign investors' activities as a sentiment indicator to support accrual in explaining stock returns. Because Indonesia produces lower earnings informativeness (Fan and Wong, 2002) and lower information content in earnings announcements (Landsman et al., 2012), investors need complementary information. Including foreign investors' activities in the trading strategy contextualizes this study, and this issue informs investment managers and noise traders.

Following globalization, countries, including the stock market, are becoming increasingly open to the outside world. The exchanges are open to accepting foreign investors. Since the global economic crisis, emerging markets have played a critical role in economic growth (Serletis and Azad, 2020). This condition is exacerbated by global financial integration and liberalization; thus, the role of emerging markets in the global economy is increasing (Vo, 2017). Therefore, global investors must understand the behavior and movements of equity in emerging markets (Jaleel and Samarakoon, 2009). Foreign investors are gradually shifting their investment portfolios to emerging markets because they must diversify and share investment risks internationally (Vo, 2017).

Some economists argue that large and unrestricted foreign capital inflows into an emerging market cause an imbalance, triggering financial instability for the emerging market (Cavallaro and Cutrini, 2019). The massive influx of foreign investors makes it difficult for emerging market policymakers to implement stabilization policies. Moreover, sizable foreign capital inflows cause asset prices to rise, which can lead to asset bubbles and financial instability. As demonstrated in several emerging markets, sudden capital reversals or substantial outflows can cause market disruptions, volatility, and financial crises.

Despite the feared negative impact, capital inflows from foreign investors are significant in financing productive investment and economic growth (Cavallaro and Cutrini, 2019). According to Zhang et al. (2020), foreign institutional investors' investments help eliminate mispricing in emerging markets. Foreign institutional investors actively traded stocks to outperform their benchmarks because they can deal with "stale" information in asset valuation. Several studies on the performance of foreign investors show differences between countries. However, foreign investors' trading activities attract a variety of parties, particularly domestic investors in developing countries. Foreign investment has increased the liquidity and volatility of the Indonesian stock market. This has made it easier for Indonesian companies to raise capital, making the market more appealing to domestic investors.

Analyzing foreign trading activities provides information about the flow of capital across borders. It helps economists and governments determine whether a country's capital flows are net inflows or net outflows. This information is critical for determining a country's financial health and economic stability.

According to the report published in January 2023, foreign investors own more than 40% of Indonesian securities (ICSD, 2023). Furthermore, the stock market capitalization of listed domestic companies in Indonesia is only 1.2% that of US-listed firms (World Bank, 2022). It highlights the impact of foreign investors in affecting the Indonesian stock market. Foreign stock investment exceeds market capitalization in emerging markets (Vo, 2017). Foreign investors have significant resources to conduct sophisticated analyses. Since they provide significant funds in emerging markets, they must make the right investment to avoid the higher exit cost. Therefore, foreign investors are sophisticated investors with extensive experience and knowledge of capital markets. Market participants can fine-tune their stock trading strategies by replicating the transactions of these sophisticated investors. Foreign trading impacts market sentiment because it affects such large sums of money and transactions. If foreign investors' net stock purchases increase, the stock's market perception improves, and vice versa.

Our sample includes 1985 firm-years from 2016 to 2021, obtained from the Indonesian Stock Exchanges (IDX) and Unicorn Data Services. We track foreign investor transactions based on net stock purchases.

The results support our hypotheses. Foreign investor sentiment, in particular, affects stock returns. Positive sentiment is reflected in net stock purchases by foreign investors. Regarding our hypothesis, we find evidence of a positive relationship between net stock purchases by foreign investors and returns. We also find evidence supporting the use of accrual to predict returns. We document that the net stock purchases by foreign investors can be used as complementary information to accrual. These findings are important for investors to make sound investment decisions. Our results also benefit regulators as policymakers seeking more transparent information. Governments can also use data on net stock purchases by foreign investors to analyze the effectiveness of their policies for attracting foreign investment or controlling capital outflows. Policymakers can adjust strategies in response to observed net stock purchasing trends.

Foreign investors' activities in emerging stock markets provide real context because they typically have more substantial funds than local investors. Following foreign investors' stock trading activities gives retail investors a signal to invest, allowing them to be free riders.

Our research is crucial because the IDX authority recently closed information on domicile codes for investors. Since June 2022, the stock trading monitor no longer publishes information on foreign trading activities. Our article focuses on the last period in which foreign investors' trading codes were not closed.

In relation to this phenomenon, we provide empirical evidence to investors on how foreign investors, acting as proxies for sophisticated investors, perform and how domestic investors react to their trading activities. Domestic investors can benefit from foreign investors' sophisticated information processing by imitating their trading activities and enhancing the informativeness of financial reports.

Foreign investors' net purchases of stocks can positively impact the informativeness of financial information items by increasing demand for the stock, driving up the price, and increasing the perception of such information's reliability as a predictor of firm future performance.

Our study contributes to both theoretical and practical purposes. From a theoretical perspective, this paper builds a bridge between studies on stock trading strategies using accrual and foreign investor stock transactions on the Indonesian stock market. This paper aims to

connect two areas of research: the use of earnings components in trading strategies and foreign investors' transactions in the Indonesian stock market. The goal is to provide information on how foreign investors' trading behavior in the Indonesian stock market can be analyzed and understood using accruals. This research provides a deeper understanding of the complex relationships between financial statements, investor behavior, and stock market dynamics.

This study makes a number of practical contributions. First, our research proposes that foreign investors' stock transactions are complementary information to accrual, given that Indonesian firms produce low earnings informativeness (Fan and Wong, 2002) and low information content (Landsman et al., 2012). Accrual information can be confusing for most investors, particularly those who are inexperienced. Therefore, information on foreign investor activities, which represent sophisticated and informed investors, will greatly assist naive and uninformed investors in absorbing the information content of the earnings components.

Second, our findings suggest that retail investors can use foreign investors' net purchases of stocks as part of their trading strategy to reduce risk by avoiding stocks with higher foreign net sales, and vice versa. Net purchases of foreign investments can have an important impact on a country's overall stock market performance. They can play an important role in determining a country's foreign investment level. In this sense, understanding the behavior and motives of foreign investors and their net stock purchases is crucial to make informed investment decisions.

Third, the study's results are expected to contribute IDX authorities regarding the disclosure of information about foreign investors' trading activities. Effective June 27, 2022, the Indonesian government issued a decree to close information on foreign investor activity on the stock trading monitor. Our study focuses on the period immediately preceding the decision. Our study contributes to the IDX authorities by demonstrating how foreign investors' transaction activities improve naive and retail IDX investors' quality of their investment decisions. We believe that this unique condition provides an important context for our research.

Fourth, this study emphasizes the importance of understanding the link between trading volume and price movements. In their study of volatility and trading volume in energy markets, Ftiti et al. (2017) emphasized the importance of understanding trading volume and price behavior for market participants and policymakers in order to improve trading strategies and investment decision quality. Furthermore, Ftiti et al. (2017) emphasized the importance of real-time disclosure of trading volume and prices, which are inextricably linked to information flow.

Fifth, our research builds on previous studies showing that the quality of accounting information, particularly accruals, can improve its effectiveness in forecasting economic performance (Kausar and Park, 2023). Therefore, economic forecasters should benefit from this research as well.

The remainder of this article is structured as follows: Section 2 focuses on hypothesis development. Section 3 describes the data and methodology. Section 4 presents the results and discussion. Finally, Section 5 concludes the paper.

2. Literature review and hypothesis development

2.1. Research context

The impact of sentiment on the stock market is profound. It generates noise and has a greater impact than essential information. Consequently, markets become inefficient. Noise in the form of expectations usually does not follow rational rules and encourages over- and undervaluation (Black, 1986; De Bondt and Thaler, 1985, 1990; Landsman et al., 2012). The role of noise is increasing in emerging markets, resulting in less efficient capital markets. The tests suggest that the Asian markets are weak-form inefficient, including Indonesia (Kim and Shamsuddin, 2008), supported by Yu et al. (2013), Fifield et al. (2005), Ahmed et al. (2000) and McKenzie (2007).

From the information content of financial statement perspectives, Indonesia has lower earnings informativeness (Fan and Wong, 2002) and lower information content in earnings announcements (Landsman et al., 2012). Leuz et al. (2003) also present evidence that Indonesian firms have higher earnings management levels than other Asian countries.

The Indonesian stock market is one of the emerging markets with low market capitalization. According to World Bank data, listed domestic companies in Indonesia have a market capitalization of less than 0.6% of global markets. Only small funds moving from the US or other stock markets will cause the Indonesian market to jump or crash substantially. As a result, foreign trade activities must be discussed within the Indonesian context.

From an Indonesian perspective, foreign investors have a wealth of resources at their disposal when investing. With vast resources, they can gain access to information and perform better analyses (Syamala and Wadhwa, 2019). Therefore, foreign investors benefit emerging markets by encouraging domestic firms to provide higher-quality information.

The IDX authority recently closed information on investor domicile codes for 2022. This regulation is outlined in the IDX Authorities Decree S-04920/BEI.IBI/06–2022, which takes effect on June 27, 2022. Since then, information about foreign trading activities has been removed from the trading monitor. This circumstance provides important context to our study.

2.2. Accrual and stock returns

Standard-setters and investors must understand the informative value of financial statements. In comparison to the other elements of the financial statement, the information about earnings is of the highest significance and relevance (Barth et al., 2023). High-quality financial reports increase accruals' ability to reflect forward-looking information about actual economic activity at the corporate and aggregate levels (Gaertner et al., 2020; Kausar and Park, 2023).

Earnings include cash flows and accrual transactions. The accrual basis records all transactions as they occur, rather than when cash is received or disbursed. Using accruals to determine earnings means that companies record revenue when it is earned rather than when cash is received. Similarly, expenses are recorded as they occur rather than when the company issues cash to pay them. The accrual-based recording is intended to accurately reflect the company's underlying performance. However, accruals can be abused, causing investors to make ineffective investment decisions.

There are two types of accruals: nondiscretionary and discretionary. Discretionary accruals have become an important aspect of accounting research because they allow management to determine the number of accruals to include in earnings. This freedom is referred to as earnings management.

Meanwhile, investors consider earnings data to be critical company information. Previous studies have shown that investors trade around the earnings announcement date (Kaniel et al., 2008; Landsman et al., 2012). Since earnings management affects reported earnings, it also affects stock returns and investors' wealth (Chan et al., 2006; Wu et al., 2012).

Most earnings management, represented by accruals or discretionary accruals, focuses on an opportunistic incentive to engage in earnings management, even if the underlying goal is difficult to discern (Cruz and Luiz, 2015). However, investors are more enthusiastic about higher accruals. Presenting more accruals results in a higher stock return for the current year. As a result, we construct our first hypothesis using the following steps.

H1. Accruals positively affect extra returns.

2.3. Net purchases of stocks by foreign investors and quality of accruals

Most investors may find earnings management measurement more complex. They must recognize the importance of this variable in making investment decisions. While earnings management influences the quality of reported earnings, it does not seem to mislead investors. Haw et al. (2005) found that investors can assess the quality of managed earnings and make informed investment decisions. Sophisticated investors typically possess the ability to process earnings management information (Cruz and Luiz, 2015).

Investors are aware that the earnings in the financial statements include earnings management. However, due to limited access and resources, investors require assistance in determining whether the reported earnings accurately reflect the company's economic performance. Investors require additional information to support their investment decisions. Analysis of foreign investors' trading behavior can reveal sentiment and confidence. High net purchases of stocks by foreign investors may indicate optimism about the company's economic prospects, while significant outflows may indicate concern or uncertainty.

There are at least two channels through which foreign investors' stock trading can generate additional returns. The first channel comes from the trading value. Value usually significantly affects the stock returns. Hence, it is not surprising that foreign investor trading activity generates sentiment to the market. Luo and Li (2008) state that foreign investment is an important factor in shaping market sentiment. When a stock's purchasing (selling) volume exceeds its selling (purchasing) volume, the sentiment is positive (negative) (Luo and Li, 2008). Positive (negative) sentiment pushes stock prices higher (lower) than they should be, resulting in higher (lower) additional returns.

Second, foreign investors in emerging markets are thought to have greater resources when selecting an investment portfolio. They can have better access to information and conduct more sophisticated analyses than domestic investors (Hamao and Mei, 2001). Given foreign investors' sophistication, their trading behavior is likely to be emulated by domestic and/or retail investors. When foreign investors have a positive sentiment through a net stock purchase, this behavior is followed by almost all investors. The stock price will rise, and the additional returns will increase.

In the Indonesian stock market, both channels are critical variables that affect stock returns. We believe that retail investors can use foreign purchase information as a signal to invest in a stock because they interpret foreign stock market transactions as validation that the stock's performance will be positive. According to rational theory, foreign transactions cannot affect firms' future cash flows, so the stock price should be unaffected. However, assuming behavioral finance, noise traders view net foreign investor stock purchases as information because they contribute to investors' perceptions that acquired firms benefit foreign investors.

Foreign investors have access to information and data processing, which helps them make better investment decisions. Chen et al. (2009) find that foreign investors' trading activities in Taiwanese closed-end funds outperform those of domestic investors because foreign investors are more sophisticated than domestic investors in processing and interpreting the same publicly available information.

Foreign investor activities that provide superior information boost confidence in the market and its financial reporting. As a result, we anticipate that a positive sign in the net purchases of stocks by foreign investors coefficient will indicate a positive sentiment toward a stock, increasing the information contained in accruals and discretionary accruals.

H2. The joint effect of accruals and net purchases of stocks by foreign investors positively affects extra returns.

3. Data and methodology

The sample comprises Indonesian-listed stocks from 2016 to 2020. Our data are sourced from the IDX and Unicorn Data Service.

3.1. Variables measurement

Excess returns. The excess return (EXRET) is the difference between the firm i's stock return and the market return for period t. In this study, we utilized the annual EXRET. Stock returns and market returns are calculated annually from the first week of April in the period t to the fourth week of March at t + 1, because companies that list on the IDX must publish their financial statements no later than 90 days after December 31.

Accruals. This study utilizes two accrual measurements: 1) accruals (ACC) and 2) discretionary accruals (DAC) as an indicator of earnings management. ACC is calculated by subtracting operating cash flow from net income. All variables are divided by the beginning total assets. This study uses the Kothari model (Kothari et al., 2005) to calculate DAC. Our model for estimating DAC is based on the following cross-sectional model estimated for each sector of the IDX:

$$TACC_{i,t} = \alpha_0 + \alpha_1 \frac{1}{TA_{i,t-1}} + \alpha_2 \left(\frac{\Delta REV_{i,t}}{TA_{i,t-1}}\right) + \alpha_3 \left(\frac{PPE_{i,t}}{TA_{i,t-1}}\right) + \alpha_4 \left(\frac{NI_{i,t}}{TA_{i,t-1}}\right) + e_{i,t} \quad (1)$$

TACC refers to total accruals firm i at period t. TACC is calculated by deducting operating cash flow from net income. ΔREV is the difference between revenue periods t and t−1, and PPE stands for property, plant, and equipment. Net income in period t is used to control discretionary accruals based on performance. All listed variables are divided by lagged total assets (TA).

The estimated coefficients from Equation (1) are used to estimate firm-specific nondiscretionary accruals ($NDAC_t$):

$$NDAC_{i,t} = \alpha_0 + \alpha_1 \frac{1}{TA_{i,t-1}} + \alpha_2 \left(\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{TA_{i,t-1}}\right) + \alpha_3 \left(\frac{PPE_{i,t}}{TA_{i,t-1}}\right) + \alpha_4 \left(\frac{NI_{i,t}}{TA_{i,t-1}}\right) + e_{i,t} \quad (2)$$

$NDAC_{i,t}$ refers to nondiscretionary accruals at period t. ΔREC refers to the change in receivables. All of the listed variables are divided by lagged TA. We use the discretionary accruals proposed by Kothari et al. (2005) to measure earnings management. Nondiscretionary accruals are calculated during the period in which earnings management is hypothesized.

$$DAC_{i,t} = TACC_{i,t} - NDAC_{i,t} \quad (3)$$

$DAC_{i,t}$ refers to discretionary accruals as a proxy of earnings management.

Foreign transactions. Foreign transactions consider the purchase and sale of shares in relation to the total volume of stocks traded in a given period; both are measured in volume. We use a dummy variable for foreign transactions. If the proportion of foreign net purchases relative to total volume traded is greater than foreign net sales relative to total volume during a given period, we assign 1 to a dummy D_FBuy and 0 otherwise. Foreign investors' net purchases (sales) of stocks are the difference between the stocks they purchased (sold) and the stocks they sold (purchased).

Firm size. According to Hou and Van Dijk (2019), the size of the firm significantly impacts stock returns. Using the banking sector in the United States, they found that the larger the size of commercial banks, the lower the risk-adjusted returns of small and medium-sized commercial banks. We use the natural logarithm of TA (FSIZE) at the beginning of the period to calculate the firm's size.

Leverage. Bradshaw et al. (2004) find that leverage lowers stock returns and increases financial risk and inflexibility (Ehrhardt and

Brigham, 2003). Investors do not favor this condition, which hurts the company's stock price. We use the total debt-to-total asset ratio (DAR) to represent leverage.

Operating cash flow (OCF). Previous studies find that operating cash flow positively affects stock returns (Kariuki et al., 2015). Regarding this issue, we include operating cash flow as a control variable. This study divides the operating cash flow for period t by the beginning TA.

Tax planning. Tax planning is an essential part of management activities. Tax planning reduces tax liability while adhering to applicable tax regulations. From the investor's perspective, taxes are the amount of cash paid out by the company, reducing the company's resources. Thus, effective tax planning is regarded as a value-enhancing activity (Hanlon and Heitzman, 2010). In this study, we use the income tax expense-to-net income ratio (ETR) as a proxy for tax planning. Lower ETR indicates that tax planning is more effective.

The model for testing our first hypothesis is as follows:

$$EXRET_{i,t} = \beta_0 + \beta_1 D\_FBuy_{i,t} + \beta_2 ACC_{i,t} + \beta_3 OCF_{i,t} + \beta_4 FSIZE_{i,t-1} + \beta_5 DAR_{i,t} + \beta_6 ETR_{i,t} + \varepsilon_{i,t} \quad (4)$$

$$EXRET_{i,t} = \beta_0 + \beta_1 D\_FBuy_{i,t} + \beta_2 DAC_{i,t} + \beta_3 OCF_{i,t} + \beta_4 FSIZE_{i,t-1} + \beta_5 DAR_{i,t} + \beta_6 ETR_{i,t} + \varepsilon_{i,t} \quad (5)$$

EXRET stands for extra returns, and D_FBuy is a dummy variable that equals 1 if the proportion of net foreign purchases exceeds that of foreign net sales in total volume traded and 0 otherwise. ACC represents the number of earnings accruals, whereas DAC represents earnings management as measured by the Kothari model. OCF denotes the operating cash flow for this period, FSIZE is the natural logarithm of TA, DAR is total debt divided by TA, i refers to individual firm, and t is the current period. H_1 is supported when $\beta_2 > 0$.

To test the second hypothesis, we use the following model:

$$EXRET_{i,t} = \beta_0 + \beta_1 D\_FBuy_{i,t} + \beta_2 ACC_{i,t} + \beta_3 ACC_{i,t} \times D\_FBuy_{i,t} + \beta_4 OCF_{i,t} + \beta_5 FSIZE_{i,t-1} + \beta_6 DAR_{i,t} + \beta_7 ETR_{i,t} + \varepsilon_{i,t} \quad (6)$$

$$EXRET_{i,t} = \beta_0 + \beta_1 D\_FBuy_{i,t} + \beta_2 DAC_{i,t} + \beta_3 DAC_{i,t} \times D\_FBuy_{i,t} + \beta_4 OCF_{i,t} + \beta_5 FSIZE_{i,t-1} + \beta_6 DAR_{i,t} + \beta_7 ETR_{i,t} + \varepsilon_{i,t} \quad (7)$$

H_2 is supported if $\beta_3 > 0$.

Table 1 shows the sample selection process. This study uses non-missing data from firms listed on the IDX between 2016 and 2021. After considering the criteria in Table 1, we have a total observation of 1985 firm-years.

Table 2 shows the descriptive statistics of the sample. The mean value of $EXRET_{i,t}$ is 0.176, whereas $ACC_{i,t}$ and $DAC_{i,t}$ are −0.02 and −0.013, respectively. The corresponding standard deviation is 1.419, 0.147 and 0.117, respectively. On average, most sample firms tend to present negative accrual and discretionary accrual and use a considerably income decreasing strategy.

Furthermore, the average value for $D\_Fbuy_{Ii,t}$ is 0.383. In approximately 38.3% of our observations, foreign net purchases of stocks exceeded net sales. The minimum value for the proportion of net stock purchases by foreign investors is −0.967. In contrast, the maximum value of the proportion of net purchases of foreign investors' shares is 0.921. We suggest that foreign investors' combined net purchase and sale of stocks results in nearly equal trading volume.

Table 3 reports the Pearson and Spearman correlation matrices for the analysis variables. When Pearson's correlation is applied, the two

Table 1
Sample selection.

Descriptions	Firm-years
Firms listed on the IDX 2016–2021	2031
Firms with incomplete data	(25)
Firm-years with extreme values	(21)
Total observations	1985

Table 2
Descriptive statistics (n = 1985).

	Minimum	Maximum	Mean	Std. Deviation
$EXRET_{i,t}$	−1.318	32.061	0.176	1.419
$D\_FBuy_{i,t}$	0.000	1.000	0.383	0.486
$ACC_{i,t}$	−0.726	3.338	−0.020	0.147
$DAC_{i,t}$	−0.603	0.744	−0.013	0.117
$FSIZE_{i,t-1}$	17.779	34.887	27.622	3.578
$DAR_{i,t}$	0.001	5.082	0.575	0.407
$OCF_{i,t}$	−3.956	0.651	0.044	0.152
$ETR_{i,t}$	−18.879	24.202	0.373	1.657
$PropFnetbuy/Volume_{i,t}$	−0.967	0.921	−0.024	0.124

earnings component measures, $ACC_{i,t}$ and $DAC_{i,t}$, show a significant relationship with $EXRET_{i,t}$. $D\_FBuy_{i,t}$ is not significantly correlated with $EXRET_{i,t}$. $ACC_{i,t}$ is significantly and positively correlated with $DAC_{i,t}$. Both variables represent earnings management using different measurement. They both have a significant and negative relationship with $OCF_{i,t}$, indicating that firms present more (fewer) accruals when operating cash flow is lower (higher).

4. Empirical results and discussion

4.1. Empirical results

Table 4 displays the results of the accrual effect test (accruals and discretionary accruals) on extra returns. The positive effect on extra returns may imply that companies with higher accruals and discretionary accruals are perceived to be more profitable or have better long-term growth prospects, which may result in higher stock prices and returns. These findings provide support for H_1.

Table 5 shows the results of the regression analysis. Panel A examines the effect of foreign investors' accrual and net stock purchases on stock returns, whereas Panel B uses discretionary accrual as a proxy for earnings management.

To test for endogeneity, the first step is to perform a regression on Equation 6 and save the regression error (ResidACC). The next step is to perform a regression of Equation (6), replacing the accrual variable with the first step's error. We selected accruals because it is the interest variable in Equation (6). We found that the ResidACC coefficient had no significant effect, so we concluded that there was no endogeneity in the equation we used. Similarly, we perform Equation (7), with DAC as the variable of interest. The results of the endogeneity test show that Equation (7) is also free of endogeneity issues because the residual (ResidDAC) has no significant effect. Our test shows that there is no endogeneity issue in the model. Appendix 1 contains our endogeneity test results.

Our paper begins with a simple model in column (1) that includes only the main variable of interest, $D\_FBuy_{i,t}$ and year-fixed effects. The coefficient estimates on $D\_FBuy_{i,t}$ in column (1) are significantly positive, implying that firms with net stock purchases by foreign investors have higher excess returns. $D\_FBuy_{i,t}$ also increases the impact of accrual ($ACC_{i,t}$) on returns. In columns (2), (3), (4), and (5), we add more control variables while maintaining a positive and significant coefficient on $D\_FBuy_{i,t}$.

The moderating effect of foreign investors' net purchases of stocks ($D\_FBuy_{i,t}$) is also examined. $ACC_{i,t} \times D\_FBuy_{i,t}$ has a higher positive coefficient than $ACC_{i,t}$, implying that accrual increases returns for firms with more foreign buyers. The $ACC_{i,t} \times D\_FBuy_{i,t}$ coefficient shown in all columns is statistically significant at 1%. H_2 is supported. The effect of accruals and net purchases from foreign investors generates higher returns.

Expanding the test, we use discretionary accrual to represent earnings management, a component of earnings affected by management judgment. Table 4 Panel B, column (1) shows that $D\_FBuy_{i,t}$ positively affects $EXRET_{i,t}$. The coefficient is significant. After adding control

Table 3
Correlation matrix (n = 1985).

	$EXRET_{i,t}$	$D\_FBuy_{i,t}$	$ACC_{i,t}$	$DAC_{i,t}$	$FSIZE_{i,t-1}$	$DAR_{i,t}$	$OCF_{i,t}$	$ETR_{i,t}$	PropFnet buy/$Vol_{i,t}$
$EXRET_{i,t}$	1	0.007	0.026	−0.050*	−0.019	0.009	0.099**	0.087**	0.022
$D\_FBuy_{i,t}$	0.037	1	0.081**	−0.010	−0.052*	0.027	−0.020	0.006	0.842**
$ACC_{i,t}$	0.066**	0.061**	1	0.580**	0.138**	0.099**	−0.666**	0.079**	0.052*
$DAC_{i,t}$	0.068**	−0.009	0.508**	1	−0.010	0.114**	−0.622**	−0.031	0.000
$FSIZE_{i,t-1}$	−0.072**	−0.017	0.067**	0.005	1	0.2220**	−0.054*	0.116**	−0.138**
$DAR_{i,t}$	0.087**	0.025	0.130**	0.072**	0.023	1	−0.236**	0.062*	0.043
$OCF_{i,t}$	−0.055*	−0.034	−0.736**	−0.519**	−0.023	−0.234**	1	0.147**	−0.045*
$ETR_{i,t}$	0.002	−0.013	0.022	0.032	0.018	−0.000	0.003	1	−0.023
PropFnet buy/$Vol_{i,t}$	0.029	0.485**	0.023	0.034	−0.062**	0.033	−0.047*	−0.002	1

The upper part is the Spearman correlation; the lower part is the Pearson correlation.
*The correlation is significant at the 0.05 level (two-tailed).
**The correlation is significant at the 0.01 level (two-tailed).

variables to columns (2), (3), (4), and (5), we find the same patterns as in our previous test in Panel A. All equations in Panel B show that $D\_FBuy_{i,t}$ mitigates the effect of $DAC_{i,t}$ on $EXRET_{i,t}$. All tests are statistically significant at the 1% level. Firms with higher discretionary accruals generate higher returns when foreign investors dominate transactions during the year. The results show that accruals and foreign investors' net purchases of stocks have a combined effect, stimulating additional returns.

In summary, Table 5 shows that net purchases of stocks by foreign investors enhance the impact of accruals (or discretionary accruals) on stock returns. Additionally, the control variables' coefficients, represented by firm size, produce lower returns. Meanwhile, firms with higher levels of debt generate higher excess returns.

Fig. 1 shows the average EXRET based on accruals and net purchases of stocks by foreign investors. ACC is separated into two categories: D_Accruals equals 1 if Accruals is positive and 0 otherwise. D_FBuy = 1 if foreign investors' net purchases are positive during the period and 0 otherwise.

Group samples with positive accruals (D_Accruals = 1) and net stock purchases by foreign investors (D_FBuy = 1) outperform other sample groups. This group's EXRET is significantly higher than the other sample groups. This finding lends support to H_2. The joint effect between accruals and foreign investors' net purchases of stocks generates higher extra returns.

We calculate cluster standard errors for our regression equations to be more cautious. In this study, we use white regression, which is performed using both period-clustered and cross-sectional clusters. The results are presented in Table 6.

4.2. Additional analysis

Given that nearly half of Indonesia's listed firms lack intangible assets, we divided the sample into firms with and without intangible assets. The proportion of firms with (without) intangible assets is 55% (45%). Barth et al. (2023) argue that the earnings informativeness of new and non-new economy firms may produce different results. Intangible assets are one of the most important components for firms transitioning to the new economy. Intangible assets are also more difficult to value because they lack physical representation. In this situation, management has more leeway when reporting intangible assets (Wu and Lai, 2020). Ho and An (2020) demonstrate that intangible assets cause investors to overreact in the Chinese stock market. As a result, firms with intangible assets generate more investor responses, despite being vulnerable to future crashes.

Table 7 shows the hypothesis testing with different samples. Columns (1) and (2) examine at the regression analysis for firms with intangible assets. Columns (3) and (4) test data from firms that do not have intangible assets.

Based on the firms with intangible assets presented in columns (1) and (2), we find that foreign investors' net purchase of stocks positively impacts returns. The coefficient of $D\_FBuy_{i,t}$ is statistically significant at 1%. Foreign investors' net purchase of stocks also strengthens the effect of accrual to returns (the coefficient of $ACC_{i,t} \times D\_FBuy_{i,t} = 0.893$, significant at 10%). However, $D\_FBuy_{i,t}$ has a greater impact on discretionary accrual, resulting in a higher coefficient (the coefficient of $DAC_{i,t} \times D\_FBuy_{i,t} = 3.565$ and significant at 1%). The discretionary accrual coefficient is 0.195 (not significant), but it increases when interacting with $D\_FBuy_{i,t}$, . H_2 is still supported for firms with intangible assets.

Referring to columns (3) and (4), which include firms without intangible assets, we find that foreign investors' net stock purchases do not affect the $EXRET_{i,t}$. The coefficient of $D\_FBuy_{i,t}$ is insignificant. This means that foreign investors' sentiment primarily affects firms with intangible assets. Foreign investors' activities do not entice other market participants. However, net purchases of stocks by foreign investors continue to amplify the impact of accrual (and discretionary accrual) on returns. $ACC_{i,t} \times D\_FBuy_{i,t}$ and $DAC_{i,t} \times D\_FBuy_{i,t}$ are important for all models (Table 5, Columns 1–4).

Including intangible assets in financial reporting necessitates that more sophisticated readers understand and analyze them. Foreign investors have more investment experience and superior management skills (Vo, 2017) for processing and valuing complex information. Using their resources, they can process information in intangible assets more easily than most retail investors.

We also use univariate tests to enrich our analyses. Table 8 displays the results of an independent sample t-test. Net purchases (sales) of stocks by foreign investors comprise the proportion of foreign investors' net purchases (sales) of stocks to the total volume of stock trading activity. Low and high foreign net purchases (sales) are divided by the average net foreign purchases (sales). Net foreign purchases (sales) that exceed the average are classified as high net foreign purchases (sales), while net foreign purchases (sales) below the average are classified as low net foreign purchases (sales).

We found that the average extra returns of the sample of foreign investors' net purchases of stocks are significantly higher than that of foreign investors' net sales. The results show that net purchases of stocks by foreign investors boost market sentiment and encourage higher extra returns.

Next, we examine the extra returns of companies with low and high foreign net stock purchases. Although a low foreign net purchase generates higher returns than its counterpart, the t-test suggests that the extra returns between the two groups are not significantly different. Our tests show that foreign net purchases send a positive signal to the market in large or small volumes.

By contrast, net sales of stocks by foreign investors produce different results. For investors, foreign investors' high net sales of stocks are a negative signal because they represent capital outflows from the market. Stocks with high foreign net sales have a significantly lower average extra return than companies with low foreign net sales. The results in Table 8 also support H_2.

During the tests, we also look into the role of net stock sales by foreign investors (D_FSell) in explaining the extra returns. Table 9

Table 4
Accruals, discretionary accruals, and excess returns.

Dependent Variable: $EXRET_{i,t}$					
	(1)	(2)	(3)	(4)	(5)
Panel A: Accruals and extra returns					
	Coeff. (t-stat)	Coeff. (t-stat)	Coeff. (t-stat)	Coeff. (t-stat)	Coeff. (t-stat)
C	0.153 (3.765) ***	1.015 (4.097) ***	0.864 (3.450) ***	0.857 (3.423) ***	0.857 (3.420) ***
$ACC_{i,t}$	0.756 (3.482) ***	0.809 (3.727) ***	0.711 (3.262) ***	0.900 (2.796) ***	0.899 (2.790) ***
$D\_FBuy_{i,t}$	0.097 (1.488)*	0.093 (1.420)*	0.089 (1.368)*	0.088 (1.357)*	0.088 (1.359)*
$FSIZE_{i,t-1}$		−0.031 (−3.527) ***	−0.032 (−3.595) ***	−0.032 (−3.626) ***	−0.032 (−3.627) ***
$DAR_{i,t}$			0.287 (3.685) ***	0.300 (3.770) ***	0.300 (3.769) ***
$OCF_{i,t}$				0.250 (0.797)	0.249 (0.795)
$ETR_{i,t}$					0.003 (0.156)
F-Stat	7.277***	8.051***	8.787***	7.880***	7.091***
Adj R^2	0.019	0.024	0.030	0.030	0.030
Period Fixed Effect	Yes	Yes	Yes	Yes	Yes
N	1985	1985	1985	1985	1985
Panel B: Discretionary accruals and extra returns					
	Coeff. (t-stat)	Coeff. (t-stat)	Coeff. (t-stat)	Coeff. (t-stat)	Coeff. (t-stat)
C	0.143 (3.528) ***	0.945 (3.824) ***	0.794 (3.188) ***	0.808 (3.226) ***	0.808 (3.223) ***
$DAC_{i,t}$	0.791 (2.924) ***	0.796 (2.950) ***	0.722 (2.678) ***	0.632 (2.003)**	0.631 (1.995)**
$D\_FBuy_{i,t}$	0.112 (1.714)**	0.109 (1.664)**	0.103 (1.580)**	0.101 (1.554)*	0.101 (1.555)*
$FSIZE_{i,t-1}$		−0.029 (−3.292) ***	−0.030 (−3.394) ***	−0.030 (−3.404) ***	−0.030 (−3.405) ***
$DAR_{i,t}$			0.303 (3.911) ***	0.293 (3.683) ***	0.293 (3.682) ***
$OCF_{i,t}$				−0.135 (−0.542)	−0.135 (−0.544)
$ETR_{i,t}$					0.003 (0.152)
F-Stat	6.671***	7.295***	8.341***	7.444***	6.698***
Adj R^2	0.017	0.022	0.029	0.028	0.028
Period Fixed Effect	Yes	Yes	Yes	Yes	Yes
N	1985	1985	1985	1985	1985

One-tailed test. *, **, and *** sig. at 10%, 5%, and 1%, respectively.

supports the independent t-test results, which show that net sales of shares by foreign investors do not improve the impact of accrual and discretionary accrual on stock performance. When applied to the regression tests in Table 9, $ACC_{i,t} \times D\_FSell_{i,t}$ and $DAC_{i,t} \times D\_FSell_{i,t}$ are insignificant. Conversely, $ACC_{i,t} \times D\_FBuy_{i,t}$ and $DAC_{i,t} \times D\_FBuy_{i,t}$ continue to dominate in terms of increasing the impact of accrual (and discretionary accrual) on stock returns through positive coefficients. These tests are statistically significant at 1%.

4.3. Discussion

Firms in Indonesia produce lower earnings informativeness (Fan and Wong, 2002) and lower information content in earnings announcements (Landsman et al., 2012). The stock market is less efficient (Kim and Shamsuddin, 2008; Yu et al., 2013; Fifield et al., 2005; Ahmed et al., 2000; McKenzie, 2007). Developing those issues, we investigate the impact of accruals and discretionary accruals as earnings components. Both accruals represent a tendency of earnings management. Investors are fixated on earnings, so firms use earnings components to boost stock returns. As predicted, our analysis reveals that accrual and discretionary accruals positively impact stock returns (see Table 4).

Table 5
Moderating effect of foreign transaction.

Dependent Variable: $EXRET_{i,t}$					
	(1)	(2)	(3)	(4)	(5)
Panel A: Moderating effect of foreign transactions on accruals					
	Coeff. (t-stat)	Coeff. (t-stat)	Coeff. (t-stat)	Coeff. (t-stat)	Coeff. (t-stat)
C	0.133 (3.244) ***	0.952 (3.837) ***	0.822 (3.281) ***	0.798 (3.183) ***	0.797 (3.180) ***
$D\_FBuy_{i,t}$	0.122 (1.859) **	0.116 (1.771) **	0.110 (1.676) **	0.113 (1.725) **	0.113 (1.727) **
$ACC_{i,t}$	0.002 (0.005)	0.099 (0.309)	0.105 (0.327)	0.399 (1.104)	0.398 (1.100)
$ACC_{i,t} \times D\_FBuy_{i,t}$	1.385 (3.212) ***	1.298 (3.012) ***	1.124 (2.597) ***	1.381 (3.020) ***	1.382 (3.020) ***
$FSIZE_{i,t-1}$		−0.030 (−3.347) ***	−0.030 (−3.431) ***	−0.031 (−3.475) ***	−0.031 (−3.476) ***
$DAR_{i,t}$			0.262 (3.353) ***	0.287 (3.614) ***	0.287 (3.613) ***
$OCF_{i,t}$				0.573 (1.735) **	0.572 (1.732) **
$ETR_{i,t}$					0.003 (0.171)
F-Stat	7.741***	8.208***	8.583***	8.033***	7.302***
Adj R^2	0.023	0.028	0.033	0.034	0.034
Period Fixed Effect	Yes	Yes	Yes	Yes	Yes
N	1985	1985	1985	1985	1985
Panel B: Moderating effect of foreign transactions on discretionary accruals					
	Coeff. (t-stat)	Coeff. (t-stat)	Coeff. (t-stat)	Coeff. (t-stat)	Coeff. (t-stat)
C	0.130 (3.213) ***	0.937 (3.810) ***	0.789 (3.180)***	0.797 (3.197)***	0.797 (3.196) ***
$D\_FBuy_{i,t}$	0.143 (2.187) **	0.140 (2.139) **	0.134 (2.052) **	0.133 (2.033) **	0.133 (2.032)**
$DAC_{i,t}$	−0.280 (−0.766)	−0.279 (−0.764)	−0.340 (−0.935)	−0.391 (−0.993)	−0.391 (−0.992)
$DAC_{i,t} \times D\_FBuy_{i,t}$	2.341 (4.332) ***	2.350 (4.360) ***	2.323 (4.326) ***	2.315 (4.304) ***	2.314 (4.300) ***
$FSIZE_{i,t-1}$		−0.029 (−3.328) ***	−0.030 (−3.430) ***	−0.030 (−3.435) ***	−0.030 (3.434) ***
$DAR_{i,t}$			0.299 (3.873) ***	0.292 (3.693) ***	0.292 (3.692) ***
$OCF_{i,t}$				−0.084 (−0.338)	−0.084 (−0.338)
$ETR_{i,t}$					0.000 (0.012)
F-Stat	8.451***	8.817***	9.559***	8.611***	7.824***
Adj R^2	0.026	0.031	0.037	0.037	0.036
Period Fixed Effect	Yes	Yes	Yes	Yes	Yes
N	1985	1985	1985	1985	1985

One-tailed test. *, **, and *** sig. at 10%, 5%, and 1%, respectively.

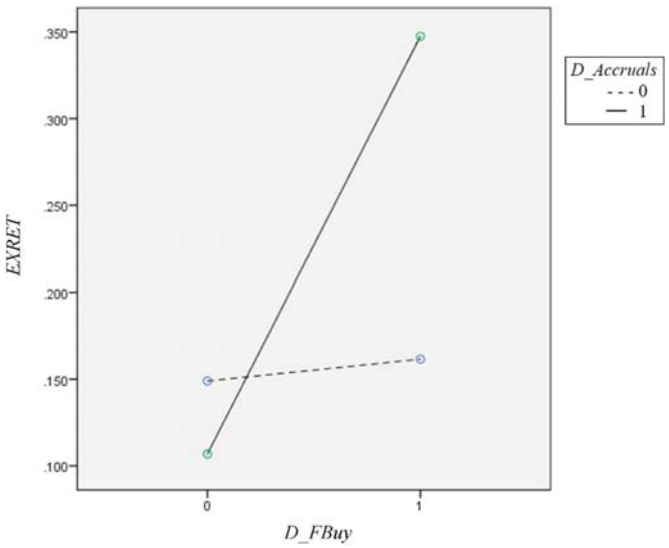

Fig. 1. Extra returns of sample groups based on positive/negative accruals and net purchases/sales of stocks by foreign investors.

Table 6
Clustered standard errors: white regression test.

Dependent Variable: $EXRET_{i,t}$				
	Accruals (ACC) Model		Discretionary Accruals (DAC) Model	
	(1)	(2)	(3)	(4)
	Coeff. (t-stat)	Coeff. (t-stat)	Coeff. (t-stat)	Coeff. (t-stat)
C	0.797	0.797	0.797	0.797
	(1.284)	(1.930)**	(1.339)	(1.895)**
$D\_FBuy_{i,t}$	0.113	0.113	0.133	0.133
	(1.493)	(1.151)	(1.939)*	(1.183)
$ACC_{i,t}$	0.398	0.398		
	(1.472)	(1.046)		
$ACC_{i,t} \times D\_FBuy_{i,t}$	1.382	1.382		
	(1.199)	(1.097)		
$DAC_{i,t}$			−0.391	−0.391
			(−1.006)	(-0.771)
$DAC_{i,t} \times D\_FBuy_{i,t}$			2.314	2.314
			(1.702)*	(1.001)
$FSIZE_{i,t-1}$	−0.031	−0.031	−0.030	−0.030
	(−1.372)	(−2.089)**	(−1.412)	(−2.025)**
$DAR_{i,t}$	0.287	0.287	0.292	0.292
	(2.870)**	(1.839)**	(3.402)**	(1.844)**
$OCF_{i,t}$	0.572	0.572	−0.084	−0.084
	(1.191)	(0.915)	(−0.188)	(−0.149)
$ETR_{i,t}$	0.003	0.003	0.000	0.000
	(0.364)	(0.326)	(0.020)	(0.018)
F-Stat	7.302***	7.302***	7.824***	7.824***
Adj R^2	0.034	0.034	0.036	0.036
White	Period Cluster	Cross-section Cluster	Period Cluster	Cross-section Cluster
N	1985	1985	1985	1985

One-tailed test. *, **, and *** sig. at 10%, 5%, and 1%, respectively.
The results of the clustered standard error show that our model is not robust. Table 6 shows that the $ACC_{i,t} \times D\_FBuy_{i,t}$ and $DAC_{i,t} \times D\_FBuy_{i,t}$, which were previously significant, become insignificant when tested with the cluster standard error. This limitation necessitates a cautious interpretation of our model.

To increase the impact of accruals, we use net stock purchases by foreign investors as a contextual issue in the Indonesian stock market. Foreign investors in emerging markets typically have greater resources and access to information than domestic investors (Hamao and Mei, 2001). In thin markets like IDX, foreign investors represent participants

Table 7
Excess returns, foreign transactions, and accruals based on intangible and tangible assets.

Dependent Variable: $EXRET_{i,t}$				
	Firms with intangible assets		Firms without intangible assets	
	(1)	(2)	(3)	(4)
	Coeff. (t-stat)	Coeff. (t-stat)	Coeff. (t-stat)	Coeff. (t-stat)
C	0.918	1.009	0.859	0.892
	(2.470)**	(2.757)	(2.534)***	(2.620)***
$D\_FBuy_{i,t}$	0.233	0.282	−0.023	−0.030
	(2.457) **	(3.019)***	(−0.254)	(−0.342)
$ACC_{i,t}$	0.681		0.245	
	(1.257)		(0.521)	
$ACC_{i,t} \times D\_FBuy_{i,t}$	0.893		1.320	
	(1.403) *		(1.911) **	
$DAC_{i,t}$		0.195		−0.851
		(0.357)		(−1.460) *
$DAC_{i,t} \times D\_FBuy_{i,t}$		3.565		0.931
		(4.626)***		(1.288) *
$FSIZE_{i,t-1}$	−0.030	−0.033	−0.039	−0.039
	(−2.348)***	(−2.613)***	(−3.171) ***	(−3.169) ***
$DAR_{i,t}$	0.106	0.109	0.525	0.506
	(1.011)	(1.054)	(4.163) ***	(4.022) ***
$OCF_{i,t}$	0.017	−0.416	1.282	0.462
	(0.034)	(−1.379)*	(2.927) ***	(1.000)
$ETR_{i,t}$	0.012	0.002	−0.009	−0.009
	(0.400)	(0.052)	(−0.395)	(−0.390)
F-Stat	5.233***	8.298***	4.928***	4.599***
Adj R^2	0.041	0.069	0.046	0.042
Period Fixed Effect	Yes	Yes	Yes	Yes
N	1083	1083	902	902

One-tailed test. *, **, and *** sig. at 10%, 5%, and 1%, respectively.

Table 8
EXRET based on foreign investors' stock transaction categories.

	N	Mean	Std. Deviation	t-test
Foreign net purchases	760	0.242	1.702	1.530*
Foreign net sales	1225	0.134	1.209	
Foreign net purchases, low	554	0.262	1.884	0.675
Foreign net purchases, high	206	0.188	1.072	
Foreign net sales, low	881	0.169	1.372	2.191**
Foreign net sales, high	344	0.045	0.606	

One-tailed test. *, **, and *** sig. at 10%, 5%, and 1%, respectively.

with more knowledge and sophistication. Their stock pick strategy communicates implicit and complex information to other parties in the emerging market, which is contained in accruals and discretionary accruals that most retail investors cannot access. This complex information stimulates the bounded rationality of local investors, who tend to make heuristic decisions. Our tests suggest that foreign investors are important in affecting stock returns. This concept also supports Wu et al. (2012).

Zi-long et al. (2021) demonstrate that foreign trading activities find global investor sentiment and can influence returns. Similarly, Vo (2017) shows that many transactions involving foreign investors in emerging markets can influence trading and the stock market by stimulating extra returns. Our findings confirm those of Zi-long et al. (2021) and Vo (2017) (see Table 5).

Therefore, in sum, net purchases of stock by foreign investors and accruals increase stock returns. Firms that report higher accruals are thought to provide better market information, followed by foreign investors' net stock purchases. Foreign investor activity is important for retail investors because it brings the signal into the market. We consider net stock purchases by foreign investors to be a buy signal. A high level

Table 9
Foreign and accruals.

Dependent Variable: $EXRET_{i,t}$				
	Accrual		Discretionary Accrual	
	(1)	(2)	(3)	(4)
	Coeff. (t-stat)	Coeff. (t-stat)	Coeff. (t-stat)	Coeff. (t-stat)
C	0.179 (5.626)***	0.844 (3.392)***	0.184 (5.824)***	0.857 (3.456)***
$ACC_{i,t} \times D\_FBuy_{i,t}$	1.363 (4.665)***	1.683 (3.876)***		
$ACC_{i,t} \times D\_FSell_{i,t}$	−0.038 (−0.115)	0.334 (0.886)		
$DAC_{i,t} \times D\_FBuy_{i,t}$			1.982 (4.996)***	1.829 (4.224)***
$DAC_{i,t} \times D\_FSell_{i,t}$			−0.269 (−0.717)	−0.399 (−0.987)
$FSIZE_{i,t-1}$		−0.031 (−3.486)***		−0.030 (−3.467)***
$DAR_{i,t}$		0.288 (3.621)***		0.294 (3.707)***
$OCF_{i,t}$		0.498 (1.501)*		−0.114 (−0.460)
$ETR_{i,t}$		0.003 (0.155)		0.000 (−0.005)
F-Stat	8.437***	7.640***	9.066***	8.195***
Adj R^2	0.022	0.032	0.024	0.035
Period Fixed Effect	Yes	Yes	Yes	Yes
N	1985	1985	1985	1985

One-tailed test. *, **, and *** sig. at 10%, 5%, and 1%, respectively.

of net purchase shows that foreign investors are more confident in the firm's prospects, whereas significant net sales of stocks indicate uncertainty. Our results support H_2 (see Table 5).

According to Murphy et al. (2021), new economy firms account for the majority of the market capitalization of the largest companies in the S&P 500 Index. In the financial statement, new economy firms are identified by intangible assets, which typically represent the value of a patent, copyright, brand name, and goodwill. Our additional analysis (see Table 7) consistently supports H_2.

Our focus is on net purchases of stocks by foreign investors rather than net sales. Market participants believe foreign investors' net purchases generate optimism or positive sentiment, while foreign net sales are irrelevant. This result is due to confirmation bias. The examinations in Tables 8 and 9 produce consistent results. Confirmation bias causes an asymmetrical reaction. Investors only see what they want to see, which is a positive sentiment; however, participants choose to ignore pessimism caused by net foreign sales. Foreign investors net purchases sentiment improves the usefulness of accrual and discretionary accrual.

5. Conclusions

In this study, we use a sample of listed firms in Indonesia from 2016 to 2021 to examine the role of sentiment, as represented by net stock purchases by foreign investors, in generating extra returns. In a thin stock market like Indonesia, analyzing the role of incoming foreign flows is critical because foreign investors are considered to have more substantial funds to invest.

We find compelling evidence that foreign investors' net purchases of stocks generate extra returns. The role of accrual and discretionary accruals is also improved when considering a net foreign purchase. We interpret this finding as supporting evidence for our claim that foreign purchases have a combined effect with complex financial information, as represented by accrual and discretionary accrual. Our results show that foreign investors' net purchases of stocks have a greater impact on extra returns for firms with intangible assets than for those without. Foreign investors' net purchases of stocks provide a more reliable signal in the trading strategy than their net sales, as market participants frequently experience confirmation bias when they receive pessimistic sentiments. In this case, they decrease information that contradicts their beliefs or mission, which reduces returns. Complete information and sentiment are critical for investors looking for higher returns. Our findings show that incorporating foreign investor sentiment can help improve investment strategies in emerging markets.

Our study has numerous practical implications. First, the results can benefit investors, financial analysts, and managers. Investors can use the data to make more informed investment decisions, and financial analysts can use the insights to improve their forecasting models. Managers can use the data to develop strategies that better match investor expectations and improve the informativeness of their financial statements. Second, the study can provide useful information to regulators and policymakers, allowing them to develop regulations that improve the transparency and reliability of financial reporting. Policymakers can assess the success of their strategy for attracting foreign investment or controlling capital flows. The trading volume and share price are two indicators of information flows. Third, this study emphasizes the importance of studying the impact of foreign investment on the informativeness of accruals, which are an important earnings component with the potential to provide valuable information to a wide range of stakeholders.

Future research can be developed on our study. First, the impact of foreign investor stock purchases and sales should be linked to earnings informativeness to support capital market studies. Sentiment promotes over-(under)valuation. This situation should have an impact on the effectiveness of financial reporting. Second, oil and gold trading volume (Ftiti et al., 2017, 2019) were used to represent overall sentiment. Third, comparing the impact of sentiment based on foreign transactions across countries will be difficult. Because emerging markets are thin and have low volume, only small funds from developed stock markets can increase stock value. Foreign transactions do not dominate the discussion when we invest in developed markets with larger market capitalizations. Comparing these impacts is critical for international investment managers. Fourth, each sector's foreign response coefficient must be developed in emerging markets. Although foreign purchases are an important factor, the impact of market activities varies by sector. Investors can determine which sector attracts the most foreign investment by analyzing foreign transaction activity in each sector. This analysis is essential for making better investment decisions.

Authors contributions statement

Felizia Arni Rudiawarni: Conceptualization, Methodology, Software, Data curation, Writing-Original draft preparation, Writing - review & editing, Dedhy Sulistiawan:Conceptualization, Methodology, Formal Analysis, Writing - review & editing, Bruno S. Sergi: Conceptualization, Supervision, Writing - review & editing.

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Declaration of competing interest

All the authors declare that they have no established conflicting financial interests or personal relationships that may have influenced the research presented in this paper.

Data availability

I have shared the link to my data

Dataset: foreign stock transaction, financial information and extra returns (Original data) (Mendeley Data)

Appendix 1. . Endogeneity check

Dependent Variable: $EXRET_{i,t}$		
	Accruals (ACC) Model	Discretionary Accruals (DAC) Model
	(1)	(2)
	Coeff. (t-stat)	Coeff. (t-stat)
C	0.775	0.793
	(3.101)***	(3.180)***
$D\_FBuy_{i,t}$	0.120	0.130
	(1.842)**	(1.995)**
$ResidACC_{i,t}$	0.398	
	(1.100)	
$AAC_{i,t} \times D\_FBuy_{i,t}$	1.612	
	(3.966)***	
$ResidDAC_{i,t}$		−0.391
		(−0.992)
$DAC_{i,t} \times D\_FBuy_{i,t}$		1.992
		(4.639)***
$FSIZE_{i,t-1}$	−0.030	−0.030
	(−3.390)***	(−3.426)***
$DAR_{i,t}$	0.279	0.296
	(3.529)***	(3.745)***
$OCF_{i,t}$	0.401	0.011
	(1.377)*	(0.049)
$ETR_{i,t}$	0.004	0.000
	(0.197)	(0.003)
F-Stat	7.302***	7.824***
Adj R^2	0.034	0.036
Period Fixed Effect	Yes	Yes,
N	1985	1985

One-tailed test. *, **, and *** sig. at 10%, 5%, and 1%, respectively.

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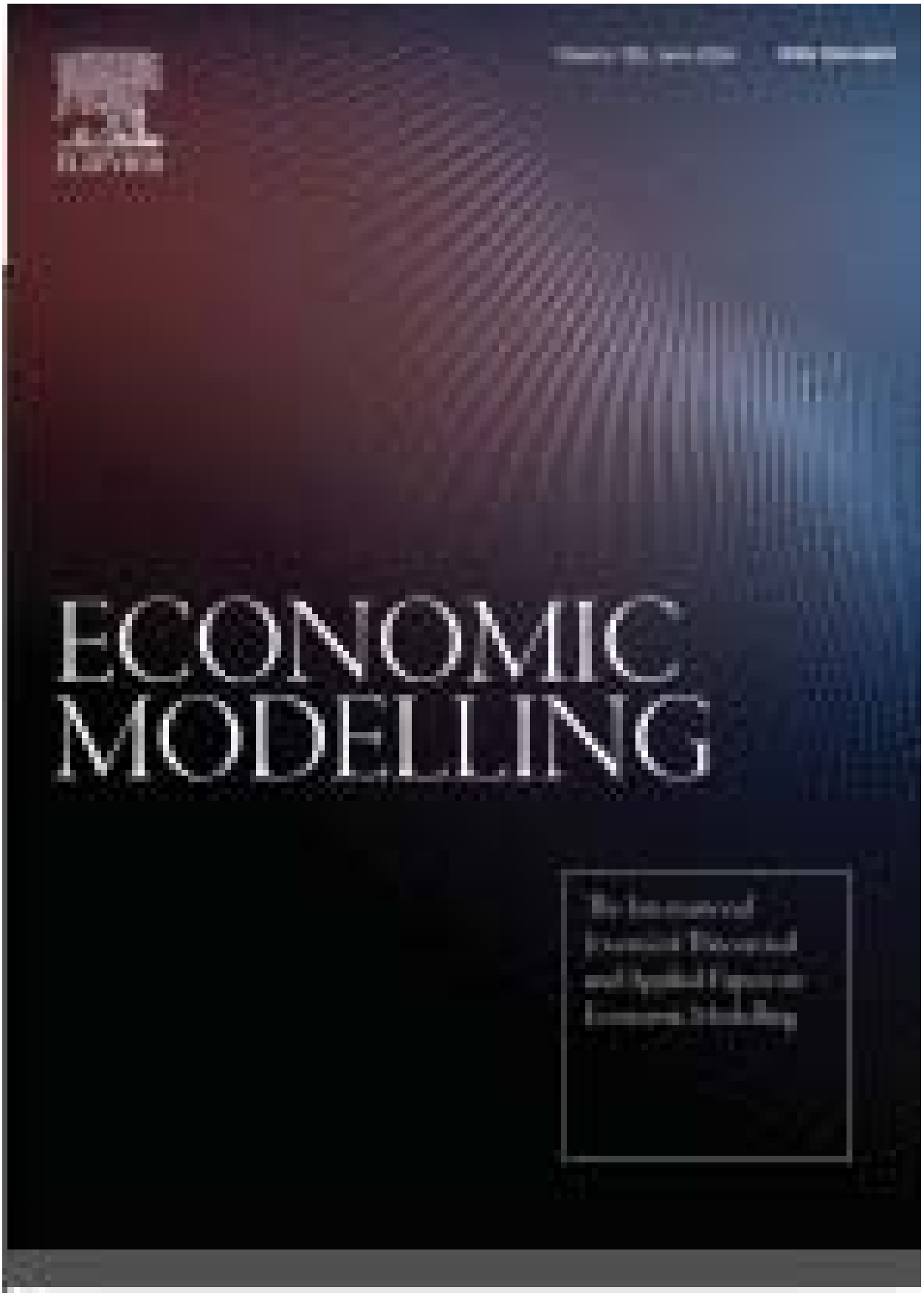
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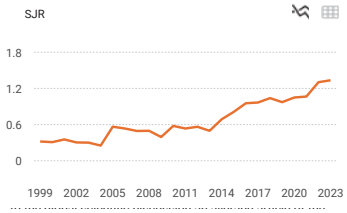

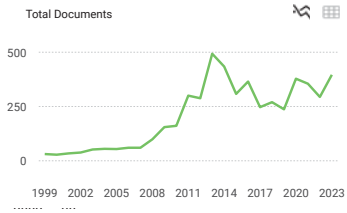

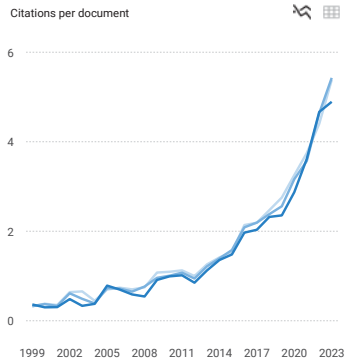

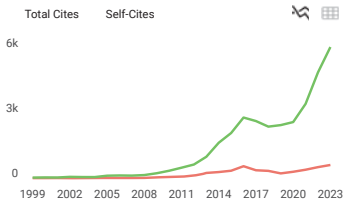

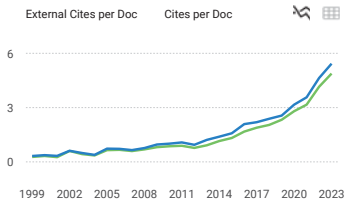

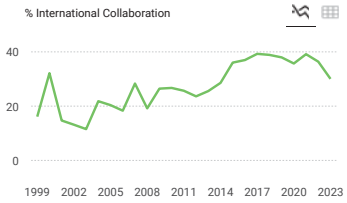

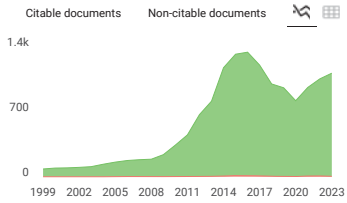

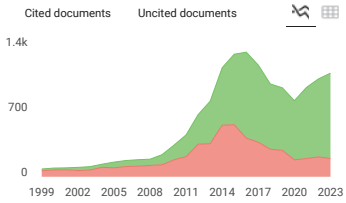

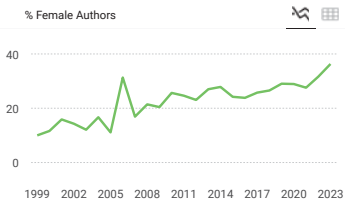

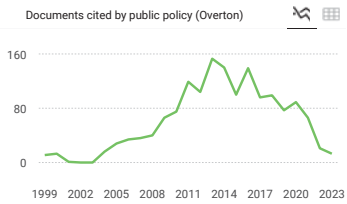

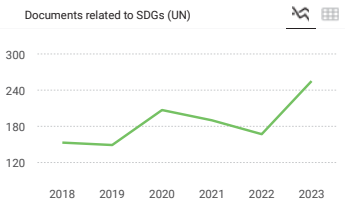

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