

# Foreign Institutional Investments (FIIs) and the Saudi Stock Market: What Drives Foreign Institutions to Invest?

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## Abstract

This paper analyzes the drivers behind foreign institutional investments (FIIs) in the Saudi stock market and their impact on market stability from 2015 till 2019 using quarterly data. The results of OLS panel regression and ARCH/GARCH model support the feedback trading hypothesis and reveal a herding and momentum behavior of foreign institutions. Foreign institutions are attracted to invest in large Saudi firms with high liquidity. Interest rates, GDP growth and oil prices all have a negative and significant impact on FIIs. In contrast, inflation indicates economic growth and has a positive impact on FIIs. FIIs tend to stabilize market returns and predict future values.

**Keywords:** Foreign Institutional Investments (FIIs), feedback trading hypothesis, herding behavior, market stability, emerging markets

## 1. Introduction

In recent decades, ownership structure of companies had deviated from the concentrated ownership model into a more dispersed and global structure. Foreign institutional investments (FIIs) in leading global financial markets account for a sizable portion. On June 15, 2015, the Capital Market Authority (CMA) allowed foreign institutions to invest in the Saudi stock market as part of their initiative to move away from being an oil-based economy and liberalize the market. The initial goal of CMA is to promote market stability and improve market efficiency through long-term investments by foreign institution. For many reasons, understanding the drivers of FIIs is important in an emerging market such as the Saudi one. First, the ownership stake of foreign institutions as of 2020 accelerated to 12.23% compared to their low ownership share of 0.73% as of 2018 ([www.Tadawul.com.sa](http://www.Tadawul.com.sa)). Second, FIIs are expected to stabilize the market and improve corporate governance control (Panda & Leepsa, 2018; Lin & Lu, 2019). Therefore, we intend to explain in this paper the forces behind FIIs, what attracts them to invest, and their role in market stability.

This paper contributes to the existing body of literature by analyzing the drivers of FIIs in several ways. First, the FIIs in the Saudi market are accelerating. At the end of 2020, the ownership of foreign institutions, as presented by Qualified Foreign Institution's ownership, reached 12.23% of total ownership of the market ([www.Tadawul.com.sa](http://www.Tadawul.com.sa)). This increase took place regardless of the developing Saudi regularity system. Therefore, it's important to understand the drivers of FIIs in such a context, which differ from those of developing markets. Second, the main reason for opening the market to foreign investors is to liberalize it and improve its efficiency by utilizing the expertise and knowledge of foreign institutions. Hence, this paper will help regulators to assess whether their relaxation of regulations achieved the desired goals.

The aim of this paper is to explain the drivers of FIIs in the Saudi stock market. Firm-level characteristics, financial indicators, specific industries, or macroeconomic conditions might be the factors that attract foreign institutions to invest. Also, this paper aims to define the pattern of FIIs and their role in market stability.

The results of employing quarterly data, starting from mid-2015 till the end of 2019, provide support for the feedback trading hypothesis and reveal a herding and momentum behavior of foreign institutions. Foreign institutions tend to herd their own investments, investments of other foreign institutions, and market returns. Foreign institutions are attracted to invest in large-sized Saudi firms with high liquidity. Their lack of knowledge about local firms forces them to seek out large-sized, well-known firms with high liquidity. Except for inflation,

which has a positive impact on FIIs, the impact of macroeconomic variables on FIIs is significantly negative. Low inflation levels during the study period attract foreign institutions to invest because they may indicate economic growth. FIIs tend to stabilize market returns and predict future values.

The rest of the paper is organized as follows. Section 2 reviews the related literature. Section 3 discusses FIIs in the Saudi stock market. Section 4 presents the data and definitions of variables under study. Section 5 describes the methodology applied. Section 6 summarizes the results of the analysis. Section 7 concludes the study and presents its limitations and possibilities for future research.

## **2. Review of Literature**

### *2.1 Theoretical Models*

Previous FII findings can be explained by three prominent hypotheses. The price pressure hypothesis states that investors try to gain from price drops (rises) associated with large sales (purchases), which put pressure on stock prices (Harris & Gurel, 1986; Shleifer, 1986). The feedback trading hypothesis presumes that feedback trading deviates stock prices from their fundamentals and affects the market stability (Davidson & Dutia, 1989; Delong et al., 1990). The information revelation hypothesis, on the other hand, assumes that the superior information institutional investors possess allow them to time the market better (Lee et al., 1991).

The study of Weng and Tsai (2018) provides support to the information revelation hypothesis. The results reveal that price volatility on the Taiwan Futures Exchange can't be fully explained by mispricing variations. These findings show that price formation in the Taiwan Futures Exchange is influenced by private information held by foreign institutional investors. Similarly, the study of Vo (2017) reveals that FIIs affect positively and significantly Vietnamese stock prices informativeness. Their findings support the role of institutional investors in improving price informativeness through better information and active monitoring of the firms in which they invest. The study of Zhang et al. (2017) shows that foreign institutions, through their price informativeness and aggressive trading, can prevent controlling shareholders of Chinese companies from tunneling cash flows. Funaoka and Nishimura (2019) find that institutional investors in the Chinese market have an informational advantage over individual investors. The better information they have regarding market conditions, the quality of firms, and the ranking of underwriters, the more they invest in IPOs and the higher the returns generated from these IPOs. The research of Jiang et al. (2018) shows that foreign institutional investors reduce stock return co-movement by producing firm-specific information. This negative impact is more common among FIIs from countries with strong investor protection than among FIIs from countries with weak investor protection. Besides that, foreign institutions and domestic institutions with high ownership stakes tend to reduce stock return co-movement more effectively than institutions with low ownership stakes due to their superior ability in managing the fixed costs associated with firm-specific information production. In contradiction, the study of Agudelo et al. (2019) found that foreign institutional investors don't have informational advantage over local institutions in the Columbian stock market. Therefore, local institutions are more effective investors than foreign institutions. Similarly, the study of Ferreira et al. (2017) states that local institutional investors outperform foreign ones when investments are made in markets with low efficiency, low protection for investors and high market volatility.

In support of the price pressure hypothesis, the study of Ferreira et al. (2017) discloses that both foreign and institutional investors can significantly predict the returns of one quarter ahead. This ability results from a price pressure effect rather than an informed trading effect.

FIIs can either stabilize the market through their long-run investments or destabilize it through their hot money. The stabilizing effect occurs through widening the investor base in the market, which reduces volatility by risk-sharing (Mitton, 2006; Wang, 2007; Sharif, 2019). This is in line with the base-broadening hypothesis proposed by Merton (1987). Foreign investors can reduce transaction and information costs by providing higher information quality, better reporting standards, and more developed corporate governance regulations (Vo, 2015; Panda & Leepsa, 2018; Lin & Lu, 2019). Further, foreign investors can reduce the financial risk of local companies by substituting debt financing, which supports the leverage effect theory. The study of Sharif (2019) reveals that the valuation of Saudi listed companies improved after opening the market to FIIs. The findings support rational FIIs and their support for local companies by providing them with a low-cost source of capital. Lin and Lu (2019) show that both independent institutional ownership and domestic institutional ownership stabilize the Chinese stock market by reducing the volatility and idiosyncratic risk in stock returns. Foreign investors, on the other hand, can have a destabilizing effect due to their short-term or speculative investment strategies (Brzeszczynski & Bohl, 2006; Kim & Jo, 2019). Also, the herding behavior of foreign investors can destabilize the market. Foreign investors may follow the trading patterns of local investors. This happens due to

limited information available to the former compared to the availability of information to the later. The study of Kim and Jo (2019) reveals that the market volatility of the two largest Korean stocks is affected significantly and positively by FIIs.

Other studies back up the feedback trading hypothesis (Hiremath & Kattuman, 2017). In their research, Hiremath and Kattuman (2017) find a co-movement between FIIs and NIFTY returns, which suggests that returns of the market and previous FIIs can predict FII flows. The predicting effect of the market persists for two days, whereas the predicting effect of previous FIIs continues for five days for positive lagged flows. These findings support the extrapolation of information by foreign institutions from local markets as a result of their lack of knowledge regarding the local market in which they invest. The study of Choudhary et al. (2019) reveals that foreign institutions herd the previous returns of the Indian stock market, but this herding behavior is short-term. Furthermore, the herding behavior of foreign institutions persists when the market is booming and diminishes when it's declining, which leads to short-term volatility in the market. Similarly, the study of Fang et al. (2016) supports the herding behavior of FIIs. Foreign institutions follow their own behavior or the behavior of other foreign institutions in the Taiwan market, and their herding tends to be focused on highly traded securities and securities with high market capitalization. Besides that, FIIs herding is persistent during both bullish and bearish markets. In their research, Chattopadhyay et al. (2018) find that foreign institutions tend to follow a herding behavior in the Indian stock market, and that this herding tends to persist. In their study, Fang et al. (2017) reveal that foreign institutions herd the trades of other foreign institutions rather than herding their own trades in the Taiwan market. This herding is most common in large-cap securities and is driven by investigative herding rather than cascades. The study of Ferreira et al. (2017) shows that foreign institutions and domestic institutions, defined as local dealers, tend to follow similar types of institutions in their herding behavior, whereas those foreign institutions and domestic institutions follow each other negatively and significantly, and this negative relationship is more prevalent in the view of foreign institutions toward domestic institutions.

The investment behavior of foreign institutions in the Saudi stock market is expected to support the feedback trading hypothesis. Foreign institutions are less informed about the Saudi listed companies; therefore, they tend to herd their own investments and market returns.

## *2.2 Firm, Industry, and Macroeconomic Characteristics and FIIs*

Several researchers define firm-specific variables and industry attributes that attract FIIs (Zou et al., 2016; Lin et al., 2018; Deb, 2018). The study of Zou et al. (2016) reveals that foreign institutions tend to invest in large Chinese firms that have better accounting performance, higher stock prices, lower systematic risk, and a longer history. The findings also reveal that qualified foreign institutions prefer to invest in "blue-chip" companies that originate in industries such as finance, transportation, and technology. The study of Korkeamäki et al. (2019) shows that the investment trend of qualified foreign institutions in the Chinese market changes before and after 2008. Before 2008, qualified foreign institutions tend to avoid investing in stocks with high volatility and penny stocks; however, they were attracted to invest in cross-listed stocks and stocks with high momentum returns. While after 2008, qualified foreign institutions lean toward following the behavior of local institutional investors. They also become more informed about the local market and its specific risk factors. In the study of Wang and Li (2018), the main driver of FIIs in emerging markets is the development of governance environment in the host country. In developed markets, what drives foreign institutions to invest is stock market openness and its development. Liu et al. (2018) reveal that foreign investors in emerging markets are attracted to invest in companies with low leverage, high profitability, and a high market-to-book ratio. Besides that, those investors prefer to invest in local companies with low international investments and a weak linkage to the global economy. The study of Deb (2018) shows that the chosen industries by foreign institutions to invest in differ from those chosen by domestic institutions. Foreign institutions tend to avoid industries and companies that require local knowledge, such as real estate, services, and textiles. The study also reveals that both foreign and domestic institutions prefer to invest in companies with high liquidity, dividend yield, age, and international visibility while they tend to avoid companies with a high leverage and P/B ratio. FIIs in this study were found to be able to time the market by favoring high beta stocks during bull markets and avoiding them during bear markets. Warganegara (2018) reveals that foreign investors in the Indonesian market are attracted to firms with high investability size, a high dividend yield, a large size and firms in the consumer goods industry sector. High investability size allows foreign investors to generate excess returns on stocks where they can exploit superior information by owning a large portion of these firms.

According to the previous literature, FIIs are more likely to be attracted to large Saudi firms with high liquidity, high profitability, and low leverage.

Many research papers outline how macroeconomic variables influence FIIs (Tripathi et al., 2015; Waqas et al., 2015). The study of Tripathi et al. (2015) shows that foreign direct investments are Granger-caused by market size, profitability of stock market, inflation, trade openness, and exchange rate. The researchers also find that trade openness and the exchange rate both have a causal relationship with foreign direct investment. In their study, Wagas et al. (2015) find that the inflation rate, foreign direct investments, GDP, real exchange rate, and interest rates all have a significant impact on foreign portfolio investments. Singh (2009) reveals that the deposit flows of migrant workers to their home country are highly sensitive to changes in exchange rates and interest rates.

In the Saudi context, it's predictable that investment decisions of foreign institutions are driven by inflation, GDP growth, oil prices, and interest rates. Inflation is hypothesized to affect FIIs negatively (Waqas et al., 2015; Tripathi et al., 2015). High inflation is perceived as an indication of high macroeconomic risk. Also, investment's real returns are wiped with high inflation. Interest rates, GDP growth, and oil prices are presumed to affect FIIs inflows positively due to high expected returns in the host country (Tripathi, 2015; Waqas, 2015). Exchange rate is not considered as a factor that affects FIIs due to the peg of Saudi Riyal to the US dollar.

### 3. The Saudi Stock Market and Foreign Institutional Investments

Tadawul, the Saudi stock market, is the largest in the MENA region, with a market capitalization of around 2 trillion as of December 31, 2020. Tadawul All Share Index (TASI) is a free float index, and it's the main index in the market. There is other two indices: the NOMU Parallel Market Capped index, with a capping threshold of 20%, and the MSCI Tadawul 30 Index, with a capping threshold of 15%.

Foreign investors weren't allowed to invest in the Saudi market until 2008, when the CMA, the sole regulator of the Saudi market, permitted them to invest through SWAP agreements. On June 15, 2015, the CMA regulators opened the market for qualified foreign investors (QFIs) to directly invest. Applicants should hold at least USD 1 billion assets under management, and they are allowed to invest not higher than 49% in listed securities ([www.Tadawul.com.sa](http://www.Tadawul.com.sa)). The goal of CMA is to attract qualified investors who can foster market stability, reduce volatility, improve efficiency through better disclosure, and share their knowledge with other participants in the market.

On Dec 5, 2018, the MSCI Tadawul 30 index was launched to represent the performance of the largest and most liquid 30 listed Saudi companies ([www.Tadawul.com.sa](http://www.Tadawul.com.sa)). CMA officials highlighted the benefits of inclusion in global financial indices. The advantages include the development of the investment environment, raising the level of transparency, enhancing market liquidity, and integrating with advanced global markets. This inclusion had a positive impact on the Saudi stock market, as the ownership value of foreign investors increased by 128.1%, from 86.8 billion Riyals as of 2018 to 198 billion Riyals as of 2019. The number of registered QFIs rose by 309%, from 453 QFIs as of 2018 to 1,853 QFIs as of 2019 ([www.CMA.org.sa](http://www.CMA.org.sa)).

### 4. Data

To define the drivers of FIIs and its impact on the Saudi stock market, data are extracted from Tadawul website ([www.Tadawul.com.sa](http://www.Tadawul.com.sa)), Bloomberg terminals, and the Saudi Central Bank website ([www.SAMA.gov.sa](http://www.SAMA.gov.sa)). TASI represents the Saudi stock market, an index based on free float methodology that is used to calculate market returns (Rm). The FII variable (FII) is measured as the value of net investment held by QFIs, expressed in Saudi Riyals (Thiripalraju & Acharya, 2013). The firm-specific variables considered in this paper include size, liquidity, profitability, and leverage (Lin et al., 2018; Deb, 2018). Size is measured as the logarithm of annual market capitalization. ROE is the measure of profitability, and debt-to-equity ratio is the measure of leverage. Liquidity is defined as the annual share volume divided by adjusted shares outstanding.

The macroeconomic variables comprise inflation, GDP growth, oil prices, and interest rates. The measure of inflation is based on the CLI cost of living index. GDP growth is built on quarterly rates, and oil prices are based on real figures of OPEC basket. The 52<sup>nd</sup> week % T-bill's rate is considered as the rate of interest (Waqas et al., 2015).

Twenty-two industry dummy variables are used to represent the available industries in the market. Each variable takes the value of 1 if the listed company is included in the represented industry, and the value of 0 otherwise. The inclusion of 31 Saudi companies in the MSCI is seen as an attractive factor for foreign institutions to invest. Therefore, a dummy variable is added that takes the value of 1 if the company is listed in the MSCI and 0 otherwise. The choice of period under study is considered based on data availability on the study variables. Data on FIIs, as represented by QFI figures, are available as of August 27, 2015. Therefore, data relating to all variables are collected quarterly, covering the period from August 27, 2015, till the end of 2019. Suspended

companies and companies with missing data during the study period are excluded.

## 5. Methodology

A data set is said to be stationary if its mean and variance are invariable over a time interval. Defining whether a data set is stationary or not is important to remove any spurious results before conducting the empirical analysis. The data under study is an unbalanced panel data set. Unit root tests in STATA are sensitive to missing data, and most of these tests assume that the panel data set is balanced. Therefore, the Fisher-type unit root test based on the Augmented Dickey–Fuller test is used to determine the stationarity of variables, as it allows for unbalanced panels.

To measure feedback trading and herding behavior of FIIs, the following panel data OLS, FE and RE models are applied:

$$FII_t = \alpha + b_1 FII_{t-1} + b_2 FII_{t-2} + \dots + b_8 FII_{t-8} + e_{it} \quad (1)$$

$$FII_t = \alpha + b_1 Rm_{t-1} + b_2 Rm_{t-2} + \dots + b_8 Rm_{t-8} + e_{it} \quad (2)$$

The two models are autoregressive because they include lag variables such as market return and FIIs. The lag of market returns,  $Rm$ , measures the herding behavior of foreign institutions and whether they are momentum traders, whereas the lag of FII measures the feedback trading behavior of foreign institutions.

To determine the factors that attract foreign institutions to invest, the following panel data OLS regression is applied:

$$FII_t = \alpha + b_1 size_{it} + b_2 liquidity_{it} + b_3 ROE_{it} + b_4 leverage_{it} + b_5 GDP\ growth_{it} + b_6 Interest_{it} + b_7 Inflation_{it} + b_8 Oil_{it} + b_9 MSCI_{it} + B_{10} INDdummy_{it} + e_{it} \quad (3)$$

The model defines whether firm-level characteristics, industry groups, or macroeconomic variables attract FIIs. Since FIIs increased rapidly after the inclusion of some of the largest and most liquid Saudi listed firms in the MSCI index, a dummy variable is added to the model to test the impact.

A number of diagnostic tests are taken into consideration for the above model. The Lagrange Multiplier (LM) test is applied to ensure that the error terms are free of serial correlation, whereas the Jarque–Bera test is used to check normality. Heteroskedasticity problem is checked through Breusch-Pagan/Cook-Weisberg test, and the Ramsey Reset test is applied to check for model misspecification.

The Ordinary Least Squares (OLS) method is based on the assumption that the data under study are homoscedastic, which means that the variances of the error terms are constant and don't vary from one point to another. But this is not always the case because the variances of the error terms do change, and the data in this regard are considered heteroskedastic. The ARCH/GARCH model is considered by many researchers to measure data volatility in case of heteroskedasticity (Joo and Mir, 2014). The ARCH/GARCH model, which stands for generalized autoregressive conditional heteroskedasticity, deals with heteroskedasticity as a variance to be modeled rather than a problem to be resolved (Engle, 2001). To analyze the impact of FII inflows on TASI returns through applying the ARCH/GARCH model, the following econometric model is employed:

$$Rm = C_0 + C_1 Rm (1-) + e_t \quad (4)$$

$$h_t = b_0 + b_1 e^2_{t-1} + b_2 h_{t-1} + b_3 FII \quad (5)$$

where  $Rm$  in the first equation represents the market return as presented by TASI, and this is the mean equation. In the second variance equation,  $e^2_{t-1}$  represents the volatility of previous period (ARCH term), whereas  $h_{t-1}$  represents the previous period forecasted variance (GARCH term), and FII represents FII inflows.

## 6. Results

The results of Augmented Dickey–Fuller test, in Table 1, reject the null hypothesis and prove that the variables under study are stationary. The absolute test statistics value is greater than the critical values at the 1%, 5% and 10% levels, respectively.

Table 1. ADF unit root test

| Variable         | t-statistic | Probability* | Test Critical Value |        |        |
|------------------|-------------|--------------|---------------------|--------|--------|
|                  |             |              | 1%                  | 5%     | 10%    |
| <b>Rm</b>        | -56.531     | 0.000        | -3.960              | -3.410 | -3.120 |
| <b>FII</b>       | -50.508     | 0.000        | -3.960              | -3.410 | -3.120 |
| <b>Size</b>      | -26.459     | 0.000        | -3.960              | -3.410 | -3.120 |
| <b>Liquidity</b> | -67.355     | 0.000        | -3.960              | -3.410 | -3.120 |
| <b>ROE</b>       | -54.353     | 0.000        | -3.960              | -3.410 | -3.120 |
| <b>Leverage</b>  | -32.422     | 0.000        | -3.960              | -3.410 | -3.120 |
| <b>Growth</b>    | -37.315     | 0.000        | -3.960              | -3.410 | -3.120 |
| <b>Interest</b>  | -36.461     | 0.000        | -3.960              | -3.410 | -3.120 |
| <b>Inflation</b> | -44.040     | 0.000        | -3.960              | -3.410 | -3.120 |
| <b>Oil</b>       | -51.564     | 0.000        | -3.960              | -3.410 | -3.120 |

Note. Augmented Dicker-Fuller test to measure the stationary of variables understudy.

Both random-effect and fixed-effect models in equations (1) and (2) are tested to measure feedback trading, herding, and momentum behavior of foreign institutions. The maximum number of lags (eight for FII and market return variables) is considered. The fixed-effect model shows no results. Table 2 shows that the random-effect model results support the feedback trading hypothesis and FII herding behavior. The results are in accordance with the findings of Hiremath and Kattuman (2017), Fang et al. (2017), and Chattopadhyay et al. (2018). Foreign institutions tend to herd their own or other foreign institutions' investments in the previous, fourth lagged and seventh lagged periods. These periods affect current FIIs positively and significantly at the 1% level. The other lagged flows affect current FIIs negatively. Foreign institutions' lack of knowledge regarding the local market could be the reason behind their inconsistent herding behavior for their own investments in the Saudi stock market.

The positive significant impact of previous seven lagged market returns on FIIs, at the 1% level, supports the herding and momentum behavior of foreign institutions. There is a co-movement between FIIs and TASI returns. This also results from foreign institutions' lack of knowledge about the local market. To invest, foreign institutions must extrapolate information from the local market.

Table 2. Panel OLS regression

|          | Coef.   | Std. Err. | Z       | P>z      | [95% Conf. Interval] |         |
|----------|---------|-----------|---------|----------|----------------------|---------|
| FII      |         |           |         |          |                      |         |
| Lag1FII. | 0.4040  | 0.0107    | 37.42   | 0.000*** | 0.3829               | 0.4252  |
| Lag2FII. | -0.0560 | 0.0037    | -15.05  | 0.000*** | -0.0633              | -0.0487 |
| Lag3FII. | -0.6423 | 0.0064    | -99.60  | 0.000*** | -0.6550              | -0.6297 |
| Lag4FII. | 0.0308  | 0.0101    | 3.05    | 0.002*** | 0.0110               | 0.0506  |
| Lag5FII. | -0.0035 | 0.0040    | -0.88   | 0.378    | -0.0114              | 0.0043  |
| Lag6FII. | -1.3128 | 0.0041    | -315.05 | 0.000*** | -1.3209              | -1.3046 |
| Lag7FII. | 0.2706  | 0.0091    | 29.43   | 0.000*** | 0.2526               | 0.2887  |
| Lag8FII. | 0       | (omitted) |         |          |                      |         |
| _cons    | 0.3156  | 0.0043    | 72.32   | 0.000    | 0.3071               | 0.3242  |
| FII      |         |           |         |          |                      |         |
| Lag1Rm.  | 6.6739  | 0.1225    | 54.47   | 0.000*** | 6.4338               | 6.9141  |
| Lag2Rm.  | 7.4795  | 0.1698    | 44.05   | 0.000*** | 7.1467               | 7.8124  |
| Lag3Rm.  | 13.0053 | 0.2827    | 46.00   | 0.000*** | 12.4512              | 13.5594 |
| Lag4Rm.  | 10.7419 | 0.2317    | 46.35   | 0.000*** | 10.2876              | 11.1961 |
| Lag5Rm.  | 8.2210  | 0.1643    | 50.02   | 0.000*** | 7.8988               | 8.5432  |
| Lag6Rm.  | 4.9972  | 0.1027    | 48.62   | 0.000*** | 4.7958               | 5.1987  |
| Lag7Rm.  | 1.7358  | 0.0404    | 42.91   | 0.000*** | 1.6566               | 1.8151  |
| Lag8Rm.  | 0       | (omitted) |         |          |                      |         |
| _cons    | 0.2727  | 0.0030    | 89.17   | 0.000    | 0.2667               | 0.2787  |

Note. Random Effect model to test feedback trading, herding and momentum behavior of foreign institutions. The sign of \*, \*\* and \*\*\* denote significance at the 10%, 5% and 1% levels, respectively.

The panel data OLS regression fixed-effect model shows no results. The results of the random-effect model in Table 3 reveal that foreign institutions are interested in investing in large-sized Saudi firms with high liquidity. Both size and liquidity variables have a positive and significant impact on FIIs at the 1% level. These findings are supported by Zou et al. (2016) and Deb (2018). In an emerging context, foreign institutions prefer to invest in large, well-established firms. Their lack of knowledge about listed firms, with the developing corporate governance system, forces them to seek out large-sized, well-known firms with high liquidity.

All macroeconomic variables affect FIIs negatively and significantly, except for inflation. The positive significant impact of inflation on FIIs could be attributed to low inflation levels in the Saudi context. During the period under study, the highest level of inflation was 2.45% as of 2018. Therefore, the increase in inflation is not considered a threat to FIIs; instead, it indicates economic growth, which encourages them to invest. The negative impact of interest rates, GDP growth, and oil prices on FIIs, at the 1% level, supports the findings of Singh (2009). Foreign institutions may be short-term investors who are extremely sensitive to changes in macroeconomic factors.

The insignificant impact of profitability and leverage on FIIs supports the short-term investment behavior of foreign institutions. The long-run profitability and debt situation of the firm doesn't affect their investment decisions. They tend to look for large-sized, well-established firms with high liquidity to generate short-term gains. This is supported by the fact that MSCI and industry dummy variables have a negligible impact on FIIs.

Table 3. Panel OLS regression

|                   | Coef.   | Std. Err. | Z     | P>z      | [95% Conf. Interval] |         |
|-------------------|---------|-----------|-------|----------|----------------------|---------|
| <b>FII</b>        |         |           |       |          |                      |         |
| <b>Size</b>       | 0.0272  | 0.0154    | 1.76  | 0.079*   | -0.0031              | 0.0575  |
| <b>Liquidity</b>  | 0.0091  | 0.0047    | 1.93  | 0.054*   | -0.0001              | 0.0184  |
| <b>ROE</b>        | 0.0000  | 0.0000    | 0.47  | 0.638    | -0.0000              | 0.0001  |
| <b>Leverage</b>   | 0.0000  | 0.0001    | 0.62  | 0.538    | -0.0001              | 0.0003  |
| <b>GDP growth</b> | -0.0173 | 0.0035    | -4.82 | 0.000*** | -0.0243              | -0.0102 |
| <b>Interest</b>   | -0.0965 | 0.0149    | -6.45 | 0.000*** | -0.1259              | -0.0672 |
| <b>Inflation</b>  | 0.0132  | 0.0023    | 5.65  | 0.000*** | 0.0086               | 0.0178  |
| <b>Oil</b>        | -0.0018 | 0.0004    | -3.80 | 0.000*** | -0.0028              | -0.0009 |
| <b>_cons</b>      | 0.1543  | 0.0197    | 7.83  | 0.000*** | 0.1157               | 0.1929  |

Note. Random-effect OLS regression model to determine the factors that attract foreign institutions to invest. The sign of \*, \*\* and \*\*\* denote significance at the 10%, 5% and 1% levels, respectively.

In Table 4, the *p*-value of the Breusch-Pagan test is less than 5%, indicating the presence of a heteroskedasticity problem. Similarly, the Jarque-Bera test in Table 5 reveals non-normal residuals where the *p*-value is less than 5%. In Table 6, the Ramsey Reset test looks for the occurrence of omitted variables in the model. The Lagrange Multiplier (LM) test in Table 7 shows that error terms are not free of serial correlation. The results may indicate a high volatility and trend in the data set over time.

Table 4. Breusch-Pagan Heteroskedasticity test

|             |       |             |           |
|-------------|-------|-------------|-----------|
| <b>Chi2</b> | 22.60 | Prob > chi2 | 0.0000*** |
|-------------|-------|-------------|-----------|

Table 5. Jarque-Bera Normality test

|             |        |             |            |
|-------------|--------|-------------|------------|
| <b>Chi2</b> | 133.20 | Prob > chi2 | 1.2e-29*** |
|-------------|--------|-------------|------------|

Table 6. Ramsey Reset Misspecification test

|                    |         |          |           |
|--------------------|---------|----------|-----------|
| <b>F (3, 1870)</b> | 2306.94 | Prob > F | 0.0000*** |
|--------------------|---------|----------|-----------|

Table 7. Breusch-Godfrey Serial Correlation LM test

|             |       |             |           |
|-------------|-------|-------------|-----------|
| <b>Chi2</b> | 9.151 | Prob > chi2 | 0.0025*** |
|-------------|-------|-------------|-----------|

Note. The sign of \*, \*\* and \*\*\* denote significance at the 10%, 5% and 1% levels, respectively.

Due to non-homoscedastic residuals, the ARCH/GARCH model is applied to measure the volatility of market returns. Table 8 shows that FIIs can significantly predict future market returns. Although foreign institutions are attracted to high-liquidity firms and sensitive to macroeconomic conditions, their investments tend to stabilize the Saudi stock market returns. Therefore, attracting foreign institutions to invest in the Saudi stock market should foster the stability of market returns and the prediction of its future values.

Table 8. ARCH\GARCH test

| Rm    | Coefficient | Std. err. | z     | Prop.    | [95% conf. interval] |        |
|-------|-------------|-----------|-------|----------|----------------------|--------|
| FII   | 0.1729      | 0.0271    | 6.37  | 0.000*** | 0.1197               | 0.2261 |
| _Cons | 0.1433      | 0.0050    | 28.46 | 0.000    | 0.1334               | 0.1531 |

Note. ARCH/GARCH model is applied to measure the volatility of market returns. The sign of \*, \*\* and \*\*\* denote significance at the 10%, 5% and 1% levels, respectively.

## 7. Conclusion

This research investigates the drivers of FIIs in the Saudi stock market and their impact on market returns. It covers quarterly data of FIIs, market returns, firm-level characteristics, and macroeconomic variables from mid-2015 till 2019. The findings support the feedback trading hypothesis as well as the herding and momentum behavior of foreign institutions. This results from the lack of knowledge of foreign institutions regarding the local market. The results are supported by the findings of Hiremath and Kattuman (2017) and Choudhary et al. (2019) that reveal a herding behavior for foreign institutions in the context of Indian market. The lack of knowledge regarding the local market also attracts foreign institutions to invest in large-sized Saudi firms with high liquidity. The results are in accordance with the findings of Fang et al. (2017) and Deb (2018). Oil prices, interest rates, and economic growth all have a negative significant impact on FIIs. Inflation, on the other hand, has a significant positive impact. The findings of Tripathi et al. (2015) provide contradicting results. Their findings reveal positive impact of interest rates and GDP on FII, whereas, Inflation has a negative impact. The finding of this paper results from the short-termed investment behavior of FIIs in the Saudi context that makes their investments sensitive to macroeconomic indicators. Attracting foreign institutions to invest is beneficial for the Saudi stock market due to their role in stabilizing and predicting market returns.

An important implication can be driven from this research for market regulators and investors in the Saudi stock market. They should pay more attention to FIIs and their impact on market returns. Understanding what drives foreign institutions to invest in the Saudi stock market is important to develop the required policies and regulations needed to attract more FIIs while also promoting market efficiency and stability. Domestic investors will also be able to make the right investment decisions that will not jeopardize the market.

This paper can be extended by defining the role of domestic institutional investors (DIIs) in attracting foreign institutions to invest. Also, understanding the role of DIIs in stabilizing or destabilizing market returns due to FII activities is important. Considering the impact of specific events, such as COVID-19, on FII decisions can improve the findings and enrich the literature.

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## References

- Agudelo, D., Byder, J., & Yepes-Henao, P. (2019). Performance and informed trading. Comparing foreigners, institutions and individuals in an emerging stock market. *Journal of International Money and Finance*, 90, 187-203. <https://doi.org/10.1016/j.jimonfin.2018.09.001>
- Brzeszczynski, J., & Bohl, M. (2006). Do Institutional Investors Destabilize Stock Prices? Evidence from an Emerging Market. *Journal of International Financial Markets Institutions and Money*, 16(4), 370-383. <https://doi.org/10.1016/j.intfin.2005.05.005>
- Chattopadhyay, M., Garg, A., & Mitra, S. (2018). Herding by Foreign Institutional Investors: An Evidential Exploration for Persistence and Predictability. *Journal of Behavioral Finance*, 19(1), 73-88. <https://doi.org/10.1080/15427560.2017.1373282>
- Choudhary, K., Singh, P., & Soni, A. (2019). Relationship Between FIIs' Herding and Returns in the Indian

- Equity Market: Further Empirical Evidence. *Global Business Review, International Management Institute*, 23(1), 137-155. <https://doi.org/10.1177/0972150919845223>
- Davidson, W., & Dutia, D. (1989). A Note on The Behavior Of Security Returns: A Test Of Stock Market Overreaction And Efficiency. *Journal of Financial Research*, 12(3), 245-252. <https://doi.org/10.1111/j.1475-6803.1989.tb00517.x>
- Deb, S. (2018). Institutional Investors and firm characteristics: New evidence from India. *Research in International Business and Finance*, 46, 30-42. <https://doi.org/10.1016/j.ribaf.2017.09.005>
- De Long, J., Shleifer, A., Summers, L., & Waldmann, R. (1990). Noise Trader Risk in Financial Markets. *Journal of Political Economy*, 98(4), 703-738. <https://doi.org/10.1086/261703>
- Engle, R. (2001). GARCH 101: The use of ARCH/GARCH models in applied econometrics. *Journal of Economic*, 15(4), 157-168. <https://doi.org/10.1257/jep.15.4.157>
- Fang, H., Lu, Y., Yau, H., & Lee, Y. (2017). Causes and Impacts of Foreign and Domestic Institutional Investors' Herding in the Taiwan Stock Market. *Emerging Markets Finance and Trade*, 53(4), 727-745. <https://doi.org/10.1080/1540496X.2015.1103126>
- Ferreira, M., Matos, P., Pereira, J., & Pires, P. (2017). Do locals know better? A comparison of the performance of local and foreign institutional investors. *Journal of Banking and Finance*, 82, 151-164. <https://doi.org/10.1016/j.jbankfin.2017.06.002>
- Funaoka, K., & Nishimura, Y. (2019). Private Information, Investor Sentiment, and IPO Pricing: Which Institutional Investors Are Better Informed?. *Emerging Markets Finance and Trade*, 55(8), 1722-1736. <https://doi.org/10.1080/1540496X.2018.1484355>
- Harris, L., & Gurel, E. (1986). Price and Volume Effects Associated with Changes in the S&P 500 List: New Evidence for the Existence of Price Pressures. *The Journal of Finance*, 41(4), 815-829. <https://doi.org/10.1111/j.1540-6261.1986.tb04550.x>
- Hirematha, G., & Kattuman, P. (2017). Foreign portfolio flows and emerging stock market: Is the midnight bell ringing in India?. *Research in International Business and Finance*, 42, 544-558. <https://doi.org/10.1016/j.ribaf.2017.04.016>
- Jiang, L., Kim, J., & Pang, L. (2018). Foreign institutional investors and stock return comovement. *Frontiers of Business Research in China*, 12(1), 1-13. <https://doi.org/10.1186/s11782-018-0036-8>
- Joo, B., & Mir, Z. (2014). Impact of FIIs Investment on Volatility of Indian Stock Market: An Empirical Investigation. *Journal of Business & Economic Policy*, 1(2), 2375-0766.
- Kim, Y., & Jo, G. (2019). The Impact of Foreign Investors on the Stock Price of Korean Enterprises during the Global Financial Crisis. *Sustainability*, 11(6), 1576. <https://doi.org/10.3390/su11061576>
- Korkeamäki, T., Virkkä, N., Wang, H., & Wang, P. (2019). Learning Chinese? The changing investment behavior of foreign institutions in the Chinese stock market. *International Review of Financial Analysis*, 64, 190-203. <https://doi.org/10.1016/j.irfa.2019.05.011>
- Lee, C., Shleifer, A., & Thaler, R. (1991). Investor Sentiment and the Closed-End Fund Puzzle. *Journal of Finance*, 46(1), 75-109. <https://doi.org/10.1111/j.1540-6261.1991.tb03746.x>
- Lin, S., & Lu, J. (2019). Institutional Investors and Corporate Performance: Insights from China. *Sustainability*, 11(21), 6010. <https://doi.org/10.3390/su11216010>
- Lin, S., Lu, J., Su, J., & Chen, W. (2018). Sustainable Returns: The Effect of Regional Industrial Development Policy on Institutional Investors' Behavior in China. *Sustainability*, 10(8), 2769. <https://doi.org/10.3390/su10082769>
- Merton, R. (1987). A Simple Model of Capital Market Equilibrium with Incomplete Information. *The Journal of Finance*, 42(3), 483-510. <https://doi.org/10.1111/j.1540-6261.1987.tb04565.x>
- Mitton, T. (2006). Stock market liberalization and operating performance at the firm level. *The Journal of Financial Economics*, 81(3), 625-647. <https://doi.org/10.2139/ssrn.648282>
- Panda, B., & Leepsa, N., M. (2018). Does institutional ownership engagement matter for greater financial performance? Evidence from a developing market. *International Journal of Law and Management*, 61(2), 359-383. <https://doi.org/10.1108/IJLMA-09-2017-0228>
- Sharif, S. (2019). How Foreign Investors Influence Stock Markets? The Saudi Arabian Experience. *Middle East*

- Development Journal*, 11(1), 105-123. <https://doi.org/10.2139/ssrn.2815839>
- Shleifer, A. (1986). Do Demand Curves for Stocks Slope Down?. *The Journal of Finance*, 41(3), 579-590. <https://doi.org/10.1111/j.1540-6261.1986.tb04518.x>
- Singh, B. (2009). Changing Contours of Capital Flows to India. *Economic and Political Weekly*, XLIV(43), 58-66.
- Thiripalraju, M., & Acharya, R. (2013). Dynamic Interaction between Institutional Investment and Stock Returns: A Case Study of FIIs and Mutual Funds. *Finance India*, XXVII(4), 1173-1191.
- Tripathi, V., Seth, R., & Bhandari, V. (2015). Foreign Direct Investment and Macroeconomic Factors: Evidence from the Indian Economy. *Asia-Pacific Journal of Management Research and Innovation*, 11(1), 1-11. <https://doi.org/10.2139/ssrn.2177892>
- Vo, X., V. (2017). Do foreign investors improve stock price informativeness in emerging equity markets? Evidence from Vietnam. *Research in International Business and Finance*, 42, 986-991. <https://doi.org/10.1016/j.ribaf.2017.07.032>
- Wang, L., & Li, S. (2018). Determinants of foreign direct and indirect investments from the institutional perspective: A comparative analysis between emerging and mature markets. *International Journal of Emerging Markets*, 13(5), 1330-1347. <https://doi.org/10.1108/IJoEM-01-2018-0038>
- Waqasa, Y., Hashmia, S., & Nazir, M. (2015). Macroeconomic factors and foreign portfolio investment volatility: A case of South Asian countries. *Future Business Journal*, 1(1-2), 65-74. <https://doi.org/10.1016/j.fbj.2015.11.002>
- Warganegara, D. (2018). The Effects of Firm-Level Investability Sizes on Foreign Ownership in Indonesian Public Firms. *Asia-Pacific Financial Markets*, (25), 267-284. <https://doi.org/10.1007/s10690-018-9248-3>
- Weng, P., & Tsai, W. (2018). Do foreign institutional traders have private information for the market index? The aspect of market microstructure, *International Review of Economics and Finance*, 55, 308-323. <https://doi.org/10.1016/j.iref.2017.07.011>
- Zhang, X., Yang, X., Strange, R., & Zhang, Q. (2017). Informed trading by foreign institutional investors as a constraint on tunneling: Evidence from China. *Corporate Governance International Review*, 25(4), 222-235. <https://doi.org/10.1111/corg.12206>
- Zou, L., Tang, T., & Li, X. (2016). The stock preferences of domestic versus foreign investors: Evidence from Qualified Foreign Institutional Investors (QFIIs) in China. *Journal of Multinational Financial Management*, 37-38, 12-28. <https://doi.org/10.1016/j.mulfin.2016.11.002>

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