

# EFFECT OF FOREIGN INVESTOR TRANSACTIONS ON STOCK MARKET RETURNS

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**A****bstract:** Although there are many studies examining the relationship between foreign investor transactions and stock market returns, these studies mostly focus on developed markets. In terms of emerging markets, there is a gap in the literature. This study which also considers effect of financial crisis aims to contribute existing literature by investigating the relationship between foreign investor transactions and BIST returns. Since data period includes a financial crisis, not only conventional tests but also tests that take structural breaks into account are also implemented. At the end of the analyses, a long run relationship is detected between variables. Structural breaks are found in crisis period which is in consistence with expectations. In terms of causality relationship a unidirectional relationship is found from foreign investor transactions to stock market returns. That result is essential since it indicates directing role of foreign investor transactions on stock market returns. Directing role of foreign investor transactions on stock markets led emerging stock markets to become fragile.

**Keywords:** *Stock markets, financial crisis, foreign investors.*

# YABANCI YATIRIMCI İŞLEMLERİNİN BORSA GETİRİLERİNE ETKİSİ

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**Ö**z: Literatürde yabancı yatırımcıların işlemleri ile hisse senedi piyasası getirileri arasındaki ilişkiyi inceleyen birçok çalışma olmasına rağmen, bu çalışmaların çoğu gelişmiş piyasaları incelemektedir. Gelişmekte olan piyasalar açısından literatürde bir açık vardır. Bu çalışma söz konusu ilişkiyi finansal krizlerin etkisini de dikkate alarak inceleyerek var olan literatüre katkıda bulunmayı amaçlamaktadır. İncelenen dönemin finansal kriz dönemini içermesi nedeniyle çalışmada standart testlerin yanı sıra yapısal kırılmaları dikkate alan testlerde uygulanmıştır. Analizlerin sonucunda değişkenler arasında uzun dönemli bir ilişki bulunmuştur. Beklentiye paralel olarak finansal kriz döneminde kırılmalar gözlemlenmiştir. Nedensellik ilişkisine bakıldığında ise yabancı yatırımcı işlemlerinden borsa getirisine doğru bir ilişki tespit edilmiştir. Bu sonuç yabancı yatırımcıların işlemlerinin borsa getirilerini yönlendirme rolünü göstermesi bakımından önemlidir. Yabancı yatırımcıların işlemlerinin borsayı yönlendirme rolü, gelişmekte olan piyasaları kırılğan hale getirmektedir.

**Anahtar Sözcükler:** Borsa, finansal krizler, yabancı yatırımcılar.

## INTRODUCTION

Financial liberalization whose key factor is free movement of capital has been experienced in the last decade. In following years there has been a growing interest among researchers in the examination of effect of foreign investor transactions on emerging stock markets. Reason behind that interest could be the view which associates foreign investor transactions and financial crises for emerging markets. According to proponents of this view, foreign investor transactions lead emerging markets to become destabilized and expose them to financial crises. This subject is also noteworthy to study for Turkey where ratio of market capitalization held by foreigner investors ranges between 60-70 % and for which financial crisis is a familiar phenomenon.

After capital movements are liberalized in Turkey, number of foreign investor transactions has increased year by year. High level of foreign investor participation on stock market and stock market crashes that are accompanied with frequent financial crises has lead researchers to question effect of foreign investor transactions on Turkish stock market. Capital outflows which are experienced during financial crises have generated the question asking if foreign investor transactions lead to financial crises. This study attempts to investigate the effect of foreign investor transactions on BIST return. Although there are some studies which examine same topic, this study attempts to differentiate itself from others by taking effect of financial crises into account. This study contributes the literature by giving answer to question asking whether foreign investor transactions have a directing role in emerging stock market returns. Effect of BUY and SELL transactions on stock market return is also examined separately.

Most important motivation behind foreign investor participation in emerging markets is portfolio risk reduction that is attained through international diversification. Nonetheless this reduction can be achieved as long as correlation between countries is low. Foreign inflows are expected to decrease cost of capital in emerging markets. In consistence with expectation Stulz (1997) conclude that cost of equity is decreased, as a country is opened to foreign investors. Another contribution is the discipline that is provided by emerging markets, which attempt to attract foreign investors, to not only foreign investors but also local investors. Some authors like Stulz (1997) even evaluate portfolio flows as the engine of the worldwide growth.

In the spite of the positive sides, some authors state that foreign investor transactions cause emerging markets to become destabilized and cause economic growth to slow down. Some proponents of this view even perceive domestic investors

as the losing side of emerging market investments and accuse foreign investors of being speculative.

Stock returns are expected to be theoretically related with foreign investor transactions. This is not surprising since foreign investor participation contributes risk diversification and stock market liquidity. Consistently base broadening hypothesis also asserts that foreign investor participation improves risk sharing and liquidity, which cause required risk premium to decrease and stock prices to increase in turn.

There are two hypotheses which examine effect of foreign investor transactions on stock markets. First is feedback trading hypothesis according to which current equity flows are affected by past equity returns. In other words this hypothesis evaluates foreign investors as return chasers (Bohn, Tesar, 1996; Bekaert *et al.*, 2002). According to this hypothesis foreign investors tend to buy stocks in bull markets, whereas they tend to sell in bear markets. Since foreign investor sales/purchases lead bear/bull markets to fall/rise further, foreign investors are blamed for driving stock prices away from fundamentals. Second hypothesis is information contribution hypothesis according to which foreign equity flows affect stock returns. This hypothesis can be examined under two parts. According to first part, equity flows incorporate fundamental prospects that make impact of flows on returns permanent. (Swanson, Lin, 2003: 302) On the other hand second part which includes price pressure explanations asserts that it is the noise not fundamentals that is incorporated by equity flows and this makes impact of equity flows on returns temporary. In both cases local returns are related with current and past equity flows.

Relationship between foreign investor transactions and stock market returns is examined by many authors. Akar (1997) who has attempted to test positive feedback hypothesis has found a unidirectional causality relationship from stock returns to foreign investors trading volume. Swanson and Lin (2003), who have examined the relationship between international equity flows and returns in eight emerging markets, have tested not only feedback trading hypothesis but also information hypothesis. At the end of the study information content of flows with resulting effects on returns is found stronger than feedback trading hypothesis. Dahlquist and Robertsson (2004) have studied investment behavior of foreign investors in association with financial liberalization. At the end of the study a strong link is found between foreign investor trading and local market returns. Moreover foreign investors are evaluated as uninformed feedback traders. Another study is prepared by Reis *et al.* (2008) who has examined same relationship in Brazil. In this study foreign inflows are found as

boosting stock market returns for the period between 1995 and 2005. Samarakoon (2009) has investigated the relationship between equity flows and stock returns in Sri Lanka. In this study not only the effect of foreign investor transactions but also the effect of local investor transactions on stock market is examined. According to empirical results, domestic institutional and foreign individual purchases lead to higher future returns whereas domestic individual purchases lead to lower future returns. Foreign institutional purchases are found to have no impact on future returns. Okuyan and Erbaykal (2011) have examined the relationship about issue based on base broadening hypothesis. At the end of the study authors have detected a positive relationship between foreign investor transactions and stock market returns. An essential study which investigates same relationship in Turkey has written by Numan and İvizlerli (2012) who has used structural VAR model. This study also extends VAR approach to individual stocks. At the end of the study net foreign flows are found as forecasting future market returns, but not individual stock returns. Foreign investors are found as negative feedback trading but only in rising markets and under market instability.

In the literature although there are many studies which examine effect of foreign investor transactions on developed stock market returns, only few studies exist which examine same relation from the perspective of emerging markets. This study attempts to contribute existing literature by investigating this relationship in Turkish stock market by also considering effect of financial crisis experienced in 2008. Furthermore it is also questioned if results are in consistence with feedback trading hypothesis or information hypothesis.

## 1. DATA AND EMPIRICAL RESULTS

In the empirical part of this study effect of foreign investor transactions on BIST 100 index return will be examined. In the analysis buy and sell transactions of foreign investors will be considered separately except for Gregory Hansen Test where effect of buy and sell transactions is taken into account together. Volume of buy and sell transactions is used in monthly frequency for the period between Jan 2003-June 2014, whereas logarithm of BIST-100 index is used as stock market return.

Firstly conventional ADF, Philips Perron and KPSS tests will be implemented to test unit root for variables. After then Ziwt Andrews unit root test (1992) which takes structural break possibility into account is used. In the next step, existence of a long run relationship will be examined by using Gregory Hansen (1996) cointegration test. By

this way structural breaks will be taken into account in cointegration relationship. After existence of cointegration is proven, causality relationship will be investigated by causality via error correction model. Results of conventional unit root tests are given in Table 1.

**Table 1. ADF Test Results**

	ADF		Philips Perron		KPSS	
	Level	First Difference	Level	First Difference	Level	First Difference
BUY transactions	$\eta_\mu$ 2.283128 [-2.882910]	$\eta_\mu$ -12.38256* [-2.882910]	$\eta_\mu$ -3.731343* [-2.882590]	-	$\eta_\mu$ 0.958883* [0.463000]	-
	$\eta_\tau$ -2.932934 [-3.443450]	$\eta_\tau$ -12.35256* [-3.443450]	$\eta_\tau$ -6.005723* [-3.442955]	-	$\eta_\tau$ 0.158834* [0.146000]	-
Log of BIST 100	$\eta_\mu$ -9.041889* [-2.882748]	-	$\eta_\mu$ -9.110511* [-2.882748]	-	$\eta_\mu$ 0.161239 [0.463000]	-
	$\eta_\tau$ -9.085526* [-3.443201]	-	$\eta_\tau$ -9.102351* [-3.443201]	-	$\eta_\tau$ 0.055342 [0.146000]	-
SELL transactions	$\eta_\mu$ -2.194163 [-2.882910]	$\eta_\mu$ -12.15143* [-2.882910]	$\eta_\mu$ -3.404654* [-2.882590]	-	$\eta_\mu$ 0.944116* [0.463000]	-
	$\eta_\tau$ -2.829272 [-3.443450]	$\eta_\tau$ -12.11820* [3.443450]	$\eta_\tau$ -5.483998* [-3.442955]	-	$\eta_\tau$ 0.152836* [0.146000]	-

$\eta_\tau$  and  $\eta_\mu$  refer to the test statistics with and without trend, respectively. \* and \*\* denote rejection of null hypothesis at 1% and 5%, respectively. Numbers in brackets are Mckinnon critical values for %5.

As it is obvious in table 1 BUY and SELL variables have unit root on level, whereas BIST return do not have based on ADF test results. Nonetheless according to Philips Perron test results all variables are stationary at level. KPSS unit root test in which null hypothesis asserts that there is no unit root has been also implemented. Results of KPSS unit root test are more similar to results of ADF test. According to KPSS test, BUY and SELL variables have unit root both with and without trend. Return variable is found stationary. As it is obvious, results of unit root tests differ. Since traditional unit root tests do not take possibility of a structural break into account, Ziwt Andrews (1992) test will be implemented in the next step.

Ziwt and Andrews (1992) has developed a unit root test which allows for one break to be endogenously determined. Ziwt and Andrews (1992) have used three models. First one is model A which allows one time shift in the intercept of series, second model is model B which allows for one time change in the slope of trend function. Model C accommodates the possibility of a change in the intercept as well as a

trend break. In this study, model C is implemented since it is the least restrictive one. Table 2 gives the results of Ziwot and Andrews Test results.

**Table 2. Ziwot Andrews Test Results**

Variable	Break Date	Min t-stat
BUY transaction	2008M8	-4.914223 [-5.08]
Log of BIST-100 Index	2008M1	-3.706370 [-5.08]
SELL transaction	2008M10	-4.723967 [-5.08]

As it is clear in table 2, there are structural breaks for all variables. Moreover all of the breaks are observed in 2008. These breaks could be associated with the global crisis that is experienced in 2008. First structural break is observed on January of 2008 for BIST-100 index. On the other hand structural breaks are reported for BUY and SELL transactions on August 2008 and October 2008 respectively. It is also essential to specify that structural break that is observed on BUY variable is two months earlier than the structural break that is seen on SELL variable. This case may be a reflection of disposition effect proposed by Shefrin and Statman (1985) which is the tendency of investors to sell winners too early and ride losers too long. Although BIST-100 index has fallen sharply on January 2008 and stay low afterwards, it has taken months for foreign investors to react through SELL transactions.

After implementation of unit root tests, Gregory Hansen Test (1996) will be applied in order to examine cointegration relationship between variables. The way how causality test is applied will be decided according to nonexistence/existence of cointegration relationship. Gregory Hansen (1996) test gives the dates of structural breaks. In implementation of this test, effect of BUY and SELL transactions of foreign investors are considered together.

Residual-based technique of Gregory and Hansen (1996) which tests cointegration also takes possible structural breaks into account. Authors have tested the null hypothesis of no cointegration. Gregory and Hansen (1996) have suggested three models: Cointegration with level shift (CC), cointegration with level shift and trend (C/T) and cointegration with regime shift (C/S). Table 3 reports the results of Gregory Hansen test.

**Table 3. Gregory Hansen Test Results**

Model	Test stat.	Break date	Critical Value (%5)	Critical Value (%1)
CC	-5.936301	2005m12	-4.61	-5.13
C/T	-9.250809	2009m02	-4.99	-5.45
C/S	-10.73841	2008m09	-4.95	-5.47

\*Critical values are taken from Gregory Hansen (1996)

Results of Gregory Hansen Test which are reported on table 3 prove existence of cointegration relationship. Null hypothesis according to which there is no cointegration between variables is rejected. In other words a long term relationship is detected between variables. Structural breaks are reported in all models. First structural break is observed on December of 2005 according to model CC. This break may be associated with the process maintained for membership of Turkey to European Union. Furthermore in the same year appreciation of local currency (after introduction of YTL) has attracted attention of foreign investors who get 79% return in terms of USD during that year. Other breaks are observed on February 2009 and September 2008 according to models C/T and C/S respectively. These breaks could be associated with the global financial crisis that is experienced in 2008. Since existence of cointegration is proved by Gregory and Hansen (1996) test, standard Granger Causality Test cannot be used. Instead causality via error correction model will be applied. Results are reported on Table 4 and Table 5.

**Table 4. Vecm Causality for SELL transactions**

Null Hypotheses	Test Statistics		
	Chi-square	Probability	Conclusion
SELL transactions of foreign investors does not Granger Cause stock market returns	22.15758	0.0143	Reject Ho
Stock market returns does not Granger cause SELL transactions of foreign investors	13.78191	0.1832	Fail to reject Ho

**Table 5. Vecm Causality for BUY Transactions**

Null Hypotheses	Test Statistics		
	Chi-square	Probability	Conclusion
BUY transactions of foreign investors does not Granger Cause stock market returns	23.97336	0.0077	Reject Ho
Stock market returns does not Granger cause BUY transactions of foreign investors	15.21000	0.1246	Fail to reject Ho



According to table 4 and table 5, causality relationships are found from BUY-SELL transactions of foreign investors to stock market return. This result is not surprising when high percentage of foreign investors who participates in BIST is considered. At the end of empirical analysis a short run causality relationship is found from foreign investor transactions to stock market returns. This result is in consistence with information contribution hypothesis. Moreover a long term cointegration relationship is also found.

### CONCLUSION

Although various studies exist examining the relationship between foreign investor transactions and stock returns, these studies generally focus on developed economies. In terms of emerging markets there are only few studies that examine that relationship. This study aims to contribute the literature by investigating this relationship in Turkish stock market and discussing results according to relevant hypotheses. Since data period analyzed includes a financial crisis period, tests which take structural breaks into account are used. At the end of the empirical analysis, structural breaks are observed on the time of crisis as it is expected. A long term relationship is found between variables. This result is in consistence with existing literature. Moreover a unidirectional relationship is found from BUY and SELL transactions to stock market returns which is consistent with information contribution hypothesis. Findings reported are also in consistence with results of Reis *et al.* (2008), Samarakoon (2009), Okuyan and Erbaykal (2011), and Numan and İkizlerli (2012). These results indicate directing role of foreign investor transactions in emerging stock market returns. Moreover findings validate the sensitivity of emerging market returns to foreign investor transactions. When high ratio of foreign investor participation in BIST is taken into account, importance of that sensitivity could be understood. Findings also show the fragility of Turkish stock market to economic problems of foreign countries which will be reflected on transactions of foreign investors. Mentioned sensitivity of BIST could only be decreased by attracting more local investors into market. With this aim first step could be specification of reasons for low participation of local investors in BIST. One reason for low participation of local investors in BIST is the deficiency of savings. Firstly policies should be implemented in order to increase savings rate of local investors. Another reason for low participation of local investors could be deficiency of consultation and education. Local investors could be given seminars about stock markets. Once they are informed, they will be more willing to invest in stock market.

For further study same relationship could be investigated by taking institutional foreign flows and individual foreign flows separately into account.

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