Understanding exchange rate exposure through net foreign exchange position channel *

Fatih Altunok †, Huseyin Aytug ‡and Arif Oduncu§

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Abstract

This paper uses a hand-collected unique dataset of net foreign exchange (FX) position of firms to examine the foreign exchange exposure puzzle. Although theoretical literature and conventional wisdom support the idea of FX shocks have strong impacts on firm performance, empirical literature has documented little support for exchange rate exposure. We show that the effect of net FX position has a negative impact on firm performance. Moreover, net FX position exacerbates the negative effects of currency depreciation. Thus, net FX position is an important channel for foreign exchange exposure. We also find some evidence that exporters have better performance during devaluation periods.

JEL Codes: F23, F31, G15, G32

Keywords: Exchange Rate Exposure, Net FX position, Firm Performance

* *The views expressed herein are solely of the authors and do not represent those of Central Bank of the Republic of Turkey or its staff.*

† *Central Bank of the Republic of Turkey, fatih.altunok@tcmb.gov.tr*

‡ *Central Bank of the Republic of Turkey, huseyin.aytug@tcmb.gov.tr*

§ *Central Bank of the Republic of Turkey, arif.oduncu@tcmb.gov.tr*

1 Introduction

Foreign exchange (FX) fluctuations have become more important for firm performance in financing, risk management and investment decisions due to globalization. Understanding the main channels through which FX fluctuations have impacts on firm performance is vital not only for investors but also for policy makers especially in emerging markets since their currencies are more volatile than those of advanced countries. Specifically, unmatched FX assets and FX liabilities, namely net foreign exchange position, of firms has been a source of concern since FX shocks might affect firm performance through this channel, which may affect financial stability.

The Turkish case makes an interesting example since the net FX position of Turkish firms has increased drastically in the last decade such that while it was 6 percent of GDP in 2003, it has increased to 20 percent of GDP as of September 2014. Turkish firms have become more global especially after 2000 and, thus the volume of exports and imports has increased substantially. Moreover, they have had better access to international financial markets thanks to the financial and economic stability policies implemented after 2001 crisis. On the other hand, they have become more vulnerable to foreign exchange due to the imbalance between their FX liabilities and FX assets. Therefore, FX shocks might have some significantly negative effects on the performance of Turkish firms.

The literature supports the argument that FX shocks should affect firm performance mainly through the channels of imports and exports. According to Shapiro (1975), the proportion of export sales and foreign competition are the main determinants of exchange rate exposure of firms. Bessembinder (1992) claims that firm exposure is influenced by the size of home country and interactions between the firm and its international competitors. Allayannis and Ihrig (2001) show that industry level markup is very important for the exchange rate exposure. Marston (2001) argues that exchange rate exposure of firms is mainly influenced by their net foreign revenues.

Theoretical literature and conventional wisdom support the idea of FX shocks have strong impacts on firm performance, however empirical literature presents mixed results. Jorion (1990) finds that only five percent of US multinational firms face significant exchange rate exposure. Amihud (1994) claims no evidence of significant exposure for a sample of US multinational exporting firms. Bartov and Bodnar (1994) argue that although there is no contemporaneous exchange rate exposure on firm performance, the lagged change of US dollar affects firm performance. Pritamani et al. (2004), employing a dataset of American firms, find that the effect is insignificant for exporters but significant for importers. On the other hand, He and Ng (1998) claim that there is a strong contemporaneous exchange rate exposure for a sample of Japanese multinational firms. Similarly, Dominguez and Tesar (2006) find that exchange rate changes are important for a significant fraction of firms using a sample of 8 advanced and developing countries. Pratap et al. (2003) show that holding FX debt has a negative impact on the performance of Mexican firms, especially during the episodes of devaluation. Rossi (2012) finds a significant negative relationship between currency devaluations and the performance of Brazilian companies. Moreover, Bodnar and Gentry (1993), Williamson (2001) and Dominguez and Tesar (2006) claim that the nature of foreing exchange exposure varies across countries and over time due to the dynamic behavior of firms in response to exchange rate risk. Ye et al. (2014) show that exchange rate regime is an important determinant of foreign exchange exposure for emerging markets.

This is the first study, to the best of our knowledge, examining the channel of net FX position, even though there are numerous papers investigating foreign exchange exposure both for developed and developing countries. This paper contributes to the existing literature in a number of ways. The main contribution of our paper is to use a unique, hand collected dataset and a novel perspective in understanding how foreign exchange rate exposure is channeled through net FX position. Second, we investigate exchange rate exposure using not only stock return but also other firm performance indicators such as return on asset (ROA) and return on equity (ROE). Third, we examine the asymmetric effects of net FX

position by differentiating firms with having a net long and a net short FX position. Fourth, in addition to statistical significance; we study the economic significance of firm performance factors.

Our dataset includes 291 non-financial public Turkish firms, which is obtained from two different data sources. While consolidated balance sheet and income statements are obtained from Borsa Istanbul, the data of net FX position is hand-collected from the footnotes of financial statements of firms, which makes our dataset unique.[1]

In this study, we investigate the effect of net FX position on firm performance. We find strong evidence that the effect of net FX position on firm performance is statistically significant and negative. Moreover, this effect propagates more when Turkish lira depreciates. In addition to statistical significance, we examine the economic significance of net FX position via standardized beta coefficients. We find that net FX position does indeed play an economically important role on firm performance.

We next analyze the impact of having a net long or net short FX position. While a net short FX position has a negative impact on firm performance, a net long FX position increases firm performance as expected. To alleviate a potential endogeneity problem, we further investigate the impact of net FX position by using the system Generalized Method of Moments (GMM) technique.

We also examine the different impacts of net FX position in various circumstances for a robustness check. We make the same analysis by excluding crisis periods, excluding the firms with the largest short FX position (the last quartile), adding time fixed effects, and adding time industry dummies. Moreover, we divide our sample into two subsamples, namely before and after 2008 periods. We show that the negative and significant impact of net FX position on firm performance is robust.

Taking into account the fact that net FX position plays a significant role on firm performance, policy makers should pay attention to the level of net FX position of firms in order

[1]We collected the net FX position data from financial statements of 291 firms for 40 quarters, which makes about 12000 individual financial statements

to mitigate risks that can affect economic stability. The financial system may become more vulnerable if domestic banks are holding a large amount of FX loans, which are lent to the firms with higher level of net short FX position. The risk of FX shocks may be transferred from the real sector to the domestic banking system especially during the periods of depreciation. This situation may deteriorate financial stability. Therefore, policy makers should monitor the real sector carefully and use macro-prudential policies to restrain excessive FX borrowing.

The paper proceeds as follows. The next section describes the data and the empirical methodology used. While Section 3 details the empirical results, section 4 discusses the robustness results. Section 5 concludes the paper.

2 Data and Methodology

2.1 Data

Our dataset is obtained from two different data sources. While consolidated balance sheet and income statements are obtained from Borsa Istanbul, the data of net FX position is hand-collected from the footnotes of financial statements of firms. The information on the net FX position of firms makes our dataset unique. Our sample covers quarterly observations of non-financial Turkish firms between 2001Q2 and 2013Q2. The analysis began in the second quarter of 2001 since the flexible exchange regime in Turkey was adopted in February 2001. Figure 1a shows the trajectory of Turkish lira against the equally weighted basket of US dollar and the euro.

Table 1 provides the definitions of all variables used in the models. All variables are divided by assets, in order to normalize. We also winsorize the variables at the 1 percent level to remove the effects of outliers. The descriptive statistics of the variables used in the study is presented in Table 2. The mean of stock return, ROA and ROE is 1 percent, 3 percent and 4.5 percent, respectively for the full sample. Firms have an average 9 percent

net FX position of their assets. Likewise, firms in the first quartile have 2 percent net long position of their assets, where firms in the last quartile have 20 percent net short position of their assets. Thus, it is obvious that there is an asymmetric distribution in net FX position. The distribution of net FX position is skewed towards the right tail. As a result, the standard deviation of FX position is large. The mean of change of exchange rate is 2.6 percent and its standard deviation is 8.7 percent. The other determinants of firm performance are also included in our dataset. The data on exports, total assets, age, leverage, investment, inventory growth and trade debt are obtained from quarterly balance sheets and income statements of firms. As shown in Table 2, exports are on average 13 percent of sales. While leverage has a mean of 49 percent, investment has a mean of 2 percent of assets. The trade debt to total asset ratio is 13 percent.

In 2013-Q2, while 154 firms have a net short FX position, 88 firms have a net long FX position. Thus, the remaining 11 firms have a balanced FX position. Table 3 shows the distribution of net FX position over time. The distribution of firms by year is shown at Table 4. Although there were 156 firms in 2001 in our sample, this number has increased to 253 in 2013. This increase is the result of IPOs occurred especially after 2010. Table 4 shows the industry distribution of firms in our dataset. Table 4 provides mean values and number of observations for stock return, ROA, ROE and Net FX Position at the industry level. Only Mining and IT industries have a net long FX position. Main industries such as Manufacturing and Energy have a higher mean value of Net FX position than the sample average.

Figure 1b shows that there is a negative correlation between stock return and net FX position. This situation holds for ROA and ROE as seen in Figure 1c and Figure 1d. The correlation of net FX position and stock return, ROA and ROE is -0.40, -0.30 and -0.33, respectively.

2.2 Methodology

In this paper we used the models below to estimate how firm performance is affected.

$$R_{it} = \alpha * BIST100_t + \beta_0 + \beta_1 NFXP_{it} + \beta_2 \Delta ER_t + \beta_3(\Delta ER_t * NFXP_{it}) + \beta_5 EX_{it} + \sum \beta_k Xit + \sum_1^3 kq + \varepsilon_{it} \quad (1)$$

$$ROA_{it} = \beta_0 + \beta_1 NFXP_{it} + \beta_2 \Delta ER_t + \beta_3(\Delta ER_t * NFXP_{it}) + \beta_4 EX_{it} + \sum \beta_k Xit + \sum_1^3 kq + \varepsilon_{it} \quad (2)$$

$$ROE_{it} = \beta_0 + \beta_1 NFXP_{it} + \beta_2 \Delta ER_t + \beta_3(\Delta ER_t * NFXP_{it}) + \beta_4 EX_{it} + \sum \beta_k Xit + \sum_1^3 kq + \varepsilon_{it} \quad (3)$$

where R_{it} is stock return, ROA_{it} is return on asset (ROA), ROE_{it} return on equity (ROE), $NFXP_{it}$ is the net FX position, $BIST100_t$ is benchmark Borsa Istanbul 100 index (BIST100) return ,which is only used in the first model, ΔER_t is the change of exchange rate of Turkish lira against the equally weighted basket of US dollar the euro (positive sign means a depreciation in Turkish lira), EX_{it} is the ratio of exports to total sales of firm i, X_{it} is firm specific control variables and kq is dummy variables for 1st, 2nd, and 3rd quarters.

The firm specific control variables include size, age, leverage as the ratio of liabilities to total assets, investment, growth of inventories, and the ratio of trade debt to total assets. We include BIST100 return to capture the trend of Borsa Istanbul since it may drive stock return of individual firms. Fixed-effect and random-effect models are used in our estimations, and they are robust to heteroskedasticity and serial correlation. We obtained Hausmann Test results in favor of fixed-effects model, thus we only report fixed-effect results.

Five different specifications of the models are estimated. In the first specification we examine the relationship between firm performance and net FX position. In the second

one, we include the change of exchange rate and the export share to the models. In the third one, we add the interaction of net FX position and the change of exchange rate to investigate foreign exchange exposure through the channel of net FX position. In the fourth specification, we add 3 different interaction terms. First one is the interaction between export share and the change of exchange rate to analyze the impact of export share during FX shocks. Second one is the interaction between net FX position and export share to examine whether exporters can minimize risks arised by holding net FX position. Third one is the interaction between the change of exhcange rate, export share and net FX position. By doing this, we are able to analyze the impact of FX shocks on firm performance by taking into account their export share as well as net FX position. Finally, we add firm specific control variables in the last specification in order to see whether the initial results are affected by firm-specific characteristics.

We next analyze the impact of having a net long or a net short FX position to explore asymmetric effects of net FX position. We also re-estimate all specifications with the system GMM to alleviate a potential endogeneity problem between firm performance and net FX position.

As a robustness check, we exclude crisis periods (2001Q2-2001Q4 and 2008Q4-2009Q3), exclude firms with the highest net FX position(the last quartile), add time-fixed effects, add industry dummies, and split data into pre-2008 and post-2008 periods.

The expected sign of BIST100 return is positive since stock return of firms and benchmark index usually co-moves. It is expected that depreciation of Turkish lira might have a negative effect on firm performance. Firms with a net short FX position are exposed to more FX risk thus the expected sign of net FX position is negative. Exporters are considered to have better access to international markets than non-exporters, and thus the expected sign of export share is positive. The expected signs of firm size and age are positive since larger and mature firms are more profitable. Leverage is thought to be a risk factor which might decrease firm performance, thus a negative sign is expected. Firms with higher rate of

investment are expected to have higher returns. Therefore, the expected sign of investment is positive. Firms with higher growth rate of inventory will have lower cost of inventory holding with faster sales, and so they are are expected to have higher returns. Trade debt is considered to be an alternative source of finance, and firms with better access to this type of finance are expected to have better performance. Consequently, its expected sign is positive.

3 Results

The initial estimations of the model for stock return, ROA and ROE are presented in Table 5, 6 and 7, respectively. In Table 5, as expected, there exists a positive and significant relationship between BIST100 return and stock return for all specifications of the model. Net FX position has a negative and significant impact on stock return in the first two columns. The negative sign holds but it loses its significance in the remaining three columns after adding the interaction of the change in exchange rate and net FX position. The sign of the interaction between the change of exchange rate and net FX position is significantly negative. Starting with the second column, the change of exchange rate is included and we find that the depreciation of Turkish lira has a significant and negative impact on stock return for all specifications. This is most probably due to the fact that the increase in the exchange rate results in less investment in the stock market, thus reduce shares prices. Specifically, investors are more willing to invest in FX or FX related instruments rather than the stock market. Moreover, this negative impact increases with the interaction of net FX position. Thus, we can say that net FX position of firms exacerbate the negative effect of depreciation in Turkish lira. Furthermore, we analyze the effect of export share on stock return starting with the second column. Although its sign is insignificant, its interaction with the change of exchange rate is significantly positive. Therefore, we can say that firms with higher export share have significantly better performance during the periods of depreciation since exporters are natural hedgers.

In Table 6, it is shown that net FX position has a significant negative impact on ROA in all columns. Furthermore, this negative impact increases during the periods of depreciation since the sign of the interaction between the change of exchange rate and net FX position is significantly negative. Although the estimate coefficient for the change of exchange rate is insignificantly negative, as shown in the second column when there is no interaction term, it becomes significant and positive after adding interaction terms. Thus, we can say that exchange rate exposure is channeled through net foreign exchange position. Similar to Table 5, while the sign of export share is insignificant, its interaction with the change of exchange rate and net FX position is significantly positive. Consequently, a firm with higher export share has a better performance than those with less export share during the periods of depreciation while they have the same net FX position. We obtain very similar results of Table 6 when we use ROE as a dependent variable instead of ROA as shown in Table 7.

Furthermore, we study the relative economic significance of variables on firm performance by running standardized regression in which the coefficients shows the impact of a one standard deviation change in an independent variable on the dependent variable. As a result, the magnitude of standardized coefficients has become comparable. The first three columns of Table 8 report these standardized coefficients and the last three columns sort out these variables according to their economic significance, where the ordering is based on the absolute value of the standardized coefficients, which are statistically significant at 1 percent level. For the stock return, the most economically significant variable is the return of BIST100, the second one is the change of exchange rate, the third one is the interaction between the change of exchange rate and net FX position, and the last one is inventory growth. For ROA, the log of assets is the most economically significant variable. The interaction between the change of exchange rate and net FX position is the third, net FX position is the fourth and the change of exchange rate is the fifth economically significant variable. When we use ROE as a dependent variable, we find a similar ranking as we found for ROA. We can conclude that net FX position is not only statistically but also economically significant determinant

of firm performance.

After examining the overall effects of net FX position, we also investigate the asymmetric effects of net FX position. We analyze whether having a net long or a net short FX position makes a difference in terms of the impact of firm performance. A net long FX position is also defined the same way that it takes only positive values of net FX position, otherwise zero. A net Short FX position is a promise to pay FX at the maturity date and a net long FX position is a promise to be paid FX at the maturity date. In order to do so, we split firms whether they have a net long or short FX position. A net short FX position is a continuous variable which takes only negative values of net FX position, otherwise zero. Obtained results are shown in Table 9, 10 and 11 for stock return, ROA and ROE correspondingly.

Similar to Table 5, while BIST100 return has a positive and significant impact, the change of exchange rate has a negative and significant impact on the stock return. Although it is expected that having a net short FX position has a negative and a long FX position has a positive impact on firm performance, unexpectedly both have negative impacts on the stock return. From the markets point of view, an FX mismatch,whether a net long or net short position, is not a good sign of firm performance. Moreover, a firm with higher export share and a net short position has significantly better performance than those with less export share during the periods of depreciation. One can argue that firms are able to hedge their net short FX position with their exports during the periods of depreciation. However, this relationship is insignificant when firms have a net long FX position.

As shown in Table 10, having a net short FX position has a negative and significant impact on ROA for all specifications. On the other hand, a net long FX position has a positive impact on ROA, although it loses its significance with the inclusion of interaction between export share and net long FX position starting from the fourth column. This can be explained such that net long FX position has an important impact during the periods of depreciation on firm performance. Similar to Table 6, the change of exchange rate has negative but insignificant sign, however, it becomes significant and positive after adding interaction terms. One can

argue that exchange rate shocks affect the firm performance especially through the FX position of firms. Moreover, the sign of interaction terms between net short (net long) FX positions and change of exchange rate is significantly negative (positive) as expected. Table 11 presents the asymmetric effects of FX position on ROE. Although a net short FX position has a significant and negative impact, a net long FX position has an insignificant estimated coefficient. Similar to Table 10, the impact of change of exchange rate on ROE becomes significant with the inclusion of interaction terms. We can conclude that a net short FX position is more important than a net long FX position on firm performance.

Table 12 presents standardized regression results of Table 9, 10 and 11. Similar to Table 8, the most economically significant variable is the return of BIST100 and the second one is the change of exchange rate for the stock return. Moreover, having a net long FX position is economically more important than having a net short FX position. For the ROA, the log of assets is the most economically significant variable similar to results of Table 8. Opposite to the results of stock return, having a net short FX position is more important determinant of ROA than having a net long FX position. Using ROE as an independent variable, we obtain similar results that the log of assets is the most economically significant variable and having a net short FX position is economically more important than having a net long FX position. We can conclude that a net long and a net short FX positions have different impacts on the firm performance, and thus the asymmetric effects of net FX position exist.

Finally, we re-estimate all specifications of the model by the system GMM in order to take into account the potential endogeneity problem. For instance, better performing firms may be willing to hold more FX position due to either better access to finance or having more cash flows in order to overcome exchange rate shocks. We include one and two period lagged values of the dependent variable in the equation and we find that two lags are significant for the stock return as shown in Table 13. We obtain similar results that the positive and significant relationship exists between BIST100 and stock return for all five specifications. We only include one lag of ROA and ROE, and we find that one lag is significant for both

dependent variables as presented in Table 14 and 15. The sign of net FX position is negative and significant for the first two specifications but its significance is lost with the inclusion of interactions. The interaction between the change of exchange rate and net FX position has a significant and negative impact on the stock return. We can conclude that when Turkish lira depreciates, stock return of firms decreases and this decline is adversely affected through net FX position channel.

Table 14 shows that the sign of net FX position is significantly negative for all five specifications as shown in Table 6. Additionally, the negative effect propagates when Turkish lira depreciates. Although the effect of the export share on ROA is significantly positive when there is no interaction term, it becomes insignificant after adding interaction terms. Nonetheless, its interaction with change of exchange rate and net FX position is significantly positive. Thus, we can say that the positive impact of export share passes to the interaction term. It is consistent with the previous results such that firms with larger share of exports with higher net FX position perform better during the exchange rate shocks. This also proves the fact that exporters are natural hedgers of their net short FX position. Very similar results of Table 14 are obtained, when ROE is used as a dependent variable for firm performance as shown in Table 15.

4 Robustness

We have shown that our results are robust with respect to alternative models and different measure of dependent variables. As a further robustness check, we exclude the crisis periods, exclude the firms with highest net FX position (the last quartile), add time fixed effects, add industry dummies, and split the data into pre-2008 and post-2008 periods.

During the periods of crises, returns of firms decline drastically and periods of crises also coincide with the depreciation of Turkish lira. Thus, we might be capturing the severe negative impact of the crises. We exclude crises quarters that are 2001Q2-2001Q4 and

2008Q4-2009Q3 from the sample. Table 16 presents the results of new estimations, which are very similar to the previous ones. The estimated coefficients are slightly smaller but the signs and significance levels remain the same. By excluding the crises periods, we still find a negative impact of net FX position on the firm performance. It is also possible that firms with the highest net FX position might drive our results in the whole sample. Consequently, we exclude the last quartile of firms with the highest net FX position from the sample. The results in Table 17 show that the effect is still significant and negative but the coefficients are slightly smaller. This reveals that even small amounts of net FX position impact firm performance negatively.

Not including time fixed effects may lead to omitted variable bias due to seasonality variation in the dependent variable. In order to take into account seasonality, we use time fixed effects and the results are shown in Table 18. The results are very similar to the previous ones, which implies that controlling for seasonal variation still produces a negative impact on firm performance. In a similar sense, there might be a deviation that comes from different industries. Hence, we include a new variable that is the interaction of net FX position and the industry dummy. The results are presented in Table 19 and they show that variation among different industries do not cause biased results.

As a final check, we split our data into two sub-periods; before and after 2008. Our main purpose is to understand whether the effect of net FX position has changed after the financial crises of 2008. Table 20 presents that the impact is same for both sub-periods. However the only major difference is the impact of the change of exchange rate after 2008. Its magnitude gets larger probably due to volatility of FX markets caused by the financial crises of 2008.

Having taking into account several factors, we show that our results are robust. Even though the magnitude of coefficients have changed slightly, the robustness checks provide similar results compared to the our initial estimations.

5 Conclusion

In this paper, we investigate exchange rate exposure through net FX position channel in order to resolve the exposure puzzle. We also study the important determinants of exchange rate exposure not only for stock return but also for ROA and ROE as well as the asymmetric effects of net FX position. Furthermore, we examine economic significance of firm performance factors in addition to statistical significance

Our results demonstrate that the effect of net FX position on firm performance is statistically significant and negative. Furthermore, this effect exacerbates the negative effects of devaluation periods. Consequently, we can say that net FX position is an important channel for exchange rate exposure. We also find that while a net short FX position has a negative impact on ROA and ROE, a net long FX position increases ROA and ROE as expected. However, this finding is not valid for stock return since market views that an FX mismatch is not desired whether in a net short or net long position. Additionally, we show some evidence that exporters have better performance during devaluation periods. Finally, our results are robust with respect to alternative models and different samples.

Based on these results, we can say that net FX position is an important channel for exchange rate exposure. It is suggested that policy makers should pay attention to the level of net FX position of firms in order to mitigate the risks that can affect financial stability.

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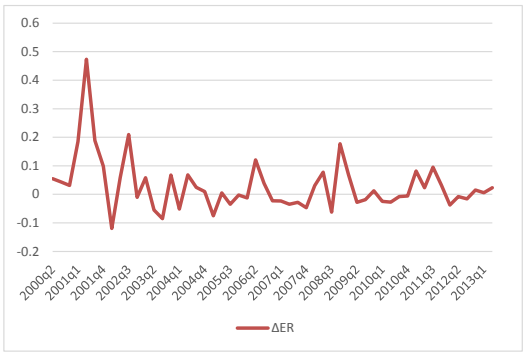
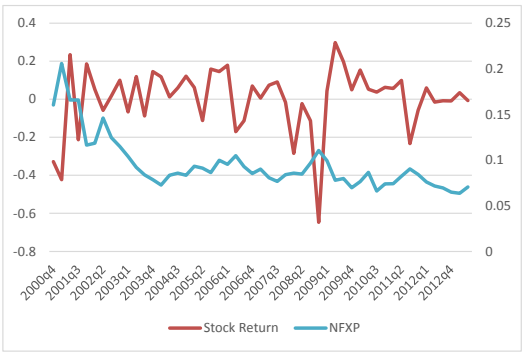
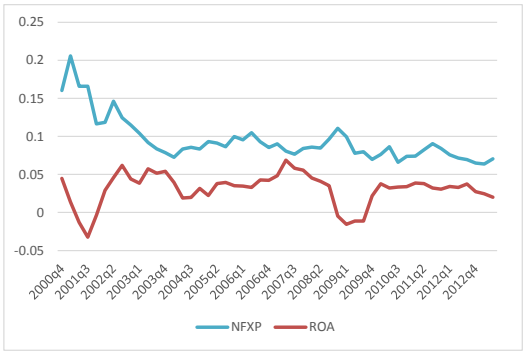
Figure 1: Movements of ΔER, NFXP, Stock Return, ROA and ROE



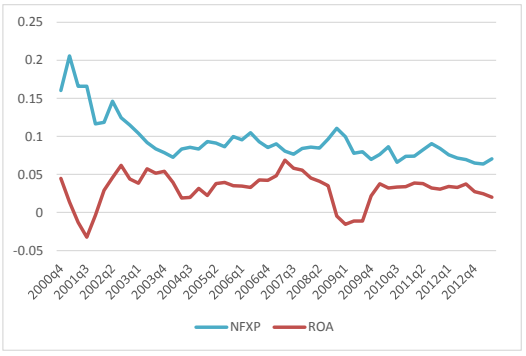
(a) Trajectory of ΔER



(b) NFXP and Stock Return



(c) NFXP and ROA



(d) NFXP and ROE

Table 1: Definition of Variables

Variable	Definition	Expected Sign
Stock Return	Quarterly growth of average stock price	NA
ROA	Net Profit/Total Assets	NA
ROE	Net Profit/Equity	NA
NFXP	Net FX Position/Total Assets	(-)
BIST100	Return of Benchmark Borsa Istanbul 100 Index	(+)
ΔER	Quarterly growth of the basket of US Dollar and the Euro	(-)
Export Share	Exports/Total Assets	(+)
Ln(Assets)	Natural Logarithm of Assets	(+)
Ln(Age)	Natural Logarithm of Age	(+)
Leverage	Liabilities/Total Assets	(-)
Investment	Change of Tangible Fixed Assets/Total Assets	(+)
Inventory Growth	Quarterly growth of Inventories	(+)
Trade Debt	Account Payable/Total Assets	(+)

Table 2: Descriptive statistics

Variable	Obs	Mean	Std Dev	Min	p25	p50	p75	Max
Stock Return	9358	0.001	0.223	-1.367	-0.100	0.024	0.141	0.510
ROA	9139	0.031	0.100	-0.497	-0.022	0.035	0.089	0.297
ROE	8869	0.045	0.248	-2.524	-0.034	0.074	0.173	0.708
NFXP	9590	0.095	0.189	-0.351	-0.016	0.040	0.204	0.724
ΔER	9726	0.026	0.087	-0.119	-0.024	0.010	0.058	0.474
Export Share	9868	0.201	0.236	0.000	0.000	0.095	0.343	0.883
Ln(Assets)	9868	14.001	1.517	8.510	12.950	13.937	14.836	18.469
Ln(Age)	9868	3.375	0.549	-1.386	3.146	3.512	3.720	4.627
Leverage	9590	0.487	0.242	0.073	0.295	0.471	0.665	1.249
Investment	9582	0.025	0.281	-0.767	-0.045	-0.014	0.031	3.902
Inventory Growth	9354	0.026	0.225	-0.507	-0.114	0.000	0.128	1.513
Trade Debt	9590	0.127	0.112	0.004	0.046	0.091	0.171	0.507

Table 3: Number of Firms and Volume of FX position

	Number of Firms					Volume of Net FX Position		
Year	Total	Long	Short	% of Long	% of Short	Total	Long	Short
2001	156	48	106	30.77	67.95	-3021.30	823.24	-3844.55
2002	158	51	104	32.28	65.82	-5069.42	1846.92	-6916.34
2003	160	57	101	35.63	63.13	-3402.36	1742.02	-5144.38
2004	172	59	111	34.30	64.53	-6370.22	1146.93	-7517.15
2005	177	56	119	31.64	67.23	-8901.30	683.34	-9584.64
2006	181	64	114	35.36	62.98	-11184.71	1250.21	-12434.92
2007	186	65	118	34.95	63.44	-11859.38	1533.38	-13392.76
2008	196	68	123	34.69	62.76	-15589.41	2161.89	-17751.29
2009	200	75	122	37.50	61.00	-10898.92	3191.84	-14090.76
2010	219	82	131	37.44	59.82	-15456.67	3715.02	-19171.69
2011	236	84	146	35.59	61.86	-18908.90	4738.64	-23647.54
2012	254	86	158	33.86	62.20	-21191.79	5191.20	-26382.99
2013	253	88	154	34.78	60.87	-23865.53	5644.93	-29510.46

Table 4: Industry Distribution

	Mean				Number of Observations			
Industry	Stock Return	ROA	ROE	NFXP	Stock Return	ROA	ROE	NFXP
Mining	0.009	0.042	0.043	-0.025	190	184	184	194
Manufacturing	0.003	0.031	0.040	0.107	7504	7331	7090	7657
Energy	-0.010	0.046	0.094	0.126	219	215	208	228
Construction	-0.010	0.004	0.001	0.081	165	149	149	164
Retail and Whole Sale	-0.006	0.013	0.058	0.056	288	303	288	334
Restaurants and Hotels	-0.012	-0.011	-0.031	0.075	361	345	343	363
Telecom and Transport	0.000	0.086	0.178	0.029	283	273	268	293
IT	-0.012	0.027	0.072	-0.048	271	262	262	278
Health	0.009	0.043	0.089	0.066	9	9	9	11
Sports and Entertainments	0.026	0.107	0.171	0.131	68	68	68	68
Total	0.001	0.031	0.045	0.095	9358	9139	8869	9590

Table 5: Stock Return and Net FX Position of Firms

VARIABLES	(1) Stock Return	(2) Stock Return	(3) Stock Return	(4) Stock Return	(5) Stock Return
NFXP	-0.042**	-0.039**	-0.022	-0.020	-0.004
	(0.018)	(0.018)	(0.017)	(0.021)	(0.026)
BIST100	0.590***	0.576***	0.576***	0.575***	0.578***
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
ΔER		-0.216***	-0.182***	-0.259***	-0.248***
		(0.033)	(0.036)	(0.049)	(0.050)
ΔER*NFXP			-0.269**	-0.480**	-0.513***
			(0.127)	(0.188)	(0.191)
Export Share		0.011	0.013	-0.003	-0.002
		(0.015)	(0.014)	(0.014)	(0.015)
NFXP*Export Share				-0.008	-0.017
				(0.052)	(0.054)
ΔER*Export Share				0.321**	0.302**
				(0.136)	(0.138)
ΔER*NFXP*Export Share				0.613	0.673
				(0.476)	(0.481)
Ln(Assets)					-0.000
					(0.005)
Ln(Age)					0.022
					(0.029)
Leverage					-0.030*
					(0.016)
Investment					0.002
					(0.005)
Inventory Growth					0.033***
					(0.008)
Tradedebt					0.062*
					(0.035)
DQuarter 1	0.072***	0.066***	0.067***	0.066***	0.068***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
DQuarter 2	0.092***	0.095***	0.096***	0.096***	0.097***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
DQuarter 3	0.001	-0.001	-0.000	-0.001	0.001
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Observations	8,912	8,912	8,912	8,912	8,677
R-squared	0.383	0.387	0.387	0.389	0.392
Number of firms	232	232	232	232	227
Adj. R-squared	0.38	0.39	0.39	0.39	0.39
Year Dummies	Yes	Yes	Yes	Yes	Yes

[a] This table presents the results of fixed effects estimation for Stock Return. The variables are those defined in Table 5 and quarter dummies; and all are reported in three decimal places. We winsorize all variables at the 1% level in both tails of the distribution. Heteroskedasticity and serial correlation robust standard errors are reported in parentheses. ***, ** and * denote significance levels at the 1%, 5%, and 10% levels, respectively.

Table 6: Return on Assets and Net FX Position of Firms

VARIABLES	(1) ROA	(2) ROA	(3) ROA	(4) ROA	(5) ROA
NFXP	-0.180***	-0.180***	-0.138***	-0.133***	-0.071***
	(0.018)	(0.017)	(0.016)	(0.022)	(0.023)
ΔER		-0.014	0.070***	0.089***	0.086***
		(0.009)	(0.015)	(0.022)	(0.022)
ΔER*NFXP			-0.669***	-0.849***	-0.867***
			(0.077)	(0.112)	(0.108)
Export Share		0.000	0.004	0.005	-0.002
		(0.015)	(0.014)	(0.016)	(0.014)
NFXP*Export Share				-0.024	-0.055
				(0.058)	(0.054)
ΔER*Export Share				-0.074	-0.065
				(0.065)	(0.063)
ΔER*NFXP*Export Share				0.646***	0.645***
				(0.244)	(0.243)
Ln(Assets)					0.032***
					(0.006)
Ln(Age)					0.044
					(0.040)
Leverage					-0.129***
					(0.017)
Investment					0.015***
					(0.004)
Inventory Growth					0.028***
					(0.004)
Tradedebt					0.064**
					(0.030)
DQuarter 1	0.002*	0.001	0.002**	0.002**	0.007***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
DQuarter 2	0.002**	0.002***	0.003***	0.003***	0.008***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
DQuarter 3	0.001	0.001	0.002**	0.002**	0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Constant	0.019**	0.023**	0.021**	0.021**	-0.505***
	(0.009)	(0.010)	(0.010)	(0.010)	(0.155)
Observations	8,984	8,984	8,984	8,984	8,753
R-squared	0.126	0.126	0.154	0.156	0.217
Number of firms	237	237	237	237	232
Adj. R-squared	0.12	0.12	0.15	0.15	0.21
Year Dummies	Yes	Yes	Yes	Yes	Yes

[a] This table presents the results of fixed effects estimation for ROA. The variables are those defined in Table 6 and quarter dummies; and all are reported in three decimal places. We winsorize all variables at the 1% level in both tails of the distribution. Heteroskedasticity and serial correlation robust standard errors are reported in parentheses. ***, ** and * denote significance levels at the 1%, 5%, and 10% levels, respectively.

Table 7: Return on Equity and Net FX Position of Firms

VARIABLES	(1) ROE	(2) ROE	(3) ROE	(4) ROE	(5) ROE
NFXP	-0.184***	-0.184***	-0.134***	-0.124***	-0.112***
	(0.019)	(0.019)	(0.015)	(0.019)	(0.021)
ΔER		-0.027	0.234***	0.280***	0.268***
		(0.036)	(0.052)	(0.059)	(0.059)
ΔER*NFXP			-0.527***	-0.695***	-0.692***
			(0.055)	(0.091)	(0.092)
Export Share		-0.011	-0.001	0.006	-0.014
		(0.035)	(0.034)	(0.035)	(0.032)
NFXP*Export Share				-0.040	-0.057
				(0.058)	(0.055)
ΔER*Export Share				-0.167	-0.128
				(0.197)	(0.193)
ΔER*NFXP*Export Share				0.510**	0.483**
				(0.204)	(0.204)
Ln(Assets)					0.072***
					(0.014)
Ln(Age)					-0.015
					(0.082)
Leverage					-0.106***
					(0.041)
Investment					0.013
					(0.009)
Inventory Growth					0.059***
					(0.011)
Tradedebt					0.043
					(0.085)
DQuarter 1	0.006**	0.005**	0.007***	0.007***	0.010***
	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)
DQuarter 2	0.006**	0.007**	0.010***	0.009***	0.015***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
DQuarter 3	0.002	0.002	0.005*	0.005*	0.007**
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Constant	0.020	0.030	0.015	0.014	-0.879***
	(0.024)	(0.028)	(0.028)	(0.028)	(0.321)
Observations	8,716	8,716	8,716	8,716	8,485
R-squared	0.217	0.217	0.260	0.262	0.285
Number of firms	236	236	236	236	231
Adj. R-squared	0.22	0.22	0.26	0.26	0.28
Year Dummies	Yes	Yes	Yes	Yes	Yes

[a] This table presents the results of fixed effects estimation for ROE. The variables are those defined in Table 1 and quarter dummies; and all are reported in three decimal places. We winsorize all variables at the 1% level in both tails of the distribution. Heteroskedasticity and serial correlation robust standard errors are reported in parentheses. ***, ** and * denote significance levels at the 1%, 5%, and 10% levels, respectively.

Table 8: Standardized Beta Coefficients and Net FX Position of Firms

	Standardized Coefficients			Rankings		
	(1)	(2)	(3)	(1)	(2)	(3)
VARIABLES	Stock Return	ROA	ROE	Stock Return	ROA	ROE
ZNFXP	-0.004	-0.134***	-0.290***	-	4	3
	(0.022)	(0.044)	(0.053)			
ZBIST100	0.498***	-	-	1	-	-
	(0.012)					
ZΔER	-0.096***	0.074***	0.094***	2	5	5
	(0.019)	(0.019)	(0.021)			
ZΔER*NFXP	-0.056***	-0.211***	-0.293***	3	3	2
	(0.021)	(0.026)	(0.039)			
ZExport Share	-0.003	-0.004	-0.013	-	-	-
	(0.016)	(0.033)	(0.031)			
ZNFXP*Export Share	-0.005	-0.036	-0.056	-	-	-
	(0.016)	(0.036)	(0.054)			
ZΔER*Export Share	0.043**	-0.021	-0.016	-	-	-
	(0.020)	(0.020)	(0.025)			
ZΔER*NFXP*Export Share	0.030	0.063***	0.090***	-	6	-
	(0.021)	(0.024)	(0.038)			
Ln(ZAssets)	-0.002	0.486***	0.441***	-	1	1
	(0.037)	(0.097)	(0.088)			
Ln(ZAge)	0.054	0.243	-0.033	-	-	-
	(0.071)	(0.221)	(0.182)			
ZLeverage	-0.032*	-0.312***	-0.104***	-	2	4
	(0.017)	(0.042)	(0.040)			
ZInvestment	0.003	0.042***	0.015	-	8	-
	(0.006)	(0.011)	(0.010)			
ZInventory Growth	0.033***	0.063***	0.053***	4	7	6
	(0.008)	(0.010)	(0.010)			
ZTradedebt	0.031*	0.071**	0.019	-	-	-
	(0.017)	(0.033)	(0.038)			
DQuarter 1	0.304***	0.065***	0.041***	-	-	-
	(0.023)	(0.015)	(0.012)			
DQuarter 2	0.436***	0.083***	0.060***	-	-	-
	(0.026)	(0.012)	(0.013)			
DQuarter 3	0.003	0.049***	0.027**	-	-	-
	(0.021)	(0.011)	(0.013)			
Constant	-0.549***	0.016	-0.202*	-	-	-
	(0.056)	(0.092)	(0.116)			
Observations	8,677	8,753	8,485			
R-squared	0.392	0.217	0.285			
Number of firms	227	232	2131			
Adj. R-squared	0.39	0.21	0.28			
Year Dummies	Yes	Yes	Yes			

[a] This table presents the results of Standardized Beta Coefficients for Stock Return, ROA and ROE. The variables are those defined in Table 1 and quarter dummies. First three columns report the standardized coefficients and the last three columns sort out these variables according to their economic significance, where the ordering is based on the absolute value of the standardized coefficients, which are statistically significant at 1%. We winsorize all variables at the 1% level in both tails of the distribution. Heteroskedasticity and serial correlation robust standard errors are reported in parentheses. ***, ** and * denote significance levels at the 1%, 5%, and 10% levels, respectively.

Table 9: Stock Return and Asymmetric Effects of Net FX Position of Firms

VARIABLES	(1) Stock Return	(2) Stock Return	(3) Stock Return	(4) Stock Return	(5) Stock Return
Short NFXP	-0.081***	-0.076***	-0.072***	-0.058**	-0.056*
	(0.020)	(0.020)	(0.019)	(0.025)	(0.030)
Long NFXP	0.096**	0.093**	0.156***	0.137**	0.187***
	(0.046)	(0.046)	(0.046)	(0.055)	(0.058)
BIST100	0.586***	0.572***	0.572***	0.571***	0.576***
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
ΔER		-0.215***	-0.261***	-0.292***	-0.288***
		(0.033)	(0.047)	(0.062)	(0.064)
ΔER*Short NFXP			0.013	-0.351	-0.353
			(0.156)	(0.231)	(0.237)
ΔER*Long NFXP			-1.405***	-0.972	-1.153*
			(0.450)	(0.631)	(0.622)
Export Share		0.011	0.012	0.006	0.004
		(0.015)	(0.014)	(0.018)	(0.018)
Short NFXP*Export Share				-0.062	-0.064
				(0.065)	(0.063)
Long NFXP*Export Share				0.087	0.032
				(0.133)	(0.147)
ΔER*Export Share				0.165	0.158
				(0.183)	(0.186)
ΔER*Short NFXP*Export Share				1.120**	1.132**
				(0.560)	(0.567)
ΔER*Long NFXP*Export Share				-1.386	-1.065
				(1.634)	(1.644)
Ln(Assets)					-0.001
					(0.005)
Ln(Age)					0.026
					(0.028)
Leverage					-0.018
					(0.016)
Investment					0.003
					(0.005)
Inventory Growth					0.032***
					(0.008)
Tradedebt					0.064*
					(0.035)
DQuarter 1	0.071***	0.066***	0.066***	0.066***	0.067***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
DQuarter 2	0.092***	0.096***	0.096***	0.096***	0.097***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
DQuarter 3	0.001	-0.000	-0.001	-0.001	-0.000
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Constant	-0.187***	-0.137***	-0.135***	-0.133***	-0.194*
	(0.011)	(0.013)	(0.013)	(0.013)	(0.120)
Observations	8,936	8,936	8,936	8,936	8,677
R-squared	0.382	0.386	0.387	0.390	0.394
Number of firms	242	242	242	242	227
Adj. R-squared	0.38	0.38	0.39	0.39	0.39
Year Dummies	Yes	Yes	Yes	Yes	Yes

[a] This table presents the results of fixed effects estimation for Stock Return. The variables are those defined in Table 1 and quarter dummies. A net short FX position is a continuous variable which takes only negative values of net FX position, otherwise zero. A net long FX position takes only positive values of net FX position, otherwise zero. We winsorize all variables at the 1% level in both tails of the distribution. Heteroskedasticity and serial correlation robust standard errors are reported in parentheses. ***, ** and * denote significance levels at the 1%, 5%, and 10% levels, respectively.

Table 10: Return on Assets and Asymmetric Effects of Net FX Position of Firms

VARIABLES	(1) ROA	(2) ROA	(3) ROA	(4) ROA	(5) ROA
Short NFXP	-0.193***	-0.193***	-0.148***	-0.156***	-0.072***
	(0.021)	(0.021)	(0.020)	(0.025)	(0.027)
Long NFXP	-0.131***	-0.132***	-0.102**	-0.043	-0.066
	(0.041)	(0.041)	(0.041)	(0.061)	(0.060)
ΔER		-0.013	0.066***	0.087***	0.082***
		(0.009)	(0.024)	(0.032)	(0.031)
ΔER*Short NFXP			-0.649***	-0.824***	-0.846***
			(0.104)	(0.141)	(0.138)
ΔER*Long NFXP			-0.735***	-0.918**	-0.959***
			(0.228)	(0.358)	(0.306)
Export Share		0.000	0.004	-0.012	-0.010
		(0.015)	(0.014)	(0.015)	(0.015)
Short NFXP*Export Share				0.042	-0.015
				(0.066)	(0.062)
Long NFXP*Export Share				-0.239	-0.167
				(0.157)	(0.148)
ΔER*Export Share				-0.075	-0.042
				(0.083)	(0.077)
ΔER*Short NFXP*Export Share				0.583*	0.530*
				(0.310)	(0.303)
ΔER*Long NFXP*Export Share				0.762	1.045
				(0.755)	(0.731)
Ln(Assets)					0.032***
					(0.006)
Ln(Age)					0.042
					(0.041)
Leverage					-0.131***
					(0.018)
Investment					0.015***
					(0.004)
Inventory Growth					0.028***
					(0.004)
Tradedebt					0.063**
					(0.030)
DQuarter 1	0.002*	0.001	0.002**	0.002**	0.006***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
DQuarter 2	0.002**	0.002***	0.003***	0.003***	0.008***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
DQuarter 3	0.001	0.001	0.002**	0.002*	0.005***
	(0.001)	(0.001)	(0.001))	(0.001)	(0.001)
Constant	0.023**	0.026**	0.024**	0.027***	-0.497***
	(0.009)	(0.010)	(0.011)	(0.010)	(0.155)
Observations	8,984	8,984	8,984 4	8,984	8,753
R-squared	0.127	0.127	0.155	0.158	0.217
Number of firms	237	237	237	237	232
Adj. R-squared	0.13	0.13	0.15	0.16	0.21
Year Dummies	Yes	Yes	Yes	Yes	Yes

[a] This table presents the results of fixed effects estimation for ROA. The variables are those defined in Table 1 and quarter dummies. A net short FX position is a continuous variable which takes only negative values of net FX position, otherwise zero. A net long FX position takes only positive values of net FX position, otherwise zero. We winsorize all variables at the 1% level in both tails of the distribution. Heteroskedasticity and serial correlation robust standard errors are reported in parentheses. ***, ** and * denote significance levels at the 1%, 5%, and 10% levels, respectively.

Table 11: Return on Equity and Asymmetric Effects of Net FX Position of Firms

VARIABLES	(1) ROE	(2) ROE	(3) ROE	(4) ROE	(5) ROE
Short NFXP	-0.198***	-0.198***	-0.146***	-0.137***	-0.123***
	(0.020)	(0.020)	(0.017)	(0.020)	(0.022)
Long NFXP	-0.006	-0.006	0.011	0.065	0.033
	(0.048)	(0.048)	(0.049)	(0.071)	(0.066)
ΔER		-0.025	0.230***	0.246***	0.230***
		(0.036)	(0.059)	(0.069)	(0.070)
ΔER*Short NFXP			-0.517***	-0.666***	-0.663***
			(0.060)	(0.100)	(0.101)
ΔER*Long NFXP			-0.527	-1.012***	-1.049***
			(0.466)	(0.351)	(0.348)
Export Share		-0.009	0.000	-0.006	-0.020
		(0.035)	(0.034)	(0.032)	(0.032)
Short NFXP*Export Share				-0.033	-0.054
				(0.063)	(0.060)
Long NFXP*Export Share				-0.193	-0.166
				(0.195)	(0.178)
ΔER*Export Share				-0.033	0.040
				(0.186)	(0.186)
ΔER*Short NFXP*Export Share				0.436*	0.394*
				(0.226)	(0.226)
ΔER*Long NFXP*Export Share				1.711	1.997
				(1.557)	(1.562)
Ln(Assets)					0.071***
					(0.014)
Ln(Age)					-0.009
					(0.083)
Leverage					-0.099**
					(0.041)
Investment					0.015*
					(0.009)
Inventory Growth					0.057***
					(0.011)
Tradedebt					0.050
					(0.083)
DQuarter 1	0.004*	0.004	0.006**	0.006**	0.009***
	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)
DQuarter 2	0.006*	0.006**	0.009***	0.009***	0.015***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
DQuarter 3	0.002	0.002	0.005*	0.005*	0.007**
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Constant	0.043*	0.051*	0.033	0.035	-0.875***
	(0.024)	(0.028)	(0.029)	(0.028)	(0.324)
Observations	8,716	8,716	8,716	8,716	8,485
R-squared	0.222	0.222	0.263	0.266	0.288
Number of firms	236	236	236	236	231
Adj. R-squared	0.22	0.22	0.26	0.26	0.29
Year Dummies	Yes	Yes	Yes	Yes	Yes

[a] This table presents the results of fixed effects estimation for ROE. The variables are those defined in Table 1 and quarter dummies. A net short FX position is a continuous variable which takes only negative values of net FX position, otherwise zero. A net long FX position takes only positive values of net FX position, otherwise zero. We winsorize all variables at the 1% level in both tails of the distribution. Heteroskedasticity and serial correlation robust standard errors are reported in parentheses. ***, ** and * denote significance levels at the 1%, 5%, and 10% levels, respectively.

Table 12: Standardized Beta Coefficients and Asymmetric Effects of Net FX Position of Firms

	Standard Coefficients			Rankings		
	(1)	(2)	(3)	(1)	(2)	(3)
VARIABLES	Stock Return	ROA	ROE	Stock Return	ROA	ROE
ZShort NFXP	-0.040*	-0.114***	-0.293***	-	4	2
	(0.021)	(0.044)	(0.053)			
ZLong NFXP	0.049***	-0.039	0.015	3	-	-
	(0.015)	(0.035)	(0.030)			
ZBIST100	0.497***	-	-	1	-	-
	(0.012)					
ZΔER	-0.112***	0.070***	0.080***	2	5	4
	(0.025)	(0.027)	(0.024)			
ZΔER*Short NFXP	-0.037	-0.195***	-0.271***	-	3	3
	(0.024)	(0.032)	(0.041)			
ZΔER*Long NFXP	-0.034*	-0.063***	-0.057***	-	6	5
	(0.018)	(0.020)	(0.019)			
ZExport Share	0.004	-0.024	-0.019	-	-	-
	(0.019)	(0.034)	(0.031)			
ZShort NFXP*Export Share	-0.017	-0.009	-0.50	-	-	-
	(0.017)	(0.036)	(0.056)			
ZLong NFXP*Export Share	0.003	-0.036	-0.028	-	-	-
	(0.014)	(0.032)	(0.030)			
ZΔER*Export Share	0.023	-0.013	0.005	-	-	-
	(0.026)	(0.025)	(0.024)			
ZΔER*Short NFXP*Export Share	0.048**	0.050*	0.071*	-	-	-
	(0.024)	(0.029)	(0.041)			
ZΔER*Long NFXP*Export Share	-0.012	0.027	0.045	-	-	-
	(0.019)	(0.019)	(0.035)			
Ln(ZAssets)	-0.010	0.486***	0.435***	-	1	1
	(0.035)	(0.096)	(0.089)			
Ln(ZAge)	0.063	0.232	-0.019	-	-	-
	(0.070)	(0.223)	(0.185)			
ZLeverage	-0.020	-0.315***	-0.096**	-	2	-
	(0.017)	(0.042)	(0.40)			
ZInvestment	0.004	0.042***	0.017*	-	8	-
	(0.006)	(0.011)	(0.010)			
ZInventory Growth	0.033***	0.063***	0.052***	4	6	6
	(0.008)	(0.010)	(0.010)			
ZTradedebt	0.032*	0.071**	0.022	-	-	-
	(0.018)	(0.033)	(0.038)			
DQuarter 1	0.300***	0.064***	0.038***	-	-	-
	(0.022)	(0.015)	(0.012)			
DQuarter 2	0.434***	0.082***	0.060***	-	-	-
	(0.026)	(0.012)	(0.013)			
DQuarter 3	-0.000	0.049***	0.029*	-	-	-
	(0.021)	(0.011)	(0.013)			
Constant	-0.535***	0.010	-0.166	-	-	-
	(0.055)	(0.094)	(0.115)			
Observations	8,677	8,753	8,485			
R-squared	0.394	0.217	0.288			
Number of firms	227	232	231			
Adj. R-squared	0.39	0.21	0.29			
Year Dummies	Yes	Yes	Yes			

[a] This table presents the results of Standardized Beta Coefficients for Stock Return, ROA and ROE. The variables are those defined in Table 1 and quarter dummies. A net short FX position is a continuous variable which takes only negative values of net FX position, otherwise zero. A net long FX position takes only positive values of net FX position, otherwise zero. First three columns report the standardized coefficients and the last three columns sort out these variables according to their economic significance, where the ordering is based on the absolute value of the standardized coefficients, which are statistically significant at 1%. We winsorize all variables at the 1% level in both tails of the distribution. Heteroskedasticity and serial correlation robust standard errors are reported in parentheses. ***, ** and * denote significance levels at the 1%, 5%, and 10% levels, respectively.

Table 13: Stock Return and Net FX Position of Firms (System GMM)

VARIABLES	(1) Stock Return	(2) Stock Return	(3) Stock Return	(4) Stock Return	(5) Stock Return
L.Stock Return	0.040***	0.030**	0.028**	0.026**	0.025**
	(0.011)	(0.012)	(0.011)	(0.011)	(0.012)
L2.Stock Return	-0.131***	-0.130***	-0.131***	-0.131***	-0.135***
	(0.011)	(0.012)	(0.011)	(0.011)	(0.011)
NFXP	-0.101**	-0.102**	-0.033	-0.029	-0.021
	(0.041)	(0.048)	(0.024)	(0.041)	(0.053)
BIST100	0.589***	0.582***	0.586***	0.583***	0.588***
	(0.017)	(0.016)	(0.014)	(0.014)	(0.014)
ΔER		-0.144***	-0.104***	-0.164***	-0.146***
		(0.035)	(0.037)	(0.051)	(0.052)
ΔER*NFXP			-0.323**	-0.574***	-0.634***
			(0.134)	(0.218)	(0.226)
Export Share		0.007	0.007	0.000	-0.016
		(0.014)	(0.011)	(0.013)	(0.014)
NFXP*Export Share				-0.047	-0.002
				(0.088)	(0.092)
ΔER*Export Share				0.236*	0.208
				(0.139)	(0.141)
ΔER*NFXP*Export Share				0.848	0.904
				(0.583)	(0.592)
Ln(Assets)					0.008***
					(0.001)
Ln(Age)					0.019***
					(0.005)
Leverage					-0.038*
					(0.020)
Investment					-0.003
					(0.005)
Inventory Growth					0.027***
					(0.009)
Tradedebt					0.051*
					(0.029)
DQuarter 1	0.064***	0.062***	0.063***	0.062***	0.064***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
DQuarter 2	0.084***	0.088***	0.088***	0.088***	0.089***
	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)
DQuarter 3	-0.004	-0.003	-0.003	-0.003	-0.001
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Constant	-0.190***	-0.161***	-0.170***	-0.168***	-0.322***
	(0.012)	(0.013)	(0.012)	(0.013)	(0.027)
Observations	8,673	8,673	8,673	8,673	8,449
Number of firms	228	228	228	228	223
Adj. R-squared	.	.	.	.	.
Year Dummies	Yes	Yes	Yes	Yes	Yes

[a] This table presents the results of system GMM estimation for Stock Return. The variables are those defined in Table 1 and quarter dummies. We winsorize all variables at the 1% level in both tails of the distribution. Heteroskedasticity and serial correlation robust standard errors are reported in parentheses. ***, ** and * denote significance levels at the 1%, 5%, and 10% levels, respectively.

Table 14: Return on Assets and Net FX Position of Firms (System GMM)

VARIABLES	(1) ROA	(2) ROA	(3) ROA	(4) ROA	(5) ROA
L.ROA	0.740***	0.743***	0.748***	0.743***	0.720***
	(0.021)	(0.020)	(0.020)	(0.020)	(0.022)
NFXP	-0.092***	-0.089***	-0.034***	-0.041***	-0.037**
	(0.011)	(0.010)	(0.009)	(0.013)	(0.015)
ΔER		-0.049***	0.002	-0.009	-0.004
		(0.009)	(0.010)	(0.014)	(0.014)
ΔER*NFXP			-0.406***	-0.516***	-0.528***
			(0.041)	(0.060)	(0.059)
Export Share		0.008**	0.009**	0.005	-0.000
		(0.004)	(0.004)	(0.005)	(0.005)
NFXP*Export Share				0.002	0.015
				(0.026)	(0.027)
ΔER*Export Share				0.048	0.045
				(0.036)	(0.034)
ΔER*NFXP*Export Share				0.379***	0.372***
				(0.145)	(0.142)
Ln(Assets)					0.005***
					(0.001)
Ln(Age)					0.005**
					(0.002)
Leverage					-0.018*
					(0.009)
Investment					0.003
					(0.003)
Inventory Growth					0.011***
					(0.003)
Tradedebt					0.016
					(0.012)
DQuarter 1	0.001	0.000	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
DQuarter 2	0.002**	0.003***	0.003***	0.003***	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
DQuarter 3	0.001	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Constant	0.001	0.010***	0.006*	0.008**	-0.075***
	(0.003)	(0.004)	(0.003)	(0.003)	(0.012)
Observations	8,821	8,821	8,821	8,821	8,595
Number of firms	232	232	232	232	227
Adj. R-squared	.	.	.	.	.
Year Dummies	Yes	Yes	Yes	Yes	Yes

[a] This table presents the results of system GMM estimation for ROA. The variables are those defined in Table 1 and quarter dummies. We winsorize all variables at the 1% level in both tails of the distribution. Heteroskedasticity and serial correlation robust standard errors are reported in parentheses. ***, ** and * denote significance levels at the 1%, 5%, and 10% levels, respectively.

Table 15: Return on Equity and Net FX Position of Firms (System GMM)

VARIABLES	(1) ROE	(2) ROE	(3) ROE	(4) ROE	(5) ROE
L.ROE	0.585***	0.591***	0.626***	0.624***	0.614***
	(0.040)	(0.040)	(0.038)	(0.038)	(0.040)
NFXP	-0.109***	-0.107***	-0.039***	-0.051***	-0.042**
	(0.015)	(0.015)	(0.010)	(0.015)	(0.017)
ΔER		-0.154***	0.089***	0.077**	0.094**
		(0.038)	(0.033)	(0.038)	(0.038)
ΔER*NFXP/EQ			-0.485***	-0.614***	-0.635***
			(0.047)	(0.084)	(0.084)
Export Share		0.023*	0.025**	0.006	-0.005
		(0.013)	(0.011)	(0.013)	(0.014)
NFXP/EQ*Export Share				0.030	0.031
				(0.029)	(0.028)
ΔER*Export Share				0.085	0.070
				(0.107)	(0.107)
ΔER*NFXP/EQ*Export Share				0.359*	0.369**
				(0.186)	(0.186)
Ln(Assets)					0.016***
					(0.003)
Ln(Age)					0.009
					(0.006)
Leverage					-0.048**
					(0.022)
Investment					0.000
					(0.007)
Inventory Growth					0.025***
					(0.007)
Tradedebt					0.076**
					(0.035)
DQuarter 1	0.002	-0.001	0.001	0.002	0.001
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
DQuarter 2	0.001	0.004	0.007**	0.006**	0.007**
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
DQuarter 3	-0.003	-0.004	-0.001	-0.001	-0.001
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Constant	-0.022	0.007	-0.012	-0.009	-0.247***
	(0.016)	(0.018)	(0.018)	(0.019)	(0.041)
Observations	8,519	8,519	8,519	8,519	8,293
Number of firms	231	231	231	231	226
Adj. R-squared	.	.	.	.	.
Year Dummies	Yes	Yes	Yes	Yes	Yes

[a] This table presents the results of system GMM estimation for ROE. The variables are those defined in Table 1 and quarter dummies. We winsorize all variables at the 1% level in both tails of the distribution. Heteroskedasticity and serial correlation robust standard errors are reported in parentheses. ***, ** and * denote significance levels at the 1%, 5%, and 10% levels, respectively.

Table 16: Robustness: Excluding Crisis Periods

VARIABLES	(1) Stock Return	(2) ROA	(3) ROE
NFXP	0.015	-0.073***	-0.057***
	(0.026)	(0.024)	(0.019)
BIST100	0.579***		
	(0.019)		
ΔER	-0.312***	0.082***	0.110*
	(0.057)	(0.020)	(0.061)
ΔER*NFXP	-0.704**	-0.457***	-0.098
	(0.276)	(0.119)	(0.162)
Export Share	-0.001	-0.002	0.001
	(0.015)	(0.015)	(0.029)
NFXP*Export Share	-0.003	-0.067	-0.058
	(0.056)	(0.057)	(0.048)
ΔER*Export Share	0.522***	-0.078	-0.058
	(0.157)	(0.059)	(0.158)
ΔER*NFXP*Export Share	0.341	0.235	-0.168
	(0.702)	(0.268)	(0.325)
Ln(Assets)	0.004	0.029***	0.056***
	(0.005)	(0.007)	(0.014)
Ln(Age)	0.008	0.045	0.012
	(0.031)	(0.038)	(0.080)
Leverage	-0.021	-0.107***	-0.126***
	(0.017)	(0.017)	(0.039)
Investment	-0.010**	0.014***	0.020**
	(0.005)	(0.004)	(0.008)
Inventory Growth	0.029***	0.025***	0.048***
	(0.008)	(0.004)	(0.011)
Tradedebt	0.033	0.050*	0.066
	(0.029)	(0.029)	(0.065)
DQuarter 1	0.031***	0.003**	0.009***
	(0.005)	(0.002)	(0.003)
DQuarter 2	0.039***	0.006***	0.013***
	(0.006)	(0.001)	(0.003)
DQuarter 3	-0.066***	0.006***	0.010***
	(0.004)	(0.001)	(0.003)
Constant	-0.387***	-0.456***	-0.722**
	(0.136)	(0.144)	(0.303)
Observations	7,519	7,579	7,366
R-squared	0.325	0.133	0.105
Number of firms	227	232	231
Adj. R-squared	0.32	0.13	0.10
Year Dummies	Yes	Yes	Yes

[a] This table presents the results of fixed effects estimation for Stock Return, ROA and ROE for the periods excluding crisis quarters which are 2001Q2-2001Q4 and 2008Q4-2009Q3. The variables are those defined in Table 1 and quarter dummies; and all are reported in three decimal places. We winsorize all variables at the 1% level in both tails of the distribution. Heteroskedasticity and serial correlation robust standard errors are reported in parentheses. ***, ** and * denote significance levels at the 1%, 5%, and 10% levels, respectively.

Table 17: Robustness: Excluding the firms with the highest Net FX Position

VARIABLES	(1) Stock Return	(2) ROA	(3) ROE
NFXP	0.019	-0.105***	-0.125***
	(0.049)	(0.038)	(0.041)
BIST100	0.577***		
	(0.016)		
ΔER	-0.226***	0.027	0.079*
	(0.052)	(0.020)	(0.047)
ΔER*NFXP	-0.424	-0.605***	-0.726***
	(0.337)	(0.165)	(0.217)
Export Share	0.000	0.001	0.003
	(0.017)	(0.015)	(0.030)
NFXP*Export Share	-0.015	-0.048	-0.065
	(0.110)	(0.092)	(0.094)
ΔER*Export Share	0.269**	-0.055	-0.102
	(0.135)	(0.065)	(0.201)
ΔER*NFXP*Export Share	0.021	0.363	0.780
	(0.939)	(0.422)	(0.522)
Ln(Assets)	0.002	0.036***	0.067***
	(0.006)	(0.008)	(0.015)
Ln(Age)	0.048	0.040	-0.042
	(0.035)	(0.042)	(0.083)
Leverage	-0.013	-0.125***	-0.155***
	(0.019)	(0.022)	(0.046)
Investment	0.003	0.008**	0.012
	(0.005)	(0.003)	(0.008)
Inventory Gr	0.030***	0.025***	0.052***
	(0.009)	(0.005)	(0.012)
Tradedebt	0.011	0.056	0.007
	(0.042)	(0.039)	(0.084)
DQuarter 1	0.070***	0.008***	0.013***
	(0.006)	(0.002)	(0.004)
DQuarter 2	0.096***	0.010***	0.021***
	(0.007)	(0.001)	(0.004)
DQuarter 3	0.001	0.006***	0.009***
	(0.006)	(0.001)	(0.003)
Constant	-0.322**	-0.528***	-0.636**
	(0.153)	(0.172)	(0.318)
Observations	6,466	6,533	6,469
R-squared	0.392	0.166	0.165
Number of firms	215	220	219
Adj. R-squared	0.39	0.16	0.16
Year Dummies	Yes	Yes	Yes

[a] This table presents the results of fixed effects estimation for Stock Return, ROA and ROE by excluding the firms with the highest Net FX Position (last quartile). The variables are those defined in Table 1 and quarter dummies. We winsorize all variables at the 1% level in both tails of the distribution. Heteroskedasticity and serial correlation robust standard errors are reported in parentheses. ***, ** and * denote significance levels at the 1%, 5%, and 10% levels, respectively.

Table 18: Robustness: Including Quarterly Time Fixed Effects

VARIABLES	(1) Stock Return	(2) ROA	(3) ROE
NFXP	0.009	-0.071***	-0.110***
	(0.024)	(0.024)	(0.020)
BIST100	0.797***		
	(0.031)		
ΔER	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)
ΔER*NFXP	-0.524***	-0.876***	-0.709***
	(0.159)	(0.108)	(0.091)
Export Share	-0.005	0.000	-0.009
	(0.013)	(0.014)	(0.032)
NFXP*Export Share	-0.002	-0.051	-0.052
	(0.049)	(0.055)	(0.055)
ΔER*Export Share	0.221*	-0.062	-0.120
	(0.115)	(0.063)	(0.195)
ΔER*NFXP*Export Share	0.367	0.609**	0.464**
	(0.398)	(0.242)	0.204)
Ln(Assets)	-0.000	0.032***	0.072***
	(0.005)	(0.006)	(0.014)
Ln(Age)	0.024	0.045	-0.012
	(0.029)	(0.041)	(0.082)
Leverage	-0.017	-0.129***	-0.104**
	(0.015)	(0.017)	(0.041)
Investment	0.004	0.019***	0.020**
	(0.005)	(0.004)	(0.009)
Inventory Gr	0.034***	0.026***	0.053***
	(0.007)	(0.004)	(0.011)
Tradedebt	0.057*	0.059*	0.032
	(0.033)	(0.030)	(0.085)
DQuarter 1	0.497***	-0.026***	-0.078***
	(0.023)	(0.006)	(0.015)
DQuarter 2	0.381***	-0.027***	0.070*
	(0.023)	(0.006)	(0.037)
DQuarter 3	0.496***	-0.015	-0.136***
	(0.036)	(0.014)	(0.051)
Constant	-0.526***	-0.493***	-0.774**
	(0.132)	(0.156)	(0.323)
Observations	8,677	8,753	8,485
R-squared	0.547	0.233	0.304
Number of firms	227	232	231
Adj. R-squared	0.54	0.23	0.30
Quarter Dummies	Yes	Yes	Yes

[a] This table presents the results of fixed effects estimation for Stock Return, ROA and ROE by including quarterly time fixed effects. The variables are those defined in Table 1 and quarter dummies. We winsorize all variables at the 1% level in both tails of the distribution. Heteroskedasticity and serial correlation robust standard errors are reported in parentheses. ***, ** and * denote significance levels at the 1%, 5%, and 10% levels, respectively.

Table 19: Robustness: Including Interaction of Net FX Position and Industry Dummies

VARIABLES	(1) Stock Return	(2) ROA	(3) ROE
NFXP	0.001	-0.071***	-0.116***
	(0.027)	(0.025)	(0.024)
BIST100	0.577***		
	(0.014)		
ΔER	-0.246***	0.088***	0.268***
	(0.050)	(0.022)	(0.056)
ΔER*NFXP	-0.519***	-0.870***	-0.685***
	(0.193)	(0.108)	(0.091)
Export Share	-0.000	-0.002	-0.008
	(0.015)	(0.015)	(0.032)
NFXP*Export Share	-0.032	-0.053	-0.052
	(0.055)	(0.054)	(0.058)
ΔER*Export Share	0.298**	-0.071	-0.119
	(0.139)	(0.061)	(0.183)
ΔER*NFXP*Export Share	0.677	0.656***	0.470**
	(0.488)	(0.241)	(0.203)
Ln(Assets)	-0.000	0.032***	0.069***
	(0.005)	(0.006)	(0.015)
Ln(Age)	0.022	0.048	-0.012
	(0.028)	(0.041)	(0.083)
Leverage	-0.031*	-0.129***	-0.110***
	(0.016)	(0.018)	(0.040)
Investment	0.002	0.015***	0.014*
	(0.005)	(0.004)	(0.009)
Inventory Gr	0.033***	0.028***	0.059***
	(0.008)	(0.004)	(0.011)
Tradedebt	0.059*	0.063**	0.047
	(0.036)	(0.030)	(0.083)
DQuarter 1	0.068***	0.006***	0.010***
	(0.005)	(0.001)	(0.003)
DQuarter 2	0.097***	0.008***	0.015***
	(0.006)	(0.001)	(0.003)
DQuarter 3	0.001	0.005***	0.007**
	(0.005)	(0.001)	(0.003)
Constant	-0.209*	-0.519***	-0.841***
	(0.124)	(0.155)	(0.327)
Observations	8,677	8,753	8,485
R-squared	0.394	0.221	0.289
Number of firms	227	232	231
Adj. R-squared	0.39	0.22	0.29
Year Dummies	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes

[a] This table presents the results of fixed effects estimation for Stock Return, ROA and ROE by including interaction of net FX position and industry dummies. The variables are those defined in Table 1 and quarter dummies. We winsorize all variables at the 1% level in both tails of the distribution. Heteroskedasticity and serial correlation robust standard errors are reported in parentheses. ***, ** and * denote significance levels at the 1%, 5%, and 10% levels, respectively.

Table 20: Robustness: Splitting Sample into Pre and Post 2008 Periods

	Pre 2008 Period			Post 2008 Period		
	(1)	(2)	(3)	(1)	(2)	(3)
VARIABLES	Stock Return	ROA	ROE	Stock Return	ROA	ROE
NFXP	-0.022	-0.088**	-0.142***	0.007	-0.074***	-0.111***
	(0.038)	(0.035)	(0.032)	(0.051)	(0.028)	(0.026)
BIST100	0.528***			0.387***		
	(0.017)			(0.020)		
ΔER	0.110**	0.101***	0.303***	-1.321***	-0.077**	-0.140*
	(0.047)	(0.026)	(0.072)	(0.133)	(0.036)	(0.077)
ΔER*NFXP	-0.340*	-0.896***	-0.668***	-1.404**	-0.714***	-0.681***
	(0.174)	(0.119)	(0.091)	(0.591)	(0.154)	(0.135)
Export Share	0.008	-0.004	-0.018	-0.020	0.008	-0.005
	(0.023)	(0.016)	(0.041)	(0.032)	(0.017)	(0.039)
NFXP*Export Share	-0.061	-0.152**	-0.147**	0.078	-0.009	0.098
	(0.076)	(0.074)	(0.072)	(0.134)	(0.078)	(0.071)
ΔER*Export Share	0.435***	-0.085	-0.179	-0.332	0.081	0.306*
	(0.118)	(0.072)	(0.223)	(0.369)	(0.088)	(0.176)
ΔER*NFXP*Export Share	0.113	0.870***	0.679***	2.723	0.363	-0.482
	(0.403)	(0.242)	(0.207)	(1.881)	(0.393)	(0.447)
Ln(Assets)	0.004	0.046***	0.116***	-0.002	0.030***	0.057**
	(0.010)	(0.011)	(0.023)	(0.013)	(0.011)	(0.024)
Ln(Age)	0.036	-0.005	-0.088	-0.073	-0.044	-0.168
	(0.061)	(0.082)	(0.146)	(0.085)	(0.047)	(0.120)
Leverage	-0.029	-0.166***	-0.102*	-0.033	-0.115***	-0.251***
	(0.027)	(0.024)	(0.055)	(0.034)	(0.020)	(0.051)
Investment	-0.000	0.014***	0.001	-0.136***	0.026	0.027
	(0.005)	(0.005)	(0.010)	(0.035)	(0.018)	(0.042)
Inventory Gr	0.034***	0.033***	0.067***	0.011	0.019***	0.040***
	(0.009)	(0.006)	(0.015)	(0.013)	(0.005)	(0.012)
Tradedebt	0.004	0.018	-0.069	0.125*	0.115***	0.199**
	(0.048)	(0.040)	(0.130)	(0.074)	(0.034)	(0.096)
DQuarter 1	0.033***	0.007**	0.010*	0.074***	0.003	-0.001
	(0.006)	(0.003)	(0.006)	(0.008)	(0.002)	(0.005)
DQuarter 2	0.015**	0.013***	0.021***	0.107***	-0.001	-0.009*
	(0.007)	(0.003)	(0.007)	(0.008)	(0.002)	(0.005)
DQuarter 3	-0.024***	0.009***	0.006	-0.030***	-0.003**	-0.009***
	(0.006)	(0.002)	(0.006)	(0.006)	(0.001)	(0.004)
Constant	-0.353	-0.502	-1.214*	0.243	-0.192	-0.035
	(0.243)	(0.336)	(0.636)	(0.382)	(0.224)	(0.488)
Observations	4,472	4,507	4,355	4,205	4,246	4,130
R-squared	0.313	0.264	0.349	0.529	0.165	0.213
Number of firms	179	182	180	224	229	226
Adj. R-squared	0.31	0.26	0.35	0.53	0.16	0.21
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes

[a] This table presents the results of fixed effects estimation for Stock Return, ROA and ROE by splitting sample into pre and post 2008 periods. The variables are those defined in Table 1 and quarter dummies. We winsorize all variables at the 1% level in both tails of the distribution. Heteroskedasticity and serial correlation robust standard errors are reported in parentheses. ***, ** and * denote significance levels at the 1%, 5%, and 10% levels, respectively.