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Impact of Foreign Exchange Exposure Elasticity on Financial Distress of Firms: A Comparison of Developed and Emerging Economies

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Abstract *This study looks into the potential effect of foreign exchange exposure elasticity (FEEE) on the financial distress of non-financial firms from an emerging country (Pakistan) and a developed country (USA) during 2003-2015. It employs mixed methodology in which a comprehensive quantitative analysis is made from the panel data of the sample companies from both countries (Pakistan & USA). Subsequently, views of Chief Finance Officers (CFOs) of different companies are given. Results show that the effect of foreign exchange exposure is not statistically significant on the financial distress of Pakistani firms at contemporaneous level but it has positive significant effect at lagged level. Results also show that at gross exposure level, foreign exchange exposure of US manufacturing firms has a significantly positive effect on their financial distress contemporaneously but not at net market level. In case of US non-manufacturing firms, the foreign exchange exposure elasticity does not impact significantly on the Z-Score at gross exposure level. But the market model shows a weak significant effect of the FE Exposure on the distress of such firms in USA at relatively higher significance level. The firms' fundamental attributes except foreign sales exhibit a significant effect on the financial distress. Only debt has negative coefficient which describes a positive effect on the financial distress. The findings have notable implications for the financial stability of the firms, especially in Pakistan.*

Key Words:

Foreign Exchange, Exposure Elasticity, Financial Distress, Stability, Financial Crisis, Emerging, Multinational Firms, Chief Finance Officer

JEL Classification:

G01, G12, G 33, F31, F65, N 60

Introduction

Foreign exchange risk is a risk affecting many facets of a business firm in this era of globalization but it is rarely witnessed in empirical studies. Firms face exposure on this account which leads to financial difficulties in their smooth

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operations. Foreign exchange transactions occur constantly at macro and micro level and they are made by both financial and non-financial companies of almost all the countries of the world. At micro level, exposure due to changes in foreign exchange rates refers to the risk that future changes in exchange rate of a country affects a firm. It is the sensitivity where in changes in the domestic value of assets, liabilities as well as operating income of firms are observed to the affected by unexpected changes in exchange rates (Adler & Dumas, 1984). The frequent changes in foreign exchange rates can affect firm's operations, revenue and ultimately their valuation.

The foreign exchange transactions are executed at their bilateral exchange rates with counter currencies. There have been fixed exchange rate regime and a floating exchange rate mechanism. In the floating exchange rate regime, demand for a foreign currency is consequential upon a demand for the assets, goods and services rendered in that currency. However, the domestic currency prices of foreign goods may not react fully to the exchange rate changes (Goldberg & Knetter, 1997).

The short–run response of the exchange rate changes is found different from that of the long-run changes. The exchange rate changes are likely to affect the price of imports in terms of domestic currency and that of the exports in foreign currency. The foreign exchange risk arises from exchange rate changes whereas the foreign exchange exposure depicts the sensitivity of the value of foreign currency items such as assets, liabilities as well as foreign cash flows in domestic currency to the exchange rate changes (Moosa, 2009, p.356).

Exchange rate changes create macroeconomic uncertainty which in turn affect financial position of the firms in an economy. Fluctuations in exchange rates affect firm's operating cash flows and ultimately firm's value through transaction, translation, and economic exchange rate exposure. Macroeconomic shocks are likely to cause inter-dependence between exchange rate changes and stock returns. We may therefore expect that value of a firm is affected by the changes in exchange rates. The significance of the exchange rate changes on the firm's value is evident from the fact that firms keep a close eye on movement of exchange rates, assessment of the risk due to such changes and consequently take measures for its management (Choi & Prasad 1995). But empirical evidence on the effect of the foreign exchange exposure on firms' value is minimal.

Exchange rates begin to fluctuate excessively since the decade of 1970s with the adoption of floating exchange rates. Since then researchers and managers have concentrated on its measurement and pricing. It has however remained a very contentious issue in international financial management. The exchange rates fluctuations affect earnings and cash flows of firms involved in international business activities. Exchange rate elasticity causes cash flow risk for those firms which have foreign assets and liabilities and firms with any form of overseas operations. It has been observed that even the firms not having foreign

revenues/costs as well as foreign operations may also be affected by unexpected changes in exchange rates. This effect is largely on account of foreign competition and macroeconomic conditions (Parsley & Popper, 2002). The exposure becomes more severe for businesses dealing in a number of currencies.

In CAPM, only market risk is taken to count for all the macro economic factors. When one considers foreign exchange rate risk separately in pricing a company's assets, it will require higher rate of return especially when exchange rate fluctuations are high. The increased fluctuations will thus cause higher discount rate. This will reduce the growth opportunities of the firm ultimately reducing its value. Arbitrage pricing theory (APT) presented by Ross in 1976 describes an economy by a few numbers of factors which are considered as some source of risk and investors are inclined to pay additional price as a compensation of such risks. In this structure, investors are willing to pay premium for exchange rate risk provided exchange rate movements are considered as one of such risks. The APT theory of finance (Ross, 1976) states that exchange rate changes cause transaction and economic exposures on expected and future cash flows of a firm. Hence value of a firm will be affected (Knetter, 1994). The more frequent the exchange rate fluctuations and the unpredictability of offshore sales are, the more negative effect is expected to be realized on the firms' profitability and their market value.

According to Wruck (1990) and Asquith, et al, (1994), financial distress is the financial position of a company where its cash flows cannot cover its financial obligations. Practically a firm is called financially distressed if its earnings before interest, taxes, depreciation and amortization (EBITDA) are less than its financial expenses for two consecutive years or its EBITDA are less than 80% of a firm's annual interest expense. According to Andrade and Kaplan (1998), a firm is said to be financially distressed if its earnings before interest tax and depreciation in the first year are less than its financial expenses.

The firms confronting financial distress cannot comfortably hedge themselves from adverse effects of changes in the exchange rates due to financial constraints and lack of operational flexibility. The financially distressed firms will not be able to access external markets as they will face high cost of capital. Such firms will consequently have to forego good investment opportunities (Campello, Graham, & Harvey, 2010). A firm's value depends on its future cash flows and discount rate. The value of future cash flows changes due to expected exchange rate fluctuations. The distressed firms may not be able to manage this risk and consequently may face increased cash flow volatility which will have higher impact on their stock prices. Alternatively, in the advent of higher expected exchange rate risk, the discount rate will also increase which will result into lower value of the firm.

This study explores the relationship between foreign exchange exposure and financial distress of the firms. It makes comparison of an emerging and a

developed country, taking Pakistan as an emerging economy and USA as a developed economy. The study takes all non-financial firms listed at Pakistan Stock Exchange (PSX), (formerly KSE) and non-financial firms from New York Stock Exchange (NYSE) included in S&P-500 index. The sample period is from 2003 to 2015 which is quite enough for the investigation on the chosen areas.

We worked out the foreign exchange exposure elasticity of the non-financial firms by using three models which are variations of Capital Asset Pricing Model (CAPM) and uses rolling regression technique taking 36–months as rolling window by taking percentage change in exchange rate as independent variable and stock return as dependant variable. The Altman (1968) Z-Score is taken as a proxy for measuring financial distress of the US manufacturing firms, Altman (1993) Z-score for US non-manufacturing firms and Altman (1993) Z-Score for emerging countries for Pak firms.

We find negative correlation between all the three measures of foreign exchange exposure elasticity (FEE) and Altman's Z score of Pak firms as well as US manufacturing and non-manufacturing firms. This means that the correlation between foreign exchange exposure and financial distress is generally positive. Our study finds a strong positive lagged effect of foreign exchange exposure on financial distress of Pakistani firms but no such effect is found at contemporaneous level in fixed effect method. In case of US manufacturing firms, effect of gross foreign exchange exposure is found significant on distress of these firms but effect of net market foreign exchange exposure and net of market and interest is not significant at contemporaneous as well as at lag level. The market model shows a weak effect of the foreign exchange exposure on the distress of non-manufacturing firms of USA at relatively higher significance level. The firms' fundamental attributes except foreign sales exhibit a significant effect on the financial distress. Only debt has negative coefficient which describes a positive effect on the financial distress.

The relation between foreign exchange exposure and financial distress is found significant at lagged level of the exposure and not at contemporaneous level for Pakistan. Moreover, a firm's exchange rate exposure elasticity increases chances of financial distress even after controlling firms' attributes such as size, total sales, foreign sales, leverage, cash ratio and retained earnings.

A sizeable research exists on the variation in foreign exchange exposure of the firms on account of differences in their competition, liquidity, leverage, foreign sales and hedging strategies. Despite some recent researches on the foreign exchange exposure, no conclusive evidence is found in the most of these studies as how and how much it affects the firm value. It is argued by most of the researchers that the foreign exchange exposure does matter in carrying out the activities of international businesses but little empirical evidence is witnessed. No study has been found on the issue of foreign exchange exposure and its impact on value of financially distressed firms of non-financial sectors of

Pakistan. A joint analysis will benefit to find a link between the distress risk and foreign exchange exposure. There is need for exploring the use of foreign exchange exposure measure as a predictor variable of corporate distress and bankruptcy.

This study invites attention of academics toward consideration of exchange rates exposure as an important factor in asset pricing of the firms and as a predictor of their financial stability. This study is unique regarding relation between foreign exchange exposure and financial distress of the firms in Pakistan and adds in scant empirical literature on the issue in developed countries such as USA. The results inferred from this study will help to facilitate towards the logical understanding of the need to use hedging tools towards the minimization of foreign exchange risk of non-financial firms. This study provides a comprehensive country comparison of the foreign exchange exposure of non-financial firms which will benefit the corporate managers of multinational corporations, domestic companies, and investors contemplating to make their investments beyond the borders.

Review of Relevant Studies

Exchange rate exposure is referred to as an extent to which exchange rate changes affect stock returns and ultimately firm value (Bacha et al, 2013). A wide-ranging research is witnessed on the foreign exchange exposure (Shapiro, 1975, Adler and Dumas 1984, Bartram et al, 2010), but the results of these studies are not conclusive (Chow et al., 1997). The remote literature shows that stock returns of firms may be affected by exchange rate risk either through its effect on firms' future cash flows or by increasing cost of firms' capital when valuing firms using cash flows discounting model (Bartram, et al, 2010). In 2012, Lim stated that efforts were made to detecting sensitivity of stock returns viz-a viz exchange rate movements but no commendable result(s) could be inferred out. It is further noted that economists have not been able to agree upon a definite model for predicting future exchange rates. Researchers such as Jorion (1990); Dominguez and Tesar (2006) argued in their findings that there is somewhat relation between exchange rate variations and firms' stock prices but the same is very weak.

Due to effect of exchange rates on revenue, costs and ultimately profitability of firms, it is logical to presume that the exposure of a firm due to exchange rate changes may substantiate financial distress of a firm and may trigger it towards bankruptcy. Smith and Stulz (1985) argue that when firms face financial constraints, they have to incur bankruptcy costs. Exchange rate changes exacerbate firms' financial difficulties and they find it optimal to hedge the foreign exchange risk. This reduces the variability of firms' cash flow, its tax liability, as well as chances of incurring bankruptcy costs and raising net value.

Williamson (2001) looked into the effect of exchange rate changes on the value of multinational firms, in presence of intra-industry competition and a significant exposure to firms was witnessed in response to exchange rate shocks. This study also documented existence of time-variation regarding exchange rate exposure and foreign sales as one of the main determinants of this exposure. Effectiveness of operational hedging the firms' risks through international production was also found significant.

Anand (2001) found higher exchange rate exposure of firms in which there was more competition as compared to firms operating in oligopolistic setting. Moreover, firms that deal in consumer items faced greater exposure than that faced by firms dealing in institutional sector. His study documented only contemporary relation between movements in a foreign currency and stock prices. Makar & Huffman (2001) however, revealed that a lagged exchange rate movements added to explain about abnormal returns of firms which normally used derivatives rarely irrespective of their size or scale of foreign interest. At lagged level, the magnitude of foreign exchange exposure of all the sample firms was not identical and it was larger for firms using less financial derivatives.

Salifu et al. (2007) used two-factor Jorion model to investigated exchange rate exposure of twenty Ghanian listed companies. They came up with the results that more than half of the sample firms showed significant exchange rate exposure to US dollar and about one-third of the firms were found significantly exposed to UK pound sterling. They found that the firms from manufacturing sector showed a significant positive exchange rate exposure while firms falling in retail sector witnessed a negative significant exposure to the US dollar exchange rate. The sample firms were found exposed mostly to US dollar, UK pound sterling and Euro. No exchange rate exposure was found in the financial sector regarding any international currency.

El-Masry and Salam (2007) looked into relationship between unexpected exchange rate changes and stock returns of different size as well as their level of foreign operations. They found that a significant proportion of UK firms were exposed to contemporaneous exchange rate changes. The effect of exchange rate movements was more pronounced on stock returns of UK firms than the stock returns of US firms. This effect was higher for large firms than small firms Moreover, the firms with higher foreign revenue faced greater exposure. This study however, stated that domestic firms were also exposed to changes in exchange rates.

Bartram and Bodnar (2007) argued that whatever exposure is witnessed in the different studies is not the total exposure a firm usually comes across with but such magnitude of exposure is net of hedging activities. They argued that non-financial firms have a number of alternatives to manage their exchange rate exposure. They opt for financial derivatives to reduce effect of short-term volatility in the exchange rates and use operational hedging to minimize the long-

term exchange rate exposure on the firm's value. They argued that non-existence or statistically insignificant level of the exposure does not mean that firms did not face exposure to the exchange rate fluctuations. According to them, a rational reaction of management of firms to the exchange rate movements may reduce their exposure to such a level which cannot be detected by the empirical studies. Such a perplexing scenario has been termed as exchange-rate puzzle by them.

In a separate study, Bartram in 2007 took an alternative approach taking corporate cash flows as dependent variable instead of stock returns of firms as a gauge of firms' performance to estimate the extent to which a non-financial firm is exposed to exchange rate risk. He found that accuracy of foreign exchange exposure significance of non-financial firms gets better when time horizon of both the earnings and stock prices (returns) is increased. In 2008, Bartram stated that management of firms facing exchange rate risk use various available instruments and strategies which enable them in reducing their exposure to exchange rate movements to a level that is not empirically identifiable.

Chu and Cook, (2008) made a study on measuring effect of exchange rate movements of national currencies of emerging markets on the stock market valuations of their firms. They found that if a currency depreciated by one percent, it will cause a decline in stock price of a firm by 0.4 %. Fornes and Cardoza (2009) adopted mixed methodology to reviewing the strategies which were pursued by companies to shield their values from different currency fluctuations. They recommended that foreign companies facing exchange rate exposure in emerging countries might achieve flexibility if they adopt a cross-functional approach in the appraisal and accomplishment of hedging strategies and by giving some autonomy in making the decisions.

According to Talat and Alam (2011) found that non-financial firms from Pakistan use hedging techniques to decrease costs of financial distress, to lessen effect of financial constraints and managing foreign exchange exposure. Behr et al (2013) however documented that major determinants of financial constraints are cash flow troubles, lack of access to credit, and consequently greater costs of credit which result into inability of firms taking otherwise desirable investments.

Marshall et al. (2013) examined overall hedging strategies in UK firms as well as hedging by foreign exchange derivatives only. They focused on small firms normally facing financially constraints. They argued that financial distress costs, underinvestment problems and taxes were major reasons of pursuing hedging activities. This study documented that larger firms have more hedging activities as smaller firms did not have enough knowledge about their exchange rate exposure. Industry effect was also witnessed in the hedging decisions but there is lack of consistency on the determinants to hedge. They found support for financial distress hypothesis in case of foreign exchange derivative users. Wei and Starks (2014) revealed that a symmetric relation was likely to exist between foreign exchange exposure and distress as firms facing negative foreign exchange

exposure are affected in an identical way as firms with positive foreign exchange exposures.

Kim and Kraple (2014), however, argued that financial distress results in limited hedging capability, which in turn increases foreign exchange exposures. They argued that foreign exchange exposure has a significant impact on financial distress risk. They stated that relationship between foreign exchange exposure and distress risk may be bidirectional or simultaneously determined.

$H_1 0$: Foreign exchange exposure elasticity of a firm does not affect its financial distress.

$H_1 1$: Foreign exchange exposure elasticity of a firm affects it's financially distress.

Methodology

This study uses mixed methodology which undertakes quantitative analysis and the supports its results using qualitative analysis (Jones and Khanna, 2006). This study has selected all non-financial firms listed at the Karachi Stock Exchange (KSE), Pakistan and all non-financial firms included in S&P-500 index which are listed at the New York Stock Exchange (NYSE), USA. A balanced panel data of the variables is taken from January 2003 to December 2015 for both Pakistan and USA. The foreign Exchange rates of PKR/USD have been used which has been taken from website of SBP whereas market-weighted average exchange rate of US Dollar has been obtained from on-line financial data sources of Federal Reserve of America. Interest rates have also been obtained from website of the central banks. An unstructured questionnaire has been used to interview CFOs of different firms regarding foreign exchange exposure and financial distress.
We use three foreign exchange exposure models given as under:

Model - I

$$R_{i\,t} = \alpha_i + \beta_i\, Rfx_t + \epsilon_{i\,t} \text{---------- equ.4.1}$$

Here $R_{i,t}$ is stock return of a firm i for the time t and R_{fxt} is the return in terms of a foreign exchange rate or %age change in the foreign exchange rate. This model measures total foreign exchange exposure (Adler and Dumas, 1984) where β_i is the foreign exchange exposure elasticity or sensitivity of firm value to changes in foreign exchange rates. This model was used by Glaum et al (2000) and by Bergbrant and Hunter (2012).

Model - II

$$R_{i\,t} = \alpha_i + \gamma_{i\,t}\, Rm_t + \beta_{i\,t}\, Rfx_t + \epsilon_{it} \text{ ---------- Equ .4.2}$$

Where

R_{it} : stock return of firm i taken as proxy for firm value over time t
$R_{m,t}$: the value-weighted market index return;
Rfx_t : change in exchange rate over time period t
β_{it} : sensitivity of the exchange rate to the value of the firm i.e. elasticity of foreign exchange rate exposure.

This model was introduced by Jorion (1990, 1991) and has econometric advantage over the model-1. This model has been used in almost all of the studies made thereafter. We follow the market model of Jorion (1990, 1991) which has also been used by many researchers such as Bodnar and Gentry(1993), Amihud (1994), Griffin and Stulz (2001), El-Masry and Salam (2007) for calculating the foreign exchange exposure of firms.

Model III

$$R_{it} = \alpha_i + \gamma_i Rm_t + \beta_i Rfx_t + \delta_i r_t + \epsilon_{it} \quad \text{----------Equ.4.3}$$

Where

$R_{i,t}$: the stock return for firm in month t,
Rfx_t : the percentage change in the exchange rate index for month t,
Rm_t : the value weighted index return for month t, and
r_t : the real rate of interest for month t.

We have opted for the Z-Score model (1968) developed initially by Edward I. Altman (1968) for anticipating the likelihood of bankruptcy of US manufacturing firms and Altman's average Z-Score(Z" 1993) model for the US non-financial , non –manufacturing firms. We have used revised Z-Score for emerging countries (Z"-1993) for Pak firms. These models are most recognized and have been widely used for predicting the financial distress of a company (Bemmann, 2005). The original Z-Score is given below:

Z =1.2 (WCAP/TA) + 1.4 (RE/TA) + 3.3(EBIT/TA) + 0.6 (MVE/BVTL) + 1.0(TS/TA) ---------- Eq.4.4

Where WCAP/TA = Working Capital/ total assets. It measures the net liquid assets of a firm relative to its current liabilities (Altman 1968).
RE/TA = Retained Earnings/ total assets
EBIT/TA = Earnings before interest and tax (EBIT)/ total assets. It measures productivity of the firms' assets and productivity of a company's assets ignoring leverage and tax factors. This ratio is very much appropriate for financial distress of firms (Altman, 1968).
MVE/BVTL=Market value of equity / Book value of total liabilities.
It shows how much a firm's assets can decline in value before its liabilities exceed the assets and the firm becomes insolvent.

TS/TA=Sales/ total assets
It measures the management's capacity in dealing with competitive conditions. We have used the revised Z-Score for non-manufacturing businesses (Altman 1993) given as under:

Z= 6.56 (X1) +3.26 (X2) +6.72 (X3) +1.05 (X4) ----------Equ.4.5

X1= Working capital/total assets, X2= Retained earnings/total assets
X3= Earnings before interest and taxes /total assets and X4= Book value/total liabilities.
Z-Score (Z") for emerging countries is given below:

$Z"= 3.25 + 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$ ----------Equ.4.6

Multivariate Regression Analysis-Pakistan

To investigate the relation between foreign exchange exposure elasticity and financial distress empirically, we give following model for the sample firms.

$DIST(ZorZ")=\alpha_i+\delta_i(|FEE|)i+\gamma_1(SIZE)+\gamma_2(RE)+\gamma_3(SALE)+\gamma_5(DEBT)+\gamma_6(CASH)+\gamma7(FS)+\epsilon_{it}$ *where i=1 to 3* ---------- Eq.4.7

In equation 4.7, FEE stands for either of the three foreign exchange exposure measures (Beta) which is coefficient of foreign exchange rate changes in any of the three models (Model I, Model II and Model III) obtained by rolling–window regression.

Foreign Exchange Exposure and Financial Distress of Pakistan

Table 1. Statistics of Dependent Variable, Independent Variables and Control Variables

	Z Score	FEE1	FEE2	FEE3	SIZEA	RE	SALE	DEBT	CASH	FSALE
N	2057	2057	2057	2057	2057	2057	2057	2057	2057	2057
Mean	6.00	1.29	1.19	1.22	14.97	0.03	1.20	0.54	0.30	0.16
Median	5.26	0.98	0.87	0.89	14.87	0.03	1.10	0.57	0.07	0.01
Standard Deviation	3.02	1.03	0.99	1.01	1.41	0.06	0.68	0.20	0.48	0.25
Minimum	1.80	0.16	0.15	0.14	12.65	-0.10	0.20	0.15	0.00	0.00
Maximum	13.38	3.33	3.25	3.28	17.69	0.15	2.72	0.84	1.75	0.82

Above table depicts that there is no sizeable difference between mean and median values. This shows that data has a strong central tendency of the variables except cash and foreign sales. Size varies from Rs.12.65 million to Rs.17.69 million. The spread in the data of variables is also very low except Z-Score. The spread of all the three measures of foreign exchange exposure is very close to each other.

Table 2. Correlation Coefficients of Variables (At Level): Pak Firms

	Z Score	FEE1	FEE2	FEE3	SIZEA	RE	SALE	DEBT	CASH	FSALE
Z Score	1									
FEE1	-.078**	1								
FEE2	-.068**		1							
FEE3	-.083**			1						
SIZEA	.001	-.042	-.033	-0.042	1					
RE	.478**	-.021	-.011	-.043	.119**	1				
SALE	.114**	.012	.003	.015	-.125**	.291**	1			
DEBT	-.836**	.049*	.041	.041	.041	-.299**	.040	1		
CASH	.597**	-.057**	-075*	-.084**	.099**	.237**	-.060**	-496**	1	
FSALE	-.138**	.051*	.084*	.082**	.028	.012	-.021	.115**	-.171**	1

There is negative correlation between Z-Score and all the three measures of foreign exchange exposure which shows that foreign exchange exposure and financial distress are positively correlated but strength of each of the exposures is very weak. Z-Score has positive correlation with size of the companies, its retained earnings, sales and cash while it is negatively correlated with debt and foreign sales. Correlation of Z-Score with Debt and cash is very high. It is also observed that not a single correlation between any pair of variables of independent variables is greater than 0.5. This shows that there are no chances of multi-co linearity in the data.

Table 3. Fixed Effect Model Regression (At Level): Model 1

	Estimate	Std. Error	t-value	Pr (> |t|)
FEE1	-0.0401	0.0249	-1.610	0.107
SIZEA	0.0328	0.0623	0.527	0.599
RE	10.4792	0.4915	21.323	< 2e-16 ***
SALE	0.1147	0.0683	1.681	0.093
DEBT.	-9.0024	0.2254	-39.946	< 2e-16 ***
CASH.	1.2149	0.0780	15.575	< 2e-16 ***
FSALE	0.0372	0.2127	0.175	0.861
Adj. R^2: 0.6964, F :671.281***				

Table 4. Fixed Effect Regression Results (At Level): Model 2

	Estimate	Std. Error	t-value	Pr(>|t|)
FEE2	-0.0329	0.0257	-1.2797	0.201
SIZEA	0.0309	0.0625	0.4934	0.6218
RE	10.4813	0.4917	21.3169	< 2e-16 ***
SALE	0.1134	0.0683	1.6594	0.0972
DEBT	-9.0046	0.2254	-39.9473	< 2e-16 ***
CASH	1.2133	0.0780	15.5501	< 2e-16 ***
FSALE	0.0421	0.2132	0.1976	0.843
Adj. R^2 :0.6200, F-Test:506.819***				

Table 5. Fixed Effect Regression Results (At Level): Model 3

	Estimate	Std. Error	t-value	Pr(>|t|)
FEE3	-0.0218	0.0205	-1.0625	0.2882
SIZEA	0.0273	0.0624	0.4378	0.6616
RE	10.4650	0.4916	21.2897	<2e-16 ***
SALE	0.1122	0.0684	1.6407	0.1010
DEBT	-9.0054	0.2255	-39.9450	<2e-16 ***
CASH	1.2132	0.0780	15.5467	<2e-16 ***
FSALE	0.0385	0.2132	0.1807	0.8566
Adj R^2: 0.6199, F:506.608***				

We executed regression of equation 4.7 using all of the three methods of panel data analysis. We used F-test and Hausman tests which tell that fixed effect model is suitable for Pakistan. Adjusted R^2 is 0.6199 which means explanatory power of the model is very good.

Table 3-5 show that foreign exchange exposure does not show significant effect on Z-Score in all the three models. Retained earnings and cash are positively significantly related whereas debt is negatively related to Z-Score. Sales have a week significant effect on Z-Score. The effect of size and foreign sales is not found significant. Above results show that foreign exchange exposure elasticity does not significantly affect the financial distress contemporaneously and so the size and foreign sales. However, if debt increases, Z-Score will decrease which means an increase in the chances of financial distress.

Lag Effect

We tested lag effect of the foreign exchange exposure on the financial distress and results of all the three models are given below. Correlation coefficients of all the three measures of foreign exchange exposure elasticity with Z-Score are

again negative which means there is positive correlation between foreign exchange exposure elasticity and financial distress of the firms. However, strength of the correlation is very weak.

Table 6. Fixed-Effect Model Regression (Lagged FEE): Model 1

	Estimate	Std. Error	t-value	Pr(>|t|)
FEE1-1	-0.0714	0.0246	-2.8989	0.0038 **
SIZEA	0.0513	0.0625	0.8213	0.4116
RE	10.4496	0.4912	21.2755	<2.2e-16***
SALE	0.1133	0.0679	1.6673	0.0956
DEBT.	-9.0107	0.2254	-39.9714	<2.2e-16***
CASH	1.2187	0.0779	15.6420	<2.2e-16***
FSALE	0.0473	0.2123	0.2228	0.8237
Adj.R^2 :0.6207 F:507.987***				

Table 7. Fixed Effect Model Regression (Lagged FEE): Model 2

	Estimate	Std. Error	t-value	Pr(>|t|)
FEE2(-1)	-0.0821	0.0255	-3.2173	0.0013 **
SIZEA	0.0603	0.0628	0.9600	0.3372
RE	10.4806	0.4908	21.3557	< 2.2e-16 ***
SALE	0.1162	0.0679	1.7099	0.0875
DEB	-9.0285	0.2255	-40.0418	< 2.2e-16 ***
CASH	1.2198	0.0779	15.6631	< 2.2e-16 ***
FSALE	0.0573	0.2123	0.2698	0.7874
Adj. R^2: 0.6211 F:508.793***				

Table 8.Fixed Effect Model Regression (Lagged FEE): Model 3

	Estimate	Std. Error	t-value	Pr(>|t|)
FEE3(-1)	-0.0603	0.0204	-2.9598	0.0031 **
SIZEA	0.0542	0.0626	0.8655	0.3869
RE	10.4688	0.4910	21.3216	< 2.2e-16 ***
SALE	0.1170	0.0680	1.7188	0.0858
DEBT	-9.0247	0.2256	-40.0113	< 2.2e-16 ***
CASH	1.2169	0.0779	15.6235	< 2.2e-16 ***
FSALE	0.0566	0.2124	0.2664	0.7899
Adj. R^2 :0.6208 F:508.135***				

Tables 6-8 show that the coefficient of the foreign exchange exposure elasticity is negatively significant. This means foreign exchange exposure elasticity affect the financial distress of the firms positively with the lag effect of foreign exchange

exposure elasticity. Size and foreign sales do not depict significant impact on the distress where as sales have a week significant effect on the Z-Score.

A very high impact of debt on the financial distress is found with coefficient 9. Retained earnings and cash have significant positive coefficients 10.45 and 1.22 respectively. The impact of retained earnings is very high which means if retained earnings increase by 1%, the Z-Score will increase by 10.45 percent. The increase in both of the retained earnings and cash will reduce financial distress of a firm. However, a debt increase will result into more distress.

From our findings given in tables 3-8, it is concluded that contemporary changes in foreign exchange exposure did not affect the financial distress of the firms whereas the effect is highly significant when lagged effect is looked into it. It is further observed that there is no remarkable difference in the results of different exposure models. Moreover, we find that retained earnings, cash position, and debt significantly affect the financial distress but size and foreign sales do not.

The above results are consistent with Bortove and Bodnor (1994), Harper and Aggarwal (2005) and Aggarwal and Harper, (2010).who did not find contemporaneous relationship between exchange rate changes and firm returns but a stronger relationship is found in lagged changes. Major reason quoted in the studies is the time needed by the firms to adjust operations of the business and pursuing hedging strategies against the FE exposure. These findings are also in line with the findings of Kim and Kraple (2014) in so far as general relation of these variables are concerned as he did not mention about contemporary or lagged effect.

Foreign Exchange Exposure and Financial Distress of US Firms

Separate analyses of US manufacturing and non-manufacturing firms are carried out in this section using following equation.

$$Z\text{-Score}=\alpha i+ \beta i\ (absFEEj)+\gamma 1(SIZEA)+ \gamma 2(RE)+\gamma 3(SALE)+ \gamma 4(DEBT)+ \gamma 6(CASH) +\gamma 7(FSALE)+ \varepsilon i,t \quad \text{---------- 5.8}$$

Table 9. Descriptive Statistics US Variables of Manufacturing Firms

	ZMfg	FEE1	FEE2	FEE3	SIZA	RE	SALE	DEBT	CASH	FSALE
N	2024	2024	2024	2024	2024	2024	2024	2024	2024	2024
Mean	3.93	1.61	0.80	0.83	16.43	0.37	0.85	0.45	0.43	0.32
Median	3.66	1.37	0.73	0.73	16.44	0.35	0.79	0.44	0.34	0.33
Standard Deviation	1.71	1.21	0.55	0.56	0.91	0.2	0.43	0.12	0.33	0.24
Minimum	1.56	0	0	0	15.04	0.09	0.31	0.26	0.05	0
Maximum	6.98	3.71	1.82	1.87	17.79	0.73	1.65	0.65	1.07	0.68

It is evident from table 27 that there is no sizeable difference between mean and median values. This shows that data has a strong central tendency for almost all of the variables. The spread of the FEE1 is greater than both of the other measures, which are almost same. There is very small spread witnessed in the firm's fundamental variables ranging from 0.12 to 0.91. The spread of ZScore is relatively high.

Table 10. Correlation Coefficients of Variables of US Manufacturing Firms

	ZMfg	FEE1	FEE2	FEE3	SIZA	RE	SALE	DEBT	CASH	FSALE
ZMfg	1									
FEE1	-.176**	1								
FEE2	-.084**	.382**	1							
FEE3	-.071**	.347**	.936**	1						
SIZA	-.228**	.019	-.036	-.046*	1					
RE	.591**	-.081**	-.094**	-.107**	-.007	1				
SALE	.404**	-.099**	-.050*	-.053*	-.229**	.272**	1			
DEBT	-.307**	-.030	-.022	-.033	-.017	-.092**	.200**	1		
CASH	.169**	.119**	.075**	.078**	-.258**	-.005	-.180**	-.363**	1	
FSALE	.210**	.171**	.062**	.057*	.133**	.333**	-.064**	-.039	-.023	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 10 depicts a negative significant correlation between Z Score of US manufacturing firms and foreign exchange exposure elasticity for all the three measures but strength of model 1 measure is stronger than the exposure measures of model 2 and model 3. ZScore has negative correlation with size of the companies and their debt but positive correlation with firm's other variables including retained earnings, total sales, cash and foreign sales. Retained earnings, sales and debt have high correlation with ZScore.

Table 11. Fixed Effect Model Regression (At level): Model 1

	Estimate	Std. Error	t-value	Pr(>|t|)
FEE1	-0.125303	0.015584	-8.0404	1.590 e-15 ***
SIZA	-0.832965	0.058825	-14.1601	< 2.2e-16 ***
RE	2.348448	0.179588	13.0769	< 2.2e-16 ***
SALE	1.249904	0.123950	10.0840	< 2.2e-16 ***
DEBT	-5.633705	0.275665	-20.4368	< 2.2e-16 ***
CASH	0.441664	0.091042	4.8512	1.331e-06 ***
FSALE	0.175226	0.213857	0.8194	0.4127
Adj. R^2 = 0.4014 F:220.92***				

Table 12. Results of Fixed Effect Model Regression (At Level): Model 2

	Estimate	Std. Error	t-value	Pr(>|t|)
FEE2	-0.052149	0.033445	-1.5592	0.1191
SIZA	-0.840027	0.059836	-14.0389	< 2.2e-16 ***
RE	2.386555	0.182699	13.0627	< 2.2e-16 ***
SALE	1.340056	0.125505	10.6773	< 2.2e-16 ***
DEBT	-5.639396	0.280393	-20.1125	< 2.2e-16 ***
CASH	0.398982	0.092412	4.3174	1.663e-05 ***
FSALE	0.049684	0.216852	0.2291	0.8188
Adj. R^2 = 0.4392 F:205.09***				

Table 13. Results of Fixed Effect Model Regression (At Level): Model 3

	Estimate	Std. Error	t-value	Pr(>|t|)
FEE3	-0.047523	0.032873	-1.4457	0.1484
SIZA	-0.842109	0.059810	-14.0797	< 2.2e-16 ***
RE	2.384301	0.182838	13.0405	< 2.2e-16 ***
SALE	1.339913	0.125518	10.6751	< 2.2e-16 ***
DEBT	-5.642789	0.280377	-20.1257	< 2.2e-16 ***
CASH	0.397861	0.092410	4.3054	1.755e-05 ***
FSALE	0.049896	0.216875	0.2301	0.8181
Adj. R^2 = 0.3810 F:204.99***				

The results in tables 11-13 show that foreign exchange exposure has significant effect on Z-Score with a coefficient of 0.125 in the Model 1(total exposure) but it becomes insignificant when market return is added in model 2 or both the market return and another variable, interest rates are added in the model 3 therewith.

Analysis of Foreign Exchange Exposure of US Non-Manufacturing Firms

Table 14. Descriptive Statistics US Non-Manufacturing Firms

	ZNMGg	FEE1	FEE2	FEE3	SIZA	RE	SALE	DEBT	CASH	FSALE
N	418	418	418	418	418	418	418	418	418	418
Mean	3.70	1.33	0.77	0.79	16.75	0.19	0.73	0.44	0.39	0.14
Median	2.69	1.01	0.70	0.73	16.70	0.16	0.54	0.43	0.26	0.08
Standard Deviation	2.43	1.01	0.48	0.51	1.01	0.18	0.48	0.11	0.37	0.16
Minimum	1.13	0.00	0.00	0.01	15.13	-0.05	0.28	0.29	0.03	0.00
Maximum	8.49	3.24	1.51	1.63	18.37	0.51	1.74	0.62	1.12	0.44

Table 15. Correlation coefficients of Variables: US Non-manufacturing Firms

	ZNMfg	FEE1	FEE2	FEE3	SIZEA	RE	SALE	DEBT	CASH	FSALE
ZNMfg	1									
FEE1	0.075	1								
FEE2	-0.031		1							
FEE3	-0.029			1						
SIZEA	-.215**	-.132**	-0.07	-0.09	1					
RE	.595**	-.107*	-0.02	-0.02	-0.056	1				
SALE	.307**	.127**	.201**	.226**	-.327**	.404**	1			
DEBT	-.621**	0.02	0.036	0.058	-.206**	-.349**	.139**	1		
CASH	.456**	-.204**	-0.05	-0.01	-.446**	.211**	.232**	-.155**	1	
FSALE	.446**	-.226**	-0.03	-0.02	-.199**	.210**	0.084	-.190**	.416**	1
** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).										

Table 16. Random Effect Model Regression, US Non-Manufacturing Firms: Model 1

	Estimate	Std. Error	t-value	Pr(>|t|)
(Intercept)	0.249238	1.916399	0.1301	0.89659
FEE1	0.029351	0.035328	0.8308	0.40657
SIZA	0.243134	0.104336	2.3303	0.02027 *
RE	5.112817	0.377035	13.5606	< 2.2e-16 ***
SALE	1.334477	0.275514	4.8436	1.811e-06 ***
DEBT	-7.032936	0.542565	-12.9624	< 2.2e-16 ***
CASH	0.799483	0.176521	4.5291	7.777e-06 ***
FSALE	1.106624	0.766921	1.4429	0.14980
Adj. R^2 = 0.6965 F:89.05***				

Table 17. Results of Random Effect Model, US Non-Manufacturing Firms: Model 2

	Estimate	Std. Error	t-value	Pr(>|t|)
(Intercept)	0.489804	1.911913	0.2562	0.79794
FEE2	-0.108536	0.064962	-1.6708	0.09553
SIZA	0.236028	0.104055	2.2683	0.02383 *
RE	5.067334	0.374867	13.5177	< 2.2e-16 ***
SALE	1.349591	0.273909	4.9271	1.213e-06 ***
DEBT	-7.036266	0.541275	-12.9994	< 2.2e-16 ***
CASH	0.786280	0.175610	4.4774	9.806e-06 ***
FSALE	1.144387	0.755531	1.5147	0.13062
Adj. R^2 = 0.5985 F:89.8***				

Table 18. Results of Random Effect Model Regression, US Non-Manufacturing Firms: Model 3

	Estimate	Std. Error	t-value	Pr(>|t|)
(Intercept)	0.493318	1.909063	0.2584	0.79622
FEE3	-0.115672	0.061703	-1.8747	0.06155
SIZA	0.234072	0.103953	2.2517	0.02487 *
RE	5.060868	0.374626	13.5091	< 2.2e-16 ***
SALE	1.370278	0.274506	4.9918	8.862e-07 ***
DEBT	-6.986994	0.541392	-12.9056	< 2.2e-16 ***
CASH	0.796802	0.174749	4.5597	6.773e-06 ***
FSALE	1.132538	0.754724	1.5006	0.13423
Adj. R^2 = 0.5992 F:90.06***				

Results of US non-manufacturing firms are not much different from the results of US manufacturing firms. Foreign exchange exposure does not show any significant impact on the Z-Score in model 1 but a week significant effect is witnessed in model 2 and model 3. The firm's variables except foreign sales depict significant effect on the Z-Score. Size has positive coefficient on the Z-Score and thus will negatively affect the financial distress.

No lag effect of foreign exchange exposure is witnessed in case of both the US manufacturing and non-manufacturing firms for the period (Results are given in appendix: tables 1-8)

Conclusion

This study concludes that foreign exchange exposure elasticity does not significantly affect the financial distress of Pakistani firms contemporaneously but the foreign exchange exposure elasticity affects the financial distress of the firms positively when lag effect of foreign exchange exposure elasticity is analyzed. Retained earnings and cash flow affect the financial distress negatively whereas effect of debt is positive. Increase in retained earnings and cash will lessen the chances of financial distress but an increase in debt will increase the chances of financial distress. The effect of size and foreign sales is not found significant.

The contemporaneous results of US manufacturing firms show that foreign exchange exposure elasticity has significant positive effect on financial distress taking total exposure (Model 1) but it becomes insignificant when market return variable is added in model 2 or both the market return and interest rates variables are added in the model 3 therewith. In case of US non-manufacturing firms, the effect of the foreign exchange exposure is insignificant in model 1 but the market model (Model 2) and Model 3 show a small negative effect of the FE Exposure

on the distress of non-manufacturing firms of USA at relatively higher significance level.

The fundamental attributes of US non-manufacturing firms except foreign sales depict significant effect on the financial distress. Size has positive coefficient on the Z-Score i.e. the effect of size on the financial distress is negative which implies higher the size of a firm, lower will be the distress risk. Only debt has negative coefficient which describes a positive effect on the financial distress.

There is no lag effect of the foreign exchange exposure on the Z-Score in case of US- manufacturing and non-manufacturing firms which means no significant effect on the financial distress of the firms. Insignificance empirical findings have been observed and addressed in a number of recent studies. Aggarwal and Harper (2010) argue that the insignificant relation may be due to use of trade-weighted exchange rate (TWIEXR) and firms may have different level of exposure to different currencies which may not correlate with the currency index.

CFOs of some companies revealed that large changes in exchange rates do affect cost of their inputs but they use forward covering arrangements with the banks to manage that risk. They however told that depreciation in exchange rate of Pak rupee decreases their profitability and cash flows which in turn affects dividends and firm value. All CFOs asserted that cost of energy has become the second biggest cost component of firms which also depend on the changes in value of our currency. They did not see shortage or difficulty in availing financing for working capital as well as for long term purposes. One important piece of information, we got in these interviews was effect of depreciation in our currency on exports. They said that depreciation in domestic currency does affect the revenues of a firm but for a very short time period. This benefit of depreciation evaporates in 6 to 8 months, when they have to pay high amount for their imports of machinery and raw materials. The net importers face losses due to depreciation of domestic currency.

This study has multi-dimensional policy implications for international trade and investment activities of the non-financial firms around the world. This study is of great significance in understanding foreign exchange risk and the parameters of financial stability of the firms in the wake of floating exchange rate movements. It gives a deep insight to the managers of multinational firms to take care of currency risk which, if not addressed adequately can jeopardize their business operations and compromise their set targets.

This study provides a fresh and unique knowledge to the management of domestic companies who normally assume that their operations are not affected by the movements in exchange rates as they have no international transactions. This study warns them of the consequences a purely domestic firm may face due to tough competition from the imported products.

This study gives signals to the business managers and owners to considering the foreign exchange exposure when evaluating financial position of businesses and making financial planning and forecasting to ensure sustainability of their businesses. This study provides an insight to the investors about the behavioral responses of the corporate managers in their financial decisions regarding managing the exchange risk.

So, the study took non-financial listed firms from Pakistan and USA from different sectors. Research can be carried to compare foreign exchange exposure of different sectors over a longer period of time. We used Altman's Z score for measuring financial distress of the firms. Future studies may adopt different and preferably country–specific distress measures to work carry out research on the issues. We suggest taking political uncertainty particularly in Pakistan as a variable in measuring behavior of the currencies as well as energy issue stated by the CFOs as a big factor triggering frequent fluctuations in the exchange rates as well as on the stock market prices.

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Appendix

Table 1. Correlation Coefficients of Variables of US Manufacturing Firms with FEE (lag)

	ZMfg	FEE1	FEE2	FEE3	SIZA	RE	SALE	DEBT	CASH	FSALE
ZMfg	1									
FEE1	-.123**	1								
FEE2	-.083**		1							
FEE3	-.071**			1						
SIZA	-.229**	.015	-.036	-.046*	1					
RE	.591**	-.059**	-.093**	-.107**	-.008	1				
SALE	.404**	-.106**	-.050*	-.053*	-.229**	.272**	1			
DEBT	-.306**	-.040	-.022	-.033	-.017	-.091**	.201**	1		
CASH	.170**	.121**	.075**	.078**	-.258**	-.005	-.180**	-.363**	1	
FSALE	.209**	.153**	.062**	.058**	.133**	.332**	-.064**	-.038	-.023	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 2. Results of Fixed Effect Model Regression, US Manufacturing Firms (FEE Lag): Model 1

	Estimate	Std. Error	t-value	Pr(>|t|)
FEE1	-0.010653	0.015503	-0.6872	0.4921
SIZA	-0.841900	0.059929	-14.0483	< 2.2e-16 ***
RE	2.401696	0.182643	13.1497	< 2.2e-16 ***
SALE	1.326860	0.127304	10.4228	< 2.2e-16 ***
DEBT	-5.663437	0.280872	-20.1638	< 2.2e-16 ***
CASH	0.400023	0.092737	4.3135	1.692e-05 ***
FSALE	0.055432	0.217437	0.2549	0.7988
Adj. R^2 = 0.3804 F:204.51***				

Table 3. Results of Fixed Effect Model Regression, US Manufacturing Firms (FEE Lag): Model 2

	Estimate	Std. Error	t-value	Pr(>|t|)
FEE2	-0.052310	0.033453	-1.5637	0.1181
SIZA	-0.840655	0.059861	-14.0435	< 2.2e-16 ***
RE	2.386242	0.182738	13.0583	< 2.2e-16 ***
SALE	1.340009	0.125531	10.6747	< 2.2e-16 ***
DEBT	-5.643044	0.280544	-20.1147	< 2.2e-16 ***
CASH	0.398175	0.092444	4.3072	1.741e-05 ***
FSALE	0.049064	0.216899	0.2262	0.8211
Adj. R^2 = 0.3811 F:205.01***				

Table 4. Results of Fixed Effect Model Regression, US Manufacturing Firms (Fee Lag): Model 3

	Estimate	Std. Error	t-value	Pr(>|t|)
FEE3	-0.047667	0.032881	-1.4497	0.1473
SIZA	-0.842740	0.059836	-14.0842	< 2.2e-16 ***
RE	2.383983	0.182876	13.0360	< 2.2e-16 ***
SALE	1.339866	0.125544	10.6725	< 2.2e-16 ***
DEBT	-5.646432	0.280528	-20.1279	< 2.2e-16 ***
CASH	0.397054	0.092442	4.2951	1.837e-05 ***
FSALE	0.049280	0.216923	0.2272	0.8203
Adj. R^2 :0.3810 F:204.92***				

Table 5. Correlation Coefficients of Variables of US Non-Manufacturing Firms' Data (Lag FEE)

	ZNMfg	FEE1	FEE2	FEE3	SIZA	RE	SALE	DEBT	CASH	FSALE
ZNMfg	1									
FEE1	0.048	1								
FEE2	0.003		1							
FEE3	0.019			1						
SIZA	-.215**	-0.1	-0.09	-.116*	1					
RE	.594**	-.119*	-0.02	-0	-0.057	1				
SALE	.306**	-.141**	.162**	.195**	-.327**	.404**	1			
DEBT	-.621**	-0.03	0.005	0.012	-.206**	-.350**	.138**	1		
CASH	.455**	.160**	-0.01	0.035	-.446**	.211**	.230**	-.156**	1	
FSALE	.446**	.191**	0.031	0.049	-.199**	.209**	0.083	-.191**	.415**	1

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table 6. Random Effect Model Regression, US Non-Manufacturing Firms (Lag FEE): Model 1

	Estimate	Standard Error	t-value	P. Value
(Intercept)	0.2929904	1.9193677	0.1526	0.87875
FEE1	-0.0067139	0.0335598	-0.2001	0.84153
SIZA	0.2437943	0.1046618	2.3294	0.02033 *
RE	5.0765332	0.3780503	13.4282	< 2.2e-16 ***
SALE	1.2967736	0.2781520	4.6621	4.243e-06 ***
DEBT	-7.0341189	0.5448759	-12.9096	< 2.2e-16 ***
CASH	0.8229485	0.1755028	4.6891	3.746e-06 ***
FSALE	1.2358653	0.7666378	1.6121	0.10772
Adj. R^2 :0.5956 F:88.52***				

Table 7. Random Effect Model Regression, US Non-manufacturing Firms (Lag fee): Model 2

	Estimate	Standard Error	t-value	P. Value
(Intercept)	0.419682	1.926914	0.2178	0.8277
FEE2	-0.018094	0.064376	-0.2811	0.7788
SIZA	0.236654	0.104756	2.2591	0.0244 *
RE	5.076462	0.376598	13.4798	< 2.2e-16 ***
SALE	1.304913	0.273877	4.7646	2.633e-06 ***
DEBT	-7.044609	0.544482	-12.9382	< 2.2e-16 ***
CASH	0.817027	0.176308	4.6341	4.828e-06 ***
FSALE	1.227674	0.756835	1.6221	0.1055
Adj. R^2: 0.5956 F:88.54***				

Table 8. Random Effect Model Regression, US Non-Manufacturing Firms (Lag FEE): Model 3

	Estimate	Standard Error	t-value	P. Value
(Intercept)	0.388856	1.927012	0.2018	0.84018
FEE3	-0.002336	0.061458	-0.0380	0.96970
SIZA	0.237707	0.104807	2.2680	0.02385 *
RE	5.076108	0.376742	13.4737	< 2.2e-16 ***
SALE	1.298786	0.274357	4.7339	3.040e-06 ***
DEBT	-7.041125	0.544330	-12.9354	< 2.2e-16 ***
CASH	0.822238	0.175819	4.6766	3.968e-06 ***
FSALE	1.242433	0.757482	1.6402	0.10173
Adj. R^2 : 0.5956 F:88.51***				