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PAPER

Trading Effect Emerging Stock Markets Risks-Return Volatility Dynamics and Enterprises Economic Exposure

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Abstract While investigating the role of trading effect in detecting the risks-return tradeoff, various volatility dynamics and macroeconomic exposure of firm returns, this research study employs monthly data from Pakistani stock market for the period from 1998 to 2012. For this purpose, three generalized autoregressive conditional heteroskedasticity models were functioned: GARCH-M for risks-return tradeoff, GARCH (1, 1) for capturing different volatility dynamics and EGARCH for asymmetric and leverage effect. This study rests on the following outcomes. Firstly, we unravel that trading effect is flag rising in the debate of risks-return tradeoff. Secondly, in the course of exploring whether the firm trading nature matters from the context of asymmetry and leverage effect, we find that it is certainly the case. Thirdly, trading effect holds considerable role in determining various volatility dynamics. Finally, we expose that macroeconomic variables affect stock returns differently depending upon firm trading nature, hence signifying the role of trading effect.

Keywords *Trading effect - Macroeconomic exposure - Volatility dynamic and Risks-return tradeoff.*

JEL Classification *F10 - F14 - G10 - G11 - G12*

1. Introduction

Chase for the stock returns has attracted considerable attention in the financial press; though, the economists have usually paid little interest to the issue of firm's returns from the context of its trading nature. This research study wishes to contribute closing this space. The subsequent parts of this section promote the inspiration for all the dimensions highlighted along with the literature survey in that.

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1.1 Inspiration for Trading Effect (Exporting Vs. Non-Exporting Firms)

Since due to the fact that most of the countries (like Pakistan) are facing balance of payment deficit, and therefore attempts to increase the exports (Aaby and Slater, 1989; Joynt, 1982; Kaynak, 1982; Miesenbock, 1988; O'Rourke, 1985), the research regarding exporting and non-exporting firms is of enormous importance. Exporting firms develop specific strategies in order to meet and face the competitive environment at both the domestic and international markets (McDougall, 1989).

The financial literature concurs that the exporting firms have better payment mechanism for workers and managers, are more R&D oriented, have more experienced management, have faster growth rate, have larger customer base, have large and diversified suppliers, have strong financial bases, have more research resources, are more productive, more innovative and are better in developing strategies particularly regarding the services, quality and marketing (e.g. see Bernard and Jensen, 1995; Farinas and Marcos, 2006; Hagemejer and Kolasa, 2011; McDougall, 1989; McDougall *et al.,* 2003; Schank *et al.,* 2007; Schank *et al.,* 2010; Westhead, 1995); in contrast to their non-exporting counterparts. More so, Augier and Dovis (2013) determined that the exporting firms absorb new technology and knowledge from the foreign market (foreign contacts) and thus through large market share exploit them to scale. Hence, in general; the exporting firms might be considered safer, credible and liquid than the non-exporting firms.

Whereas, of a counter argument; is that the exporting firms are exposed to both the domestic as well as international macroeconomic uncertainties unlike the non-exporting firms. Moreover, the exporting firms might be more responsive to international event thus more volatile than the non-exporting ones. Further, the exporting firms are also exposed to severe competition in the international market, therefore any lack in quality or change in cost of the product might affect their profitability more than non-exporting firms. More so, exporting firms are larger in size in contrast to non-exporting firms as documented by Castellani *et al.* (2010), Farinas and Marcos (2006) and Yaprak (2007)[1], but this might trap them in a very famous agency problem faced by the large size firms (e.g. Elyasiani *et al.,* 2007; Loderer and Waelchli, 2010; Pi and Timme, 1993) consequently can damage their performance in contrast to the non-exporting firms. In addition, owing to severe competition in international market, exporting firms need more elaborative design, packaging, handling and supervision, and hence require more educated and skilled manpower. To attract such manpower, they are forced to pay higher compensation than the non-exporting firms (Were and Mugerwa, 2009). Taken together, ***Khan et al. (2014) proposed that future studies must throw due importance to the firm trading effect while detecting the behaviour of their stock returns.***

Therefore, emanating from above, exporting firms can behave differently than the non-exporting firms. Thus, there is every reason to infer that there is trading effect (exporting vs. non-exporting firms) in terms of: effect of: economic factors on stock returns; pricing of risk; asymmetry & leverage effect; volatility; persistence of volatility together with mean reversion and speed of mean reversion of volatility of the stock returns of exporting vs. non-exporting firms. Further, this is a first such comprehensive attempt particularly in emerging markets with all these dimensions, exploring the differences in behaviour of stock returns of the exporting vs. non-exporting firms. More so, as Pakistan has not been explored in this context, hence it seems important for two reasons. Firstly, Pakistan is largely a developing country, thus it

[1] For further details in this regard, see International Study Group on Export and Productivity (ISGEP) 2008 for international comparison.

is very crucial to understand its exporting firm's behaviour. Secondly, Pakistan's growth in manufacturing and specifically in exporting has been largely slower than that of many other developing nations (notably, India and China) (IMF Country Report, 2010; 2012), therefore it looks quite interesting to understand that what kind of differences the stock returns of exporting firms set in contrast to their non-exporting counterparts.

1.2 Inspiration for Risk-Return Trade-off

As investors are chiefly concerned about the firm level stock; thus, it is very crucial for them to be aware of the pricing of risk with respect to firm trading nature. However, neglecting the micro level analysis (i.e. firm level); majority of the presented financial press primarily paid attention either at aggregate market level and/or sectoral level stock returns to determine the pricing of risk.[2] Traditionally, since the landmark involvement of Markowitz (1952) centers around the idea that investors always demand higher returns on market portfolio than the investment in risk free securities, the association between risk and returns had been put under strong pressure by the financial press. This falls as no shock specified the importance of risk while pricing the financial assets, financial derivatives and in the strategies of portfolio diversification (Mandimika and Chinzara, 2012). Further, subject to risk averseness through a theoretical breakthrough; Merton (1973) denoted that at aggregate market level, the required excess return is represented by a positive function of their conditional variance. Representing the aggregate wealth by W_t, indirect utility function by $J(.)$, between time t and $t+1$, the expected return on aggregate wealth by e_{wt+1} and conditional variance on aggregate weath by σ^2_{wt+1} , Merton (1973) displayed that assuming the fixed investment opportunity set, the risk-return association can be explanied by the following functional equation:

$$(\varepsilon_{w_{t+1}}) = \left[\frac{-J_{ww}W_t}{J_w}\right](\sigma^2_{w_{t+1}}) = \lambda(\sigma^2_{w_{t+1}})$$

Where λ indicates risk averseness of investors measured by $[-J_{WW} W_t / J_W]$.

Equation (1) above holds that the future expected return by the investor is directly proportionate to the product of risk averseness and expected variations with returns. It is so because investors are usually risk averse, hence they will invest only if the expected returns from the project are attractive enough to pay off for the expected risk of that project.

The risk premium might be positive or negative. Although negative risk premium contradicts the fundamental portfolio theory (i.e. Markowitz, 1952), but still it has been determined in the empirical financial press (e.g. see Balios, 2008; Elyasiani and Mansur, 1998; Fraser and Power, 1997; Glosten *et al.,* 1993; LeBaron, 1989; Lettau and Ludvigson, 2010; Mandimika and Chinzara, 2012; Whitelaw, 1994). For such negative risk premium, at least four reasons have been stated in the financial literature. Firstly, Balios (2008) and LeBaron (1989) featured such outcomes to non synchronization of trading when the stock market is accredited by thin trading and illiquidity, motivating the investors to give up positive risk premium in chasing

[2] Most of the existing studies (e.g. see Campbell, 1985; French *et al.*, 1987; Fraser and Power, 1997; Glosten *et al.*, 1993; Harvey, 1991; Hansson and Hordahl, 1998; Jiranyakul, 2011; Koutmos *et al.*, 1993; Kavacic, 2008; Li *et al.*, 2005; Leon, 2008; Lettau and Ludvigson, 2010; Whitelaw, 1994; Yu and Hassan, 2008) focused on aggregate market level returns while Mandimika and Chinzara (2012) targeted both the sectoral and aggregate market level data to determine the risk-return trade-off.

the successful transactions. Secondly, Koutmos *et al.* (1993) documented that the negative risk premium might be due to the fact that local investors are not open to the foreign exchange risk, therefore they will not insist an exchange rate risk premium (i.e. returns are considered in Pak Rupees). Adding together, they stated that if returns are transformed to a foreign currency (e.g. US Dollar); there is high probability that positive risk premium can become evident. The third and fourth reasons rest on the argument of Elyasiani and Mansur (1998) and Glosten *et al.* (1993) who documented that the negative risk premium might be either due to the fact that riskier period coincides with the period when investors are relatively better in bearing risk or if the investors are interested in saving more during a riskier period while holding all risky assets, contest may increase the asset prices; hence, decreases the risk premium. However, on the contrary; the study of Campbell and Hentschel (1991) and French *et al.* (1987) in United States, Hansson and Hordahl, (1998) in Sweden, Karmakar (2007) in India, Yu and Hassan (2008) in Middle East and North African region and Jiranyakul (2011) in Thailand documented positive risk-return trade-off declaring positive risk premium.

More so, the latest study of Mandimika and Chinzara (2012) concluded that risk is not a priced factor at sectoral and aggregate market level stock returns in an emerging market. Whereas, the studies of Ewing *et al.* (2005) stated that even the sectoral level analysis limit our capability to generalize the results as the firms with considerably different features coexist even in a very narrowly defined sectors. Thus, relying on the argument that firms are heterogeneous in nature (Ewing *et al.,* 2005; Narayan and Sharma, 2011); it is quite possible that risk might be a priced factor at the firm level stock returns and can be subject to variations with respect to firm trading nature. Therefore, eyeing this potential research gap, this study for the first time in financial press; further explores that how does the risk-return trade-off vary with respect to firm trading nature in an emerging market of Pakistan.

1.3 Inspiration for Asymmetry and Leverage Effect

Presented financial press concluded that stock returns volatility increases after the stock price fall (e.g. see Black, 1976; Christies, 1982; Cheung and Ng, 1992; Engle and Patton, 2001; Ewing *et al.,* 2005; Mandimika and Chinzara, 2012). At least there are four theoretical financial/economic explanations for such effect namely: (i) leverage effect theory; (ii) asymmetric volatility of economic variables theory; (iii) time varying risk premium theory, and (iv) combination of both leverage effect and volatility feedback effect theory (Duffee, 1995; Mandimika and Chinzara, 2012). Firstly, the leverage effect theory declares that in the case of fall in share price (negative news), the financial leverage raises which consequently increases the stock returns volatility (Black, 1976; Christies, 1982). This 'leverage effect' has become synonymous with asymmetric volatility and however it is plausible that asymmetric volatility might basically reflects the time varying risk premium and/or asymmetric volatility of macroeconomic variables (Duffee, 1995; Mandimika and Chinzara, 2012). Therefore, secondly, the time varying risk premia theory centers on the positive relation between volatility and expected returns. It follows that in the course of probable rise in volatility; the expected required rate of returns also rises which consequently (according to asset valuation model) decreases the stock prices (Duffee, 1995; French *et al.,* 1987; Mandimika and Chinzara, 2012; Pindyck, 1984). It happens because volatility is an indicator of risk, and if the investors are supposed to be risk averse, a rise in volatility (risk) will bring the demand for that stock down consequently resulting in price fall. Hence, if volatility is priced then rise in volatility raises the required rate of return on stock which immediately leads to share price decline, frequently termed as volatility feedback effect (Karmakar, 2007).

Thirdly, asymmetric volatility of economic variables theory can also roots the existence of asymmetric volatility. As the empirical research (e.g. see French and Sichel, 1991; Schw-

ert, 1989) has documented that macroeconomic variables are more volatile during recession. Hence, if so, then it is quite reasonable to conjecture that a lower forecast of economic variable growth rate (e.g. GDP) results in an instant fall in stock prices, followed by higher stock return volatility in the period of low economic factors growth (Duffee, 1995). Fourthly, it is quite possible that asymmetric volatility might be the upshot of both leverage (financial) and volatility feedback effect simultaneously (Mandimika and Chinzara, 2012). If, for instance, there is running an expectation of rise in volatility in the stock market, resultantly, the market players will place more order to short (sell) than to long (buy) the stocks. Accordingly, the price will fall down to balance the supply and demand forces. Hence, an expected rise in volatility results in an instant price fall in accordance with hypothesis of volatility feedback. This fall in price will increase the leverage ratio, which in the light of hypothesis of leverage effect, will further bring the prices down (Karmakar, 2007; Mandimika and Chinzara, 2012).

Further, Mangani (2008) in South African stock exchange determined the lack of pricing of risk accompanied by limited evidence of asymmetry & leverage effect. However, this lack of asymmetry & leverage effect is challenging the previous results of Engle and Patton (2001), Ewing *et al.* (2005); Koutmos (1996); Karmakar (2007; Leon *et al.* (2005),), who have documented the presence of strong asymmetry & leverage effect on stock returns. In fact, the latest work by Chinzara and Aziakpono (2009), Chinzara (2011) and Mandimika and Chinzara (2012) documented that the volatility in South African stock market (JSE) is inherently asymmetric at sectoral and aggregate market level stock returns. The possible explanation for such difference in outcomes regarding asymmetric volatility might be the reality that the three latest studies used more fresh data (i.e. 1995-2009) than the study of Mangani (2008), who used the data set from 1973-2002. Therefore, it is quite reasonable to conjecture that in an emerging market like Pakistan, it is quite possible that the use of latest data (i.e. 1998-2012) together with conducting micro level analysis (firm level) might bring some new and interesting evidences regarding asymmetry & leverage effect.

More so, arguing that even the sectoral level analysis limit out capability to generalize the results since the firms with significantly different features coexist even in a very closely defined sector; Ewing *et al.* (2005) along with Karmakar (2007) directed the future scholars to conduct the firm level analysis for determining the asymmetry and leverage effect. Since, it is worthy for the investors to understand the asymmetric volatility in order to diversify their investment between the risky and stable assets and to select the best portfolio.

Thus, as discussed earlier; it is quite reasonable to argue that for the stock market players and policymakers, it is of immense importance to have detailed know how of asymmetric volatility particularly with respect to firm trading nature. As the existing studies (e.g. such studies focusing at aggregate data (aggregate market and/or sectoral level) includes: Engle and Patton (2001), Ewing *et al.* (2005), French *et al.* (1987), Koutmos (1996), Leon *et al.* (2005), Mandimika and Chinzara (2012), Oskoee and Shamsavari (2011), Phalavani and Ezzati (2010) and Saleem (2007), and principally in emerging markets targeted the aggregate data for determining the asymmetric and leverage effect. Although, due to firm heterogeneity; aggregate market and even sectoral level analysis provides deceptive results (e.g. see Ewing *et al.,* 2005). Hence, mainly from the point of view of emerging markets like Pakistan; it is quite worthy to conduct firm level analysis with respect to their trading nature; powering the investors, portfolio managers and policymakers for effective decision making.[3] Moreover, existing studies

[3] Specifically, with respect to Pakistani market; despite of the fact that it stands as the top performer in the region, the scholars examining the asymmetric volatility are very limited up till recent. For instance, the existing literature only targeted the aggregate market level returns for the asymmetric effect, nesting with great potential of misleading. For

have ignored this potential research area particularly in the emerging markets, which could be another strong motivational source for such research study.

1.4 Inspiration for Various Volatility Dynamics (i.e. Volatility, Persistence and Mean Reversion)

Stock market volatility can supply financial and economic instability (Chinzara and Aziakpono, 2009), therefore it is very crucial to examine its trends over the time. Extreme stock market volatility may derail the smooth operations of other financial markets in the country, and consequently can have negative impact on investments, savings, performance of real economy and economic growth by two possible means (Mandimika and Chinzara, 2012). Firstly, stock market volatility leads to economic uncertainty which marks the capital flight. This complicates the role of policymakers who are responsible for establishing an environment that cultivates the real growth of an economy by taking control of policy factors (e.g. interest rate) which are considerably affected by capital flows (Rigobon and Sack, 2003). Secondly, knowing that the volatility is a measure of risk, therefore rise in equity market volatility is an indication of increase is equity risk, hence can consequently root the flow of funds to relatively less risky assets. This action can increase the cost of funds (Edward and Garcia, 2008). At large, these factors could adversely influence the performance of an economy. Thus, over time, it is vital enough for the policymakers to know and understand the pattern of various volatility dynamics (Mandimika and Chinzara, 2012). Furthermore, forecasting volatility is a critical factor in risk management, portfolio strategies, hedging and market timings for the stock market (Engle and Patton, 2001; Ewing *et al.,* 2005).

Further, how persistence the volatility shocks are in a stock market, is a central question in detecting the association between the volatility and return, since the persistence volatility changes permit to the adjustments in risk premia (Elyasiani and Mansur, 1998). Next, in a related argument, Dueker (1997) stated that how long the stock market stays volatile, is a natural question as the volatility predictions are core to the option pricing and optimal hedging policies. More so, Karmakar (2007) stated that volatility persistence significantly influences the hedging strategies. In the view of financial press, the clustering of large change and small change in the pricing was one of the primary concerns in the volatility process (Engle and Patton, 2001). Moreover, Mandelbrot (1963) and Fama (1965) reported that large change in asset price is followed by another large change whereas small change in followed by another small change. Such behaviour of volatility is also documented by several other studies (e.g. see Baillie *et al.,* 1996; Chou, 1988; Engle and Patton, 2001; Ewing *et al.,* 2005; Schwert, 1989;). Such volatility clustering implies that volatility shocks today will influence the future expected volatility for many future horizons. However, the study of Engle *et al.* (1990) and Elyasiani and Mansur (1998) stated two possible reasons for volatility clustering: (i) new arrival process, (ii) market dynamics against the news. The first one implies that even if the stock market incorporates the information instantly and completely, returns may display clustering, if the information reaches in clusters. Secondly, assuming that the stock market participants hold heterogeneous priorities and take time to solve their anticipational differences and to absorb the information shocks, volatility clustering can be geared by market dynamics.

Next, the feature of mean reversion of stock returns volatility entails that by and large, volatility shocks hold the property of mean reversion in the stock market (Carroll and Connor,

example, see the studies of Arshad *et al.* (2012), Mahmud and Mirza (2011) and Saleem (2007) in this regard who focused at aggregate market level returns to examine the asymmetric volatility.

2011; Engle and Patton, 2001). They further added that theoretical foundations for the mean reversion pattern of stock returns volatility roots from volatility clustering, implying that volatility comes and goes. Hence, the period of low volatility will finally give way to the period of high volatility and likewise the high volatile period will be traced by a normal one (Carroll and Connor, 2011; Engle and Patton, 2001). Therefore, the mean reversion of volatility simply reports the presence of mean level of volatility for every financial asset which is eventually returned by the volatility. Even for a very long forest of volatility, it will ultimately return to this normal level of volatility, no matter when it is achieved (Engle and Patton, 2001). Such property of a financial asset is termed as mean reversion of volatility. However, most of the practitioners might disagree on the mean level of volatility and whether it is stable over all the time and corporate changes; yet they do agree on one common believe that there is a mean level of volatility to which the volatility steadily returns (Engle and Patton, 2001). Further, in majority of the existing financial press, the studies examining the stock returns volatility together with its persistence and mean reversion mainly targeted the aggregate market and/or sectoral level returns.[4] However, due to firm heterogeneity; aggregate market and even sectoral level analysis provide deceptive results (e.g. see Chinzara, 2011; Ewing *et al.,* 2005). More so, Elyasiani *et al.* (2011) recommended that mean reversion pattern of stock return volatility should be examined by the future studies with due importance.

Thus, taming form the afore-mentioned arguments, it is quite sensible to argue that the volatility dynamics are of immense importance for the stock market players. But unfortunately studies in this respect are limited up till recent (particularly at firm level returns in emerging markets like Pakistan)[5]. Hence, eying this potential research gap, as per author knowledge, it is first such attempt particularly in emerging markets, exploring the role of trading effect in determining these volatility dynamics.

1.5 Inspiration for Economic Exposure of Stock Returns

Signifying the role of economic indicators in detecting the business overall systematic risk and cash flow, the connectivity between the macroeconomic factors and capital market is instinctively fascinating (Arnold and Vrugt, 2006; Chinzara, 2011). Together, the Arbitrage Pricing Theory (APT) and Dividend Discount Model (DDM), set theoretical foundations that employ the conduit to root the factoring of economic variables into the stock returns. These models entail that any expected or unexpected influx of new information regarding macroeconomic variables (e.g. inflation, exchange rate, interest rate, GDP etc), will impact the stock returns through discount factor, dividends or both.

Stemming from the empirical work of Chen *et al.* (1986), a large quantity of literature determined the substantial impact of economic factors on stock returns. Such as, the studies

[4] For example, Carroll and Connor (2011), Engle and Patton (2001), Ewing *et al.* (2005), Elyasiani *et al.* (2011) and West and Worthington (2006), are among others for developed markets. However, the research work of Chinzara and Aziakpono (2009), Chinzara (2011) and Mandimika and Chinzara, (2012) for the South African stock market and Goudarzi and Ramanarayanan (2010) for Indian stock market targeted the aggregate market and/or sectoral level returns.

[5] Despite of considerable achievements of Pakistani stock market, the studies regarding volatility dynamics particularly at micro level (i.e. firm level) are very limited. Such as existing literature (see Arshad *et al*. 2012; Ali and Afzal, 2012; Hameed and Ashraf, 2006; Mushtaq *et al.,* 2011; Mahmud and Mirza, 2011; Qayyum and Anwar, 2011; Rafique and Rehman, 2011; Rashid *et al.,* 2011; Saleem, 2007; and Zafar e*t al.,* 2008) examined the stock returns volatility only at the aggregate market level in Pakistan. Though, aggregate and/or sectoral level analysis has been strongly criticized by the financial press.

focusing at aggregate market level data include: Abdalla and Murinde (1997), Ahmed (2008), Husain and Mehmood (1999), Ibrahim (1999), Ibrahim and Aziz (2003), Le and Youngho (2011), Mukherjee and Naka (1995), Maysami and Koh (2000), Ratanpakorn and Sharma (2007) and Rahman *et al.* (2009). However, the literature examining the sectoral level data include: Chinzara (2011) in South Africa, El-Sharif *et al.* (2005) in UK, Elyasiani *at al.* (2011), Hammoudeh and Li (2005), Kilian and Park (2009) and Nandha and Brooks (2009) in US,McSweeney and Worthington (2008) and West and Worthington (2006) in Australia, Arouri (2011), Degiannakis *et al.* (2013) and Scholtens and Yurtsever (2012) in Europe and Arouri and Nguyen (2010) in US and Europe etc. Similarly, from the context of Pakistan, studies have largely focused at the aggregate data (i.e. aggregate market or sectoral level returns) (e.g. see Akbar and Kundi, 2009; Butt *et al.*, 2010; Khan *et al*., 2013 and Khan *et al.,* 2014 and ***Nishat and Shaheen, 2004*** are among others).

Thus, firstly resting on the argument that the firms are heterogeneous in nature (Narayan and Sharma, 2011); this study conducts a firm level analysis. Secondly, believing that firms' behaviour is different with respect to their trading nature; it is quite possible that their stock returns also react differently to the macroeconomic variables. More so, Khan *et al.* (2014) recommended that future studies should address the firm trading effect while investigating the impact of economic factors on stock returns. Hence, as per author knowledge, this is first such type of study particularly in emerging markets like Pakistan.

Remaining of the paper is designed as follows. Section 2 entails the data used besides some of the descriptive statistics of the data. Section 3 presents methodology functioned. Section 4 details the discussion regarding the results. Section 5 highlights the related literature together with justifications; however, section 6 sums up the paper and persuasive policy implications together with future research avenues.

2. Data and Description

Data used in this study consist of monthly returns series for 160 firms for the period from June 1998 till June 2012, was obtained from Karachi Stock Exchange website and Business Recorder. However, the selection of monthly data is based on two praiseworthy reasons. At first, it enables to confine the long term movements and to prevent the impact of delays in clearing and settlements which considerably influences the stocks over shorter interval (daily or weekly) and also prevents the issue of spurious correlation (Beirne *et al.,* 2009; DeGennaro and Baillie, 1990; Elyasiani and Mansur, 1998; Faff and Chan, 1998; Ibrahim, 1999; Patra and Poshekwale, 2006). Secondly, thin trading and non-trading days (i.e. holidays and weekends) together with bid-ask spread generates serious concerns regarding using daily data (Mohamed, 2011; Mandamika and Chinzara, 2012). More so, use of monthly data is consistent with the financial press (e.g. see Bloom, 2009; Chinzara, 2011; Doukas *et al.,* 2003; Khan *et al.,* 2013; Lanne and Luoto, 2008; Manolis *et al.,* 2002; West and Worthington, 2006).

Then as a practice in financial literature; the return series will be expressed in logarithmic difference between the two successive prices acquiring the continuous compounding returns (i.e. $Ln\ (P_t / P_{t-1})$, where *Ln* is the natural log, P_t is current closing price and P_{t-1} is previous closing price). While, based on financial literature (e.g. see Hagemejer and Kolasa, 2011; Westhead, 1995;) exporting firms are identified on the grounds of their export sales. Data for the export sales are gathered from the annual reports of the firms together with the Reports (i.e. Balance Sheet Analysis) issued by the State Bank of Pakistan. The firms having export sales are termed as exporting; whereas, the firms with no export sales are termed as non-exporting firms (Hagemejer and Kolasa, 2011). There are 96 exporting firms against 64 non-exporting firms in the sample.

Normally, data series displays features that are consistent with financial time series (e.g. see Elyaisani *et al.* 2011; Mandimika and Chinzara, 2012). For instance, the statistical significance of Jarque-Bera statistics coupled with the values of skewness and kurtosis unties that the distribution of data series is departing from normality. The high value of kurtosis clearly implies that data series support the character of fat tails.

The verity that most of the data series reflect serial correlation together with denial of normality, motivates and suggests that the application of GARCH type models can significantly improve the explanation of the return series (e.g. see Elyaisani and Mansur, 1998; Elyaisani *et al.* 2011; Mandimika and Chinzara, 2012). Moreover, as the Ljung Box Q Statistics stands significant for both majority of the (LBQ (12)) returns and (LBQ^2 (12)) square returns series. The former wires the existence of serial correlation for majority of the returns and square returns series, a contradiction to the stock market informational efficiency. However, the latter case roots the existence of heteroscedasticity and volatility clustering (time varying nature), hence mitigating the use of GARCH type models (as they confine the time varying behaviour of conditional volatility) (Kovacic, 2008; Mandimika and Chinzara, 2012). More so, functioning of both the Augmented Dicky Fuller (ADF) and Phillips-Perron (PP) unit root tests shows that the data series are stationary.[6]

3. Methodology

3.1 GARCH (1, 1)

Following the hallmark contribution of Engle (1982); later on, Bollerslev (1986) introduced a more generalized form of ARCH model, termed as GARCH model. In this Generalized ARCH model, he sets the current conditional variance as a function of previous square error term and past conditional variance. It is indeed incredible that this one GARCH (1, 1) model can be sufficiently applied in any financial time series in order to comprehend the volatility dynamics (e.g. see Engle, 2004; Elyaisani *et al.* 2011; Chinzara, 2011). Following the strong financial literature (e.g. see Chinzara, 2011; Engle, 2004; Elyaisani *et al.,* 2011; Goudarzi and Ramanarayanan, 2010); this research study also applied GARCH (1, 1) to estimate various volatility dynamics. Hence, GARCH (1, 1) stands as most appropriate order for this purpose. The analytical and systematic specification of the estimated multifactor model for each firm can be expressed as follows:

$$R_{it} = \beta_0 + \beta_1 KSE_t + \beta_2 EXR_t + \beta_3 RFR_t + \beta_4 CPI_t + \beta_5 IPI_t + \beta_6 M2_t + \beta_7 OIL_t + e_{it} \quad (1)$$

Equation (1) above represents R as a stock returns of a specific firm (*i*) at time *t*, while KSE denotes market returns, EXR stands for exchange rate, RFR shows risk free rate, CPI depicts consumer price index (inflation), IPI denotes industrial production index, M2 denotes broad money supply while OIL represents oil prices. Thus, it declares that **t**he fore mentioned seven independent variables are used in the GARCH (1, 1) multifactor framework at each of firm level returns.

[6] The results for descriptive statistics, unit roots tests and Ljung Box Q Statistics (for each firm) are not reported here because of succinctness.

Following is the general univariate equation regarding GARCH model (Chinzara, 2011):

$$r_t = \mu_i + \sum_{i=1}^{k} a_i r_{t-i} + \varepsilon_t, \quad \varepsilon_t / I_{t-1} \sim N(0, h_t) \tag{2}$$

$$h_t = \omega + \sum_{i=1}^{p} \alpha_i \varepsilon_{t-i}^2 + \sum_{j=1}^{q} \beta_j h_{t-j}, \quad \omega > 0, \quad |\alpha_i + \beta_i| < 1 \tag{3}$$

Equation (2) is a mean equation whose current innovation is a function of previous innovation. I_{t_1} hold zero mean, h_t indicating a variance which is serially uncorrelated. Further, lagged and current returns are denoted by r_{t_1} and r_t respectively. While, equation (3) is the variance equation of GARCH (p, q), where the conditional variance is displayed by h_t; constant is indicated by w; the coefficient of lagged square residuals developed from mean equation (e^2_{t-1}) are represented by α_i but β_i holds the representation of coefficient of lagged conditional variances. For the stationarity to hold, it is necessary that the sum of ARCH (α_i) and GARCH (β_i) terms must be less than one (Chinzara, 2011; Elyaisani *et al.,* 2011). If their sum is equal to one, the condition is said to be integrated in variance. Where, the current volatility shocks are to be considered in forecasting the future volatility for all future periods (Engle and Bollerslev, 1986; Karmakar, 2007). However, in the case where the sum exceeds one, then such situation declares that volatility shocks are non-mean reverting and are exploding to infinity (Brook, 2002; Elyaisani *et al.,* 2011; Mandimika and Chinzara, 2012). In fact, there is a tendency in the real financial data (i.e. stock returns) to hold the property of non-mean reversion (Mandimika and Chinzara, 2012).

The autoregressive route leading towards the persistence of volatility shocks is the sum of ARCH and GARCH terms (e.g. see Ewing *et al.,* 2005; Elyaisani *et al.,* 2011; Mandimika and Chinzara, 2012, who applied it to study the persistence of shocks). The more closer the sum is to one, the longer the persistence of volatility shock is. More so, another stand for measuring the persistence of volatility shock is the Half Life of volatility introduced by Engle and Bollerslev (1986), which was later on applied by the financial press (e.g. see Carroll and Connor, 2011; Elyaisani *et al.,* 2011). Following is the formula for computing the half life:

$$HL = \log (0.5) / \log (ARCH+GARCH)$$

According to Engle and Bollerslev (1986), half life of volatility represents the time taken by the volatility shock to cover half distance back towards it mean volatility after following the deviation from it.

Next, the feature of mean reversion of stock returns volatility entails that by and large, volatility shocks hold the property of mean reversion in the stock market (Carroll and Connor, 2011; Engle and Patton, 2001). Statistically, following the literature (e.g. see Elyasiani *et al.,* 2011), mean reversion of stock returns volatility is examined by mean of ARCH and GARCH terms in GARCH (1, 1) model. For the mean reversion pattern to hold, the sum of ARCH and GARCH terms must be less than one (Carroll and Connor, 2011; Elyasiani *et al.,* 2011). Further, the half life so computed for each stock leads us to determine the speed of mean reversion model of stock returns volatility.

3.2 GARCH-M Model:

The GARCH in mean model developed by Engle *et al.* (1987) has been a great hallmark in the field of financial literature. Technically, it is applied to determine the pricing of risk by way of testing the relationship between standard deviation or conditional variance and stock returns. In accordance with the strong stream of financial press (e.g. see French *et al.*, 1987; Hansson and Hordahl, 1998; Jiranyakul, 2011; Lanne and Saikkonen, 2004; Lanne and Luoto, 2008 and Mandimika and Chinzara, 2012, who applied GARCH-M model to determine the risk-return relationship), this study also applied GARCH-M model to detect the pricing of risk in an emerging market. Following general equation represents this model:

$$r_t = \mu_i + \sum_{i=1}^{k} a_i r_{t-i} + \delta_i h_{t-i} + \varepsilon_t, \quad \varepsilon_t / I_{t-1} \sim N(0, h_t^2) \tag{4}$$

$$h_t = \omega + \sum_{i=1}^{p} \alpha_i \varepsilon_{t-i}^2 + \sum_{j=1}^{q} \beta_j h_{t-j}, \quad \omega > 0, \quad |\alpha_i + \beta_j| < 1 \tag{5}$$

Where equation (4) is an appropriate mean equation, whereindicate the stock returns, ε_t is the error term, I_{t-1} indicate the previous day information, h_t stands for the variance and h_{t-1} denotes the conditional standard error of ε_t at time *t-i*. However, equation (5) depicts the variance equation for a general GARCH (p, q) model. In this case, h_t marks the conditional variance for the residuals ε_t, α_i displays lagged square residuals, β_i denotes lagged conditional variance whereas *w* is constant. Particularly, with respect to this study, the coefficient of great importance is h_{t-i}. This coefficient (δ_i) holds the relation between conditional risk *(h_t)* and stock returns *(r_t)*. In accordance with the conventional portfolio theory, the investors are compensated with higher returns for their higher risk craving; if the δ_i is positive and significant. More chiefly, it would **e**ntail that the risk has been priced for the period under concern.

3.3 EGARCH Model:

Nelson (1991) made a significant contribution by introducing Exponential GARCH model (EGARCH); having the capability to pick the asymmetric volatility of stock returns. It separately shows that how does the stock returns volatility is affected by the good news (price rise) and bad news (price fall) of same magnitude (Ewing *et al*., 2005; Mandimika and Chinzara, 2012). Consistent with the financial literature (e.g. see Braun *et al.*, 1995; Cheung and Ng, 1992; Ewing *et al.*, 2005 and Mandimika and Chinzara, 2012 are among others), this study also applied EGARCH model to inspect the asymmetric response of stock returns volatility which is generally known as asymmetric & leverage effect. Following is the general equation representing EGARCH model (Mandimika and Chinzara, 2012):

$$\begin{aligned} &\log(h_t) = \omega + \sum_{j=1}^{p} \beta_j \log h_{t-j} + \sum_{k=1}^{m} \gamma_k \frac{\varepsilon_{t-k}}{\sqrt{h_{t-k}}} + \sum_{i=1}^{q} \alpha_i \left[\left| \frac{\varepsilon_{t-i}}{\sqrt{h_{t-i}}} - E\left(\frac{\varepsilon_{t-i}}{\sqrt{h_{t-i}}} \right) \right| \right]; \\ &\omega > 0, |\alpha_i + \beta_j| < 1; \gamma_k < 0, \textit{if volatility is asymmetric}. \end{aligned} \tag{6}$$

Where, in equation (6), α_i and β_i have the same denotation as in the case of GARCH (1, 1) model. However, specifically related to this current study, the coefficient of importance is γk. If the coefficient $\gamma_k \neq 0$ in the above equation, the volatility is said to be asymmetric but when

γ_k <0, then the negative news (price fall) has greater role in increasing stock returns volatility than positive news (price rise) of same magnitude. However, if γ_k >0, in such situation the later one has stronger impact in increasing stock returns volatility than the former one of same magnitude (Brook, 2002).

4. Empirical Findings

4.1 Results Regarding Risks-Return Tradeoff

Table 4.1 presents the results regarding the risks-return tradeoff of the exporting vs. non exporting firms. Results untie two new evidences. Firstly, here it is disclosed that for bulk of the exporting firms, the statistically significant risk-return association is positive (i.e. for 43.75 percent of the firms); however, for bulk of the non-exporting firms, the statistically significant risk-return linkage is negative (i.e. 17.19 percent of the firms). Secondly, from the prospective of positive risk premium, exporting firms have dominated the non-exporting firms; whereas, with respect to negative risk premium, the later ones have dominated the former ones. For instance, 43.75 percent of the exporting against 23.44 percent of the non-exporting firms denoted significant and positive risk-return relation declaring positive risk premium while 17.19 percent of the non-exporting in contrast to 9.37 percent of the exporting firms indicated significant but negative risk-return linkages showing negative risk premium.

Table 4.1 Results of GARCH-M Model- Trading Effec**t**

Table 4.1: By way of applying GARCH-M model, it presents number of firms in each category and their level of statistically significant and insignificant risk-return relationship with positive and negative trends (GARCH-M Coefficient (δ)). Further, results are also converted into percentage for each category and reported in parenthesis.

Level of Significance	Exporting vs. Non-Exporting	
	Exporting Firms	Non-Exporting Firms
Significant (+)	42(43.75)	15(23.44)
Significant (-)	9(9.37)	11(17.19)
Insignificant (+)	27(28.13)	22(34.38)
Insignificant (-)	18(18.75)	16(25.00)

Source: Author's own estimations.

4.2 Results Regarding Asymmetry and Leverage Effect

Table 4.2 holds the empirical results for the asymmetry and leverage effect for the trading (exporting) and non-trading (non-exporting) firms. Results reveal some new and very important outcomes. Firstly, for bulk of the non-exporting firms, bad news significantly increases conditional stock returns volatility more than good news of same magnitude (i.e. 57.81 percent of the non-exporting firms). Secondly, relative to exporting firms, the significant impact of bad news in increasing stock returns volatility more than good news of same intensity, is higher in

the case of non-exporting firms. For instance, 57.81 percent of the non-exporting firms against 41.66 percent of the exporting firms indicate the dominance of bad news in significantly increasing the stock returns volatility more than good news of same level, thus signifying the role of asymmetry and leverage effect.

Table 4.2: Results of EGARCH Model- Trading Effect

Table 4.2: By way of applying EGARCH model, it reflects number of firms in each category and their level of statistically significant and insignificant γ coefficient with positive and negative trends. Further, results are also converted into percentage for each category and reported in parenthesis.

Level of Significance	*Exporting vs. Non-Exporting*	
	Exporting Firms	*Non-Exporting Firms*
Significant (-)	40(41.66)	37(57.81)
Significant (+)	15(15.63)	6(9.38)
Insignificant (-)	15(15.63)	12(18.75)
Insignificant (+)	26(27.08)	9(14.06)

Source: Author's own estimations.

4.3 Results Regarding Various Volatility Dynamics

Table 4.3 below shows the results related to various volatility dynamics for the exporting and non-exporting firms. Results uncover some interesting findings which are threefold. Firstly, regarding volatility, it is evident that higher percentage of the non-exporting firms is significantly volatile against both ARCH and GARCH effects as compared to the exporting firms. As in the case, 85.94 and 70.31 percent of the non-exporting firms next to 72.91 and 60.42 percent of the exporting firms are significantly volatile against ARCH (last period volatility shock-short term effect) and GARCH (previous period's volatility shocks-long term effect) effects respectively. Secondly, taken together, persistence of volatility shocks are found be longer in the case of non-exporting than the exporting firms. For the case in point, 35.42 percent of the exporting against 21.88 percent of the non-exporting firms holds half life of less than two months, whereas half life stands more than six months for 12.59 percent of the exporting firms against 28.13 percent of the non-exporting. While the third feature of the results revealed that exporting firms dominate non-exporting firms in terms of both mean reversion and speed of mean reversion of stock returns volatility. For instance, 80.21 percent of the exporting against 65.62 percent of the non-exporting firms is mean reverting in its nature. Furthermore, 44.15 percent of the exporting in contrast to 33.33 percent of non-exporting firms holds half life of less than two months.

Table 4.3: Results of GARCH (1, 1) Model- Trading Effect

Table5.4.3: By way of applying GARCH (1, 1) model, it denotes number of firms in each category and their level of statistically significant and insignificant ARCH and GARCH effects together with persistence, mean reversion and speed of mean reversion of their volatility. Further, results are also converted into percentage for each category and reported in parenthesis.

Volatility		**Exporting vs. Non-Exporting**	
		Exporting Firms	**Non-Exporting Firms**
ARCH	Sig(+)	70(72.91)	55(85.94)
	Insig(+)	23(23.96)	5(7.81)
	Sig(-)	3(3.13)	4(6.25)
GARCH	Sig(+)	58(60.42)	45(70.31)
	Insig(+)	38(39.58)	19(29.69)

Volatility	Exporting vs. Non-Exporting		
		Exporting Firms	Non-Exporting Firms
Persistence:			
	HL < 2	34(35.42)	14(21.88)
	2 < HL < 6	31(32.29)	10(15.63)
	HL > 6	12(12.50)	18(28.13)
Mean Reversion		77(80.21)	42(65.62)
Speed of Mean Reversion:			
	HL < 2	34(44.15)	14(33.33)
	HL > 2	43(55.85)	28(66.67)

Source: Author's own estimations.

4.4 Results Regarding Macroeconomic Exposure of Firm Returns

Table 4.4 below declares the results related to economic exposure of stock returns of the exporting vs. non-exporting firms. At first, market return is found to be prominent for the exporting firms in terms of significant positive impact (i.e. significant positive for about 76 percent) over the non-exporting firms (i.e. significant positive for around 63 percent).

Further, from the point of view of exchange rate and firm stock returns, higher percentage of the exporting firms show statistically significant and positive association with exchange rate in contrast with non-exporting firms. For example 18.75 percent of the exporting and 10.94 percent of the non-exporting firms indicate statistically significant and positive relation with exchange rate. Whereas, the statistically significant but negative impact of exchange rate on stock returns is relatively higher for non-exporting firms as compared to exporting firms. For example, it is for 17.18 percent of the non-exporting firms and just 8.34 percent of the exporting firms. Moreover, it is also evident that comparatively large proportion of non-exporting firms display statistically significant but negative association with risk free rate as compared to the exporting firms (for instance 15.63 percent of the non-exporting firms and just 5.20 percent of the exporting firms are significantly and negatively related to risk free rate).

Further, results rest on the empirical fact that higher percentage of non-exporting firms is negatively impacted by inflation as compared to exporting firms. For example, 26.56 percent of the non-exporting firms against 15.63 percent of the exporting firms are statistically significantly but negatively affected by inflation. More so, from the concern of real activity and stock returns, this research uncovers two new evidences. Firstly, relatively high percentage of non-exporting firms is statistically significantly related to industrial production index in both positive and negative directions. For example, among non-exporting firms, 14.06 percent of the firms are significantly and positively but 17.19 percent of the firms are significantly and negatively related to industrial production index. Secondly, for bulk of the non-exporting firms; the statistically significant impact of industrial production index is negative.

More so, from the results regarding money supply and stock returns, two new evidences are discovered. Firstly, for bulk of the exporting firms, the statistically significant relation of money supply is positive (i.e. 20.83 percent). Secondly, in case of non-exporting firms, both the statistical significant positive and negative linkage of money supply with stock returns in identical (i.e. 17.18 percent each). Moreover, comparatively, higher percentage of exporting firms is positively while relatively higher percentage of non-exporting firms is negatively related to changes in money supply. In addition, this research study marks important new evidence denoting that relatively higher percentage of non-exporting firms is statistically sig-

nificantly but negatively connected with the rising oil prices. For instance, the stock returns of 45.31 percent of the non-exporting firms in contrast to 22.92 percent of the exporting firms are significantly but negatively impacted by oil prices.

Table 4.4 Results of GARCH (1, 1) Model- Trading Effect
Table 4.4: By mean of applying GARCH (1, 1) model, it shows number of exporting and non exporting firms and their level of statistically significant and insignificant with positive and negative trends. Further, results are also converted into percentage for each category and reported in parenthesis.

Economic Variables	Exporting vs. Non-Exporting		
		Exporting Firms	Non-Exporting Firms
ΔKSE	Sig (+)	73(76.04)	40(62.50)
	Insig (+)	19(19.79)	22(34.38)
	Insig (-)	4(4.17)	2(3.12)
ΔEXR	Sig (+)	18(18.75)	7(10.94)
	Sig (-)	8(8.34)	11(17.18)
	Insig (+)	34(35.41)	20(31.25)
	Insig (-)	36(37.50)	26(40.63)
ΔRFR	Sig (+)	7(7.30)	3(4.68)
	Sig (-)	5(5.20)	10(15.63)
	Insig (+)	37(38.54)	28(43.75)
	Insig (-)	47(48.96)	23(35.94)
ΔCPI	Sig (+)	6(6.25)	9(14.06)
	Sig (-)	15(15.63)	17(26.56)
	Insig (+)	37(38.54)	18(28.13)
	Insig (-)	38(39.58)	20(31.25)
ΔIPI	Sig (+)	6(6.25)	9(14.06)
	Sig (-)	9(9.37)	11(17.19)
	Insig (+)	38(39.58)	17(26.56)
	Insig (-)	43(44.79)	27(42.18)
ΔM2	Sig (+)	20(20.83)	11(17.18)
	Sig (-)	10(10.42)	11(17.18)
	Insig (+)	33(34.38)	19(29.69)
	Insig (-)	33(34.38)	23(35.94)
ΔOIL	Sig (+)	9(9.38)	6(9.38)
	Sig (-)	22(22.92)	29(45.31)
	Insig (+)	32(33.34)	19(29.68)
	Insig (-)	33(34.36)	10(15.63)

Source: Author's own estimations.

5. Comparison with Interrelated Work and Justifications

The similarity between the presented literature and this paper is that we have same objective (i.e. to examine the behaviour of stock returns). Nevertheless, the research questions embat-

tled in this paper are rather different. Thus, this current study enthralls fresh imminent on the volatility dynamics, pricing of risk, and macroeconomic exposure of firms returns. These differences are briefed as follows.

From the context of economic exposure, asymmetry & leverage effect, risks-return tradeoff and volatility dynamics; the existing studies mainly focused at aggregate market (most) and/or sectoral level (few) (for example, for the risks-return tradeoff, see Jiranyakul, 2011; Kavacic, 2008; Leon, 2008; Lettau and Ludvigson, 2010 and Mandimika and Chinzara, 2012 among others; for asymmetry & leverage effect, see Engle and Patton, 2001; Ewing *et al.,* 2005; Leon *et al.,* 2005: Mandimika and Chinzara, 2012 among others; for volatility dynamics, see Carroll and Connor, 2011; Engle and Patton, 2001; Ewing *et al.* 2005; Elyasiani *et al.* 2011 and West and Worthington, 2006; for economic exposure, see Arouri, 2011; Chinzara, 2011; Degiannakis *et al.,* 2013; Ibrahim and Aziz, 2003; McSweeney and Worthington, 2008; ***Nishat and Shaheen, 2004;*** Ratanpakorn and Sharma, 2007). Our research study is different. For the first time, we examined these dimension at firm level with respect to their trading nature. We determined considerable role of trading effect in conducting this exercise. So much so that risk premia is largely positive for exporting firms and negative for non-exporting firms. More so, asymmetry and leverage effect is largest in the case of non-exporting than the exporting ones. Similarly, former dominates the later in terms of volatility against both ARCH and GARCH effects (both short term and long term effects) and its persistence; however, the later ones lead the former in terms of both mean reversion and speed of mean reversion of volatility shocks. These empirical findings are not surprising in the light of financial press. The financial scholars concurs that the exporting firms have better payment mechanism for workers and managers, are more R&D oriented, have more experienced management, have faster growth rate, have larger customer base, have large and diversified suppliers, have strong financial bases, have more research resources, are more productive, more innovative and are better in developing strategies particularly regarding the services, quality and marketing (e.g. see Farinas and Marcos, 2006; Hagemejer and Kolasa, 2011; McDougall, 1989; McDougall *et al.,* 2003; Westhead, 1995) in contrast to their non-exporting counterparts. Hence, these afore-mentioned arguments will encourage the investors to treat exporting firms differently from non-exporting firms. In such a way that relative to later ones, in the course of falling stock prices of former ones, investors will prefer to hold their stocks until realizing the positive risk premium considering them more credible, safer and liquid in contrast to their non-exporting counterparts. Furthermore, having more experienced management, exporting firms might be able to diversity themselves in a better way than the non-exporting firms. Consequently, resulting in comparatively higher statistically significant and positive risk-return trade-off, lower asymmetry and leverage effect, lower volatility and its persistence accompanied by higher mean reversion and faster speed of mean reversion of stock returns volatility for the exporting firms. While higher statistically significant but negative risk-return association, higher asymmetry and leverage effect, volatility and its persistence along with lesser mean reversion and slower speed of mean reversion of stock returns volatility for the non-exporting firms. Last but definitely not the least, such higher volatility shocks for both the trading and non-trading firms might root from the theoretical argument of *Iqbal (2012) stating that in Pakistani stock market, higher volatility might be attributed to Badla trading together with noise traders and speculators.*

Lastly, with respect to macroeconomic exposure of firm stock returns, the trading factor was ignored by the earlier studies. However, the empirical findings of this study declare that for the macroeconomic factors, trading effect appears to be flag rising. Such that for bulk of the cases in exporting firms, the significant impact of market returns is positive. More so, in large, the

significant impact of rising general price level, risk free rate, real activity and oil prices on stock returns is negative for the non-exporting firms than the exporting firm. While exporting firms dominates the non-exporting firms in terms of significant positive response to money expansion and currency depreciation in the economy. But, in the case of significant negative response to these economic indicators (i.e. money expansion and currency depreciation), the later ones dominate the former. These empirical results are not astonishing due the following theoretical foundations built by the financial press.

Firstly, looking into the composition of exporting firms, it is evident that the majority of the firms reflecting statistically significant and positive association with market returns are of large size as documented by Farinas and Marcos (2006) and Yaprak (2007); which makes them better represented in a capital weighted index (i.e. KSE-100 index) used as proxy for the market return and consequently grades them higher responsive to it in contrast to the non-exporting firms. Secondly, relatively higher statistically significant negative linkage of rising interest rate, real activity, inflation and oil prices with stock returns of non-exporting firms might be due to the fact that the exporting firms have better payment mechanism for workers and managers, are more R&D oriented, have more experienced management, have faster growth rate, have larger customer base, have large and diversified suppliers, have strong financial bases, have more research resources, are more productive, more innovative and are better in developing strategies particularly regarding the services, quality and marketing (e.g. see Farinas and Marcos, 2006; Hagemejer and Kolasa, 2011; McDougall, 1989; McDougall *et al.,* 2003; Westhead, 1995) in contrast to their non-exporting counterparts. Thus it might compel the investor to short the stocks of non-exporting firms in the course of rise in these economic factors, considering them more risky, less credible and safer.

Further, relative higher significant positive impact of currency depreciation and money expansion on the stock returns of exporting firms, while comparatively their higher significant negative connectivity with the stock returns of non-exporting firms might rests of the following twofold grounds. Firstly, it is quite sensible to conjecture that if the non-exporting firms are negatively influenced by currency depreciation, it may be for the reason that the currency depreciation is often accompanied by economic downturn (e.g. see Flota, 2009). Secondly, the reasons that the exporting firms have better payment mechanism for workers and managers, are more R&D oriented, have more experienced management, have faster growth rate, have larger customer base, have large and diversified suppliers, have strong financial bases, have more research resources, are more productive, more innovative and are better in developing strategies particularly regarding the services, quality and marketing (e.g. see Farinas and Marcos, 2006; Hagemejer and Kolasa, 2011; McDougall, 1989; McDougall *et al.,* 2003; Westhead, 1995) in contrast to their non-exporting counterparts, might push the investor to short the stocks of non-exporting firms and long the stocks of exporting firms in the course of currency depreciation and money expansion, considering the later ones more safer and credible. Further, exporting firms also benefit from currency depreciation through rise in profitability. Taken together, it might also place the exporting firms in a better position to take advantage of rising money supply in the economy through exploiting new ventures and opportunities, consequently resulting in higher profitability and the stock returns.

Conclusion

The main contribution of our research study is that it is the first to undertake the matter of trading effect in inspecting the pricing of risk, asymmetry and leverage effect and various vola-

tility dynamics together with macroeconomic exposure of stock returns, particularly in emerging markets. Our main contributional outcomes are as follows. At first, we deducted that for bulk of the exporting firms, the risk premium is significant positive. However, for significant negative risk premium, the pattern is reversed- relatively large proportion of non-exporting firms is exposed to significant negative risk premium. Secondly, in the context of asymmetry and leverage effect, non-exporting firms dominated the exporting firms. Thirdly, in the process of detecting various volatility dynamics, it is unfolded that the volatility shocks are higher for the non-exporting than the exporting firms. Such as, for higher percentage of non-exporting firms; both the last period's volatility shock (ARCH-short term effect) and previous period's volatility shocks (GARCH-long term effect) played significant role in increasing stock returns volatility which are quite persistent than their exporting counterparts. More so, it is also untied that the exporting firms dominated the non-exporting ones in terms of mean reversion and speed of mean reversion of their volatility shocks. The fourth outcome revolved around the macroeconomic exposure of firm returns. In this view, study concurred that the interest rate, rising general price level, real activity and rising oil prices signature relatively higher significant negative impact on stock returns of non-exporting firms than the exporting ones. Furthermore, the market returns, money expansion and currency depreciation held significant positive relation with stock returns of bulk of the trading firms (exporting) than the non-trading ones (non-exporting).

This research study sets the implications for both the policy makers and investors. Keeping in view the considerable role of trading effect in determining the pricing of risk, volatility dynamics and economic exposure of stock returns; it will be quite worthy for the investors to diversify their portfolio investments between stable and risky assets. However, for the policy makers and financial regulators, it will be of immense importance to develop an economic and financial policy keeping in view the role of firm trading effect. The future research should try to address some other firm characteristics in order to build more detail insight into these dimensions.

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