Corporate diversification and firm performance: An inverted U-shaped hypothesis

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ABSTRACT

This study aimed to investigate the relationship between corporate diversification and firm performance in a developing country. Previous studies have found that the mixed results have been established between these two constructs in developed countries such as linear, u-shaped or inverted u-shaped relationship. To this end, a sample of 141 non-financial companies over the period of 2003 to 2013 listed on Pakistani stock market was used to analyze the impact of diversification strategy on the performance of firm. Corporate diversification is divided into two types including product and geographic diversification. The findings of the study demonstrated that an inverted u-shaped relationship existed as performance increased up to a certain level due to the related diversification strategy and then it fell down drastically. It showed that too much diversification creates agency problems and internal inefficiencies. It has implications for agency problems, weak corporate governance structures, and family relationships.

What factors do motivate companies to diversify their businesses over the globe? There could be several plausible explanations for corporate diversification. We now live in an uncertain, dynamic, volatile, and competitive business environment that has brought new challenges and opportunities for growth and development. These environmental forces pose some serious threats to very survival of the organization. In recent period of privatization, globalization, and liberalization, some massive growth and development opportunities provide a chance for multinational companies to pass their national borders and increase their profitability. Thus, the

companies use diversification strategies to expand their business and operations into new products and markets and achieve sustainable competitive advantage. However, the term diversification should be conceptually and operationally defined before discussing the theoretical gap and the importance of conducting research in that area. Diversification has been conceptualized from different perspectives; for instance, it implies simultaneous operations of several businesses under a single firm's control (Pitts & Hopkins, 1982). On the other hand, Ansoff (1957) argued that corporate diversification can occur either at the corporate or the business levels such as entrance of new products into the firms. Such kind of definition does not differentiate between the business-related and the business-unrelated products. Boz, Yigit, and Anil (2013) referred to it as a tactic of increasing the number of businesses to increase development and growth and reduce the company's overall business risk. It may be experienced by different approaches including internal developments, joint ventures, mergers, and acquisitions as well as licensing agreements. Corporate diversification can also be assessed on the basis of specialization ratio which means the sales percentage of single product in the total sales of the company (Wrigley, 1970). However, all these definitions have been criticized because it is difficult to operationalize them. Therefore, the concept of corporate diversification can be divided into two categories including product and geographic diversification. These categories have been empirically testified and applied to measure the levels of corporate diversification and used in the previous studies to check their impact on corporate performance (Kang, Lee, & Yang, 2011; Schmid & Walter, 2012; Singh, Gaur, & Schmid, 2010). Diversification strategy could affect the financial performance of the company. Previous studies have shown contradictory results in developed countries; for instance, positive relationship between corporate diversification and firm performance has been observed or studied in several studies (Kim, Hoskisson, & Lee, 2014; Montgomery, 1994; Park & Jang, 2013). The findings of these studies support market views, resource-based views, internal market efficiencies, and internationalization theories. On the other hand, several researchers have determined negative relationship between corporate diversification and firm performance (Berger & Ofek, 1995; Lang & Stulz, 1994; Lu and Beamish, 2004; Kim & Mathur, 2008; Meyer, Milgrom, & Roberts,1992; Wan & Hoskisson, 2003). These results were central for the principle-agent problems where managers are over ambitious about the outcomes of diversification. There are few studies that have not found significant results (Christensen et al., 1999). These mixed results show that diversification involves trade-off between costs and the resulting benefits and there may exist U-shaped relationship between corporate diversification and firm performance (Kang et al., 2011; Mathur, Singh, & Gleason, 2001; Palich, Cardinal, & Miller, 2000; Singh et al., 2010; Tallman & Li, 1996). Their findings implied that diversification provided economies of scales and scopes up to a specific limit and then performance declined when marginal cost exceeded its marginal benefits of diversification due to internal inefficiency levels and agency problems (Aleson & Escuer, 2002; Anil & Yigit, 2011; Boz, Yigit, & Anil, 2013; Kang et al., 2011; Nayyar, 1992; Palich et al., 2000; Qian, 2002; Singh et al., 2010; Tallman & Li, 1996). The relationship between corporate diversification and firm performance has been explored in the context of developed countries and there are a few studies that have studied the implications of diversification strategy in developing countries like Pakistan. This relationship may have different implications in

developing countries due to factors such as privatization policies, working condition, product life cycle and competition, influence of government and business relation, market production, labor factors, and political and economic variables. Apart from the contextual contribution of this research, this study has addressed the financial puzzle about the exact relationship between corporate diversification and firm performance. The findings of this study showed that there was an inverted U-shaped relationship between the variables.

The Review of Literature

Companies have been involved in efforts to diversify their product offerings and their geographic markets through many years. Scholars have documented the studies of diversification strategies and their effect on firms' performance. They have documented the benefits and costs of product and geographic diversification in connection with overall firm performance, contingency factors that may affect the benefits and costs of product, and geographic diversification. Corporate diversification is beneficial for the organizations when it is defined within the scope of firm's current resources and capabilities (Chi, 1994). Due to overcapacity problems; however, diversification strategy may also cause greater marginal cost of production beyond a certain point (Anil & Yigit, 2011; Boz et al., 2013). Moreover, corporate diversification also causes additional management costs (Jones & Hill, 1988). Highly diversified companies also have to face several other costs such as inefficiency of internal capital allocation and increased bureaucracy (Nayyar, 1992). Therefore, all such costs increase due to increase in complexity of managing diverse business operations and information processing requirement (Grant & Jammine, 1988). The relationship between geographic diversification and firm performance continues to remain an important question for scholars and theorists. Factors such as increasing the trends of globalization, privatization, homogenization, and reducing trade barriers have made it easier as well as necessary for many organizations to expand into international market (Khanna & Palepu, 2006; Vernon, 1966). As a result, in recent era there has been a surge in the use of globalization activities in the companies of developing countries.

The early literature on diversification consisted of a number of dimensions such as growth opportunities, scope of economies, increased market power (Markides & Williamson, 1996; Montgomery, 1994), efficient utilization of prior resources and capabilities (Barney, 1997), reducing the overall risk and volatility in performance, and securing the uncertainties of future (Lubatkin & Chatterjee, 1994). These theories provide a basis for developing theoretical framework and research hypotheses.

Diversification strategy is implemented by the companies to gain market power advantages and create superiority over their rivals (Caves, 1981; McCutcheon, 1991; Scherer, 1980; Sobel, 1984). Such market power and control over economic resources allow highly diversified businesses to offer goods and services at lower prices which competitors cannot compete with them. They also force them to leave the market or discourage their potential rivals from entering into the future market. Diversified companies attempt to offset these short term losses through offering higher prices in the future (Saloner, 1987). Lower level of price losses can be founded through cross-subsidization (Berger & Ofek, 1995; Scherer, 1980). Edwards (1955) put emphasis on three ways in which conglomerates mergers may gain power in anti-

competitive market. These three ways were cross-subsidization, mutual forbearance, and reciprocity (Grant, 1998; Scherer, 1980; Sobel, 1984). Furthermore, he argued that a firm with insignificant position in a number of markets could not gain conglomerate power. The power of these markets has a positive significant effect on firm performance (Montgomery ,1994). The concept of cross- subsidization refers to the revenue generated from the sale of products with lower prices which is compensated by the revenue of other products that are sold by the same company.

A single-business company cannot provide the benefits of cross-subsidization as compared to a diversified company. Conglomerates or highly diversified companies are in a better position to get internally generated funds at lower costs than external financing (Froot, Scharfstein, & Stein, 1994; Lang, Poulsen, & Stulz, 1995). Diversified companies have greater flexibility in capital formation compared to single business companies since they can access internally generated resources as well as external ones (Lang & Stulz, 1994; Stulz, 1990). Moreover, diversified companies can shift capital between business unites and attract capital funding for expanding their businesses (Meyer et al., 1992). Many studies have investigated the role of diversified companies and their significant financial benefits through using internal capital market for capital and other resources (Ravenscraft & Scherer, 1987; Rumelt, 1982; Taylor & Lowe, 1995; Williamson, 1986). This market power provides a basis for companies to investigate the positive impact of diversification strategy on firm performance. However, over-ambitious and opportunistic managers may use diversification to take advantage of stakeholders for their private gains. Corporate diversification has a great impact on the companies' performance based upon the agency theory (Berry, 1975; Pitts & Hopkins, 1982). The agency model of company was initially proposed by Jensen (1986). The principal agent theory has been used as a weapon by shareholders to criticize the diversification behavior of companies. Montgomery (1994) described that why managers might pursue unnecessary diversification for their self-interest. A manager might direct the company's diversification to increase the company demand for his or her own personal skills. This behaviour of manager is called as managerial entrenchment effect (Shleifer & Vishny, 1991). This effect implies the tendency of managers to invest beyond the value maximization. The another rationale based on this notion implies that shareholders can efficiently diversify their individual portfolios in the market by investing in different securities different from other investments, while managers cannot well diversify their investment risk as well as employment risk. Thus, managers may pursue their growth throufh diversification. Diversification is known as a strategy to reduce the company's total risk for the sake of improving their own benefits and positions rather than benefiting the company's stakeholders. Based on the agency thoery, we might expect to have a negative or inverse relationship between diversification and firm performance. On the other hand, resource-based theory of the company compared to agency theory has contradictory view. Penrose (1959) developed the notion of resource-based view which called the organization as a collection of resources that could be used to create competative advantages. According to Barney (1991), resourced-based companies can earn sustainable super-normal profits if and only if they have superior resources (Barney & Hesterly, 2009). Resource-based view of companies tries to exploit economies of scope and scale in several resources and capabilities (Panzar & Willing, 1981; Tanriverdi & Venkatraman, 2005; Teece, 1980a, b, 1982).

Barney (1991) stated that an unique resource needs four attributes to create a sustainable competitive advantage. These resources should be valuable, rare, imperfectly imitable, and non-subsitutable. Thus, the strategies of diversification could be beneficial for those organizations having distinctive and unique resources. However, the benefits of diversification depend upon the stages of the product' s lifecylce and services in home country. Vernon (1966) gave the idea of new product life cycle. He believed that the stage of the product's life cycle motivates the company to diversify into new markets. When home country market keeps on to mature, the product becomes more standardized and the prices become the key competitive weapon. These companies may decide to cross national borders to get cheaper raw materials and labor. Thus, this cyclical process shifts from such advanced countries to developing countries to reduce their operating costs and improve performance (Hill, 2007 ; Hill, McKaing, & Rishardson, 2012).

Buckley and Casson (1976) proposed that the product life cycle theory has connection with internationalization theory. They argued that when companies feel their operations are costly in home country, they shift their companies' operations to some other country. These companies hope to lower their overall cost structure and improve the quality or functionality of their product offerings. Accordingly, the companies take the benefit of national modification in cost and factor of production such as land, labor, capital, and energy in order to compete effectively (Hill, 2007; Singh et al., 2010; Schmid & Walter, 2012). The main motive for the transfer is to find cheap raw material and lower labor cost to minimize manufacturing cost. Through applying advanced technologies and technical expertise, they achieved higher economies of scale. Thus, the companies gain edge over the local companies and receive higher profit (Hill, McKaing, & Rishardson, 2012).

Several empirical studies have been conducted recently to check the impact of corporate diversification and firm performance; for instance, some researchers have found out the positive impact of diversification on company performance because highly diversified firms have lower risk and better performance (Pandya & Rao,1998). Palich, Cardinal, and Miller (2000) investigated the positive impact of product and geographic diversification on company performance. They further argued that diversification increased the costs when companies moved away from their core business. Rumelt (1982) also confirmed that the related corporate diversification was better for company performance while unrelated diversification was not. Moreover, unrelated diversification was found to be more profitable than related diversification because unrelated diversifiers outperformed related diversifiers due to spread of business risk portfolios (Boz et al., 2013; Cariola et al., 2010).

There are several other studies that investigated the negative impact of the diversification on company's performance (Lee, Hooy, & Hooy, 2012; Park & Jang, 2013). Denis, Denis, & Sarin, (1997) argued that external corporate controls threats, management turnover, and financial distress result in value reducing diversification strategies. Similarly, Chen and Ho (2000) found that the degree of diversification had a negative impact on company value and also explored that single segment companies performed better compared to diversified companies. Their reults supported the agency costs and explained that the managers tried to gain personal benefits which mitigated the value loss from diversification. Therefore, higher costs and benefits were associated with diversification. Moreover, geographically diversified

companies have higher advertising expense, the expenses of research and development, operating income and return on asset than those of product diversification companies (Kim & Mathur, 2008). Lee et al. (2012) concluded that geographic diversification had no significant impact on firm value, while there was a significant relationship between product diversification and firm value. Lu and Beamish (2004) stated that the product diversification had a negative impact on firm performance and geographic diversification had a S-shape relationship with firm performance based on the cost- benefit analysis of firms.

These mixed results indicate that there may be curvilinear relationship between corporate diversification and firm performance (Aleson & Escuer, 2002; Anil & Yigit, 2011; Kang et al., 2011; Qian, 2002; Singh et al., 2010). These researchers concluded that highly diversified companies had to incur numerous other costs which reduced their expected annual returns. Therefore, marginal benefit of diversification is greater than the marginal cost up to a certain level due to economies of scale. Excessive diversification could also reduce firm performance due to higher cost related to internal inefficiencies, agency costs, and internal control problems. These findings are mostly related to developed countries while much work has to be done in developing countries.

The relationship between diversification strategy and organizational performance of developed countries differ from developing ones due to influence of business relation, market production, and labor factors and government, political, and economic conditions. Yigit and Tur (2012) suggested some other factors such as privatization policies, working conditions, product life cycles, and competitions. Therefore, these factors which are manifested in developing countries may result in different results. Kim et al (2014) further provided evidence to support the idea that geographic diversification in resource-poor countries lead to an inverted U-shaped relationship with firm performance, whereas in resource richer host countries have positive effects on geographic diversification.

Research Hypotheses
This study tried to investigate the U-shaped relationship between corporate diversification and performance of Pakistani firms. Pakistan is a developing country where decision-making process, market environment, availability of capital resources, economic conditions, government rules, and regulations are different from those of developed countries. To the best of our knowledge, there are no previous empirical studies that address the effect of corporate diversification on firm performance.
H_{01}: There is an inverted U-shaped relationship between product diversification and firm performance.
H_{02}: There is an inverted U-shaped relationship between geographic diversification and firm performance.

Method
The population of this study consisted of all non-financial companies listed on Pakistani stock market. A random sample of 141 non-financial listed firms from Karachi stock exchange (KSE) was examined. According to data availability, secondary data was employed by current researchers over the period 2003-2013. The data was taken from annual reports of the

companies which were directly obtained from the official websites of companies, KSE websites, and balance sheet analysis which was available at SBP website. The dependent variable of this study was firm performance and return on assets was taken as a proxy for measuring the firm performance. ROA was accepted as an important indicator to measure the effectiveness of company's performance management by the researchers (Anil &Yigit, 2011; Yigit & Tur, 2012). In addition, external shareholder and business manager who are interested in performance evaluation of business organizations express that ROA is good criterion for evaluating the performance of firm (Boz et al., 2013). ROA gives an idea that how efficient management is at using its assets to generate earnings. Our measure of total product diversification (PD) was a Herfindahl-type quantitative index like that of Chen and Ho(2000), Grant et al. (1988), Kang et al. (2011), Singh et al. (2010), and Tallman and Li (1996). For measuring the product diversification, the required information was segment sales information of each product or each business separately. Herfindahl index was calculated as the sum of squares of each segment *i*'s sales as a proportion of total sales for the firm.

$$(1) \qquad PD = 1 - \sum_{i=1}^{n} S_i^2$$

Where *PD* indicates the degree of product diversification and S_i is the proportion of firm's sales in i^{th} product category. Herfindahl index value is a statistical measure which indicates the portfolio of one product. It means that if a firm only designs one product for each segment the amount of *Si* will be one (i.e. segment sale divided by total sale), and the sum of squares of *Si* will also be one after detecting from one the answer will be zero. The current researchers also measure geographic diversification (GD) by the ratio of foreign sales to total sales. Such measure of GD was consistent with majority of previous studies such as Grant et al. (1988), Qian (2002), Schmid and Walter (2012), Singh et al. (2010), and Tallman and Li (1996).

To isolate the relationship between corporate diversification and firm performance, it was important to control other variables that are likely to affect the performance of firm. Firm age, firm size, leverage, advertising intensity, and firm growth as control variables were incorporated in this study.

Firm age refers to the number of years since firm incorporation. Previous studies identified that the age of firms may also affect firm performance. As the firms are getting older in their mature industries, firms may be forced to enter into the other industries. Some studies argued that the old firms have better reputation in the capital markets such as brand name and customer satisfaction as compared with the younger ones. Older firms may have more experience about market, better knowledge of environmental phenomena, better performance, better technology and cheaper resources as compared to new ones.

Jahera, Lloyd, and Page (1987) argued that the relationship between diversification and firm performance depends on size of firm. Larger firms tend to have more shareholder value and profitability, superior financing position, and more efficient cost control than small firms. Firm size can be correlated with performance through economies of scale and scope. Firm size is a commonly used control variable and the natural log of total assets is used as the most effective proxy of firm size (Singh et al., 2010; Tallman & Li, 1996). The leveraged firms provide some benefits such as tax shield, managerial discipline, and some costs like financial distress and agency problem that affect firm performance (Berger & Ofek,1995; Qian, 2002). To control

these effects, total liabilities over its shareholders' equity is used as the proxy for measuring leverage. According to Qian (2002), advertising intensity is commonly used proxy for naming the brand and consumer goodwill. Firm's ability to differentiate its products from those of their competitors and builds successful brands is critical for success. Mostly the firms spend the most on advertising expenditure to boost sales and attract more new customers. To control these effects, we use advertising intensity as a control variable to measure the ratio of the advertising expenditures to sales. When there is a significant growth potential, each firm with a single product has profitable opportunities and therefore has better performance in future. When growth opportunities do not exist, the firm may peruse an unrelated diversification strategy to search growth and profitability and extend its productive business lifecycle. The growth rate of firm's asset is used to proxy the firm's growth. It is calculated as change in firm's annual assets value with reference to previous year assets (Aleson & Escuer, 2002; Park & Jang 2013). The following panel data regression model was used in this study.

$$(2)\ ROA_{it} = \beta_0 + \beta_1 PD_{it} + \beta_2 PDSQR_{it} + \beta_3 GD_{it} + \beta_4 GDSQR_{it} + \beta_5 SIZE_{it} + \beta_6 AGE_{it}\ \beta_7 LEV_{it} + \beta_8 ADVI_{it} + \beta_9 AG_{it} + \mu_{it}$$

Return on assets (ROA_{it}) was chosen as dependent variable while product diversification strategy (PD_{it}) and geographic diversification strategy (GD) were selected as independent variables. Their squared terms including $PDSQR_{it}$ and $GDSQR_{it}$ are generated to check inverted U-shaped relationship. Other variables such as size of the firm ($SIZE_{it}$), age of the firm (AGE_{it}), leverage (LEV_{it}), advertising intensity ($ADVI_{it}$) and firm growth (AG_{it}) were known as control variables. GLS panel regression model has been applied to control autocorrelation and heteroscedasticity.

Results

Table 1 presents the descriptive statistics and the correlation coefficient matrix between dependent, independent, and control variables of this research.

Table 1
Summary Statistics

		Mean	SD	1	2	3	4	5	6	7
1	ROA	0.07	0.10							
2	ADVI	0.04	0.05	0.25						
3	AGE	30.75	14.49	0.14	0.2					
4	LEV	0.02	0.02	-0.45	-0.09	-0.04				
5	SIZE	7.65	1.10	0.15	0.01	0.24	0.03			
6	AG	0.13	0.17	0.15	0.04	-0.03	-0.02	0.07		
7	PD	0.05	0.13	0.11	0.00	-0.09	-0.06	0.09	0.01	
8	GD	0.20	0.28	-0.14	-0.09	-0.12	0.11	-0.01	0.01	-0.01

According to Table 1, there is a positive correlation between the assets' return and product diversification while this relationship is negative with geographic diversification. Moreover, firm age, firm size, and firm growth were positively related to firm performance. It meant that

as the firm age raised the experience and the knowledge about marketing environment and performance would improve. Size of firm also was positively related to firm performance. It meant that large-sized firms had better performance management strategies based on their resources.

The value of correlation coefficient was less than the threshold value ($r < 0.9$) which showed that the problem of multicollinearity did not exist. As discussed before, the correlation cannot the impact of variables.

While using correlation matrix, we can only check the linear relationship between two variables. However, it is did not reflect the combined effect of all of the independent variables on the dependent variable and did not express anything about the cause and effect relationships. It stated that all variables have positive, negative, or no correlation. Due to these limitations, the correlation matrix technique is not considered as an effective technique. So, panel data regression analysis was used as the core technique for analysis purpose.

To check which model will be best-fitted one for analyzing the data, different tests were employed. For selecting a proper model, the common effect model was compared with fixed effect model. To this end, the equation for the fixed effects model was estimated and then redundant fixed effects likelihood ratio was used. According to Table 1, the *p*-value of the Chi-square was significant and indicated that the data should be analyzed under fixed effects model. The intercept was firm or group specific and varied over the cross sections in fixed effects model. The panel used in this study is balanced (141 cross sections and 11-year data from 2003 to 2013. According to Asteriou and Hall (2011), a panel works better when it acts within a balanced fixed effects model.

The second method was used to compare fixed effects model with random effects model, it is tested that either fixed effects or random effects model is best suited for the sample under study through Hausman test. The results of Hausman test for random effects model showed that probability of cross section random effects model was significant. The use of fixed effects model to create the inference was justified by economic analysis. To further ensure the reliability of model with respect to ordinary least squares (OLS) assumptions, diagnostic tests have been employed to check serial correlation, heteroscedasticity, and multicollinearity problems , namely Breusch-Godfrey serial correlation LM test, Breusch-Pagan-Godfrey test, and variance inflationary factor (VIF).

The correlation matrix showed that there was no problem with multicollinearity in data, because there is not any other value that was higher than threshold value ($r < 0.9$). It was further tested by VIF test. To avoid the multicollinearity problem, the variance inflation factor (VIF) test was examined. All VIFs were less than 1.2 which was much lower than threshold value of 10 (Asteriou & Hall, 2011). Therefore, it was concluded that the results of this study are unlikely to suffer from the problem of multicollinearity. The impact of product and geographic diversification were examined on firm performance using a panel data with observations from 141 firms over eleven-year period from 2003 to 2013. Owing autocorrelation and heteroscedasticity that violate the basic assumptions of ordinary least squares (OLS) model, the generalized least squares (GLS) estimation in fixed effects was used which provide the corrections for the presence of autocorrelation and heteroscedasticity in panel data (Brooks, 2008; Greene, 2002; Wooldridge, 2002).

Through applying Hauman test, random effects approach was compared with fixed effects approach which was the best suited for analysis (Asteriou & Hall, 2011; Greene, 2002). Therefore, the fixed effects approach had some advantages over the random effects approach.

Table 2 provides the results of GLS fixed effects estimation for different models. The models were built in a hierarchical manner to evaluate the stability of results. In model 1, all the control variables were entered along with the linear and square terms of product diversification. In model 2, the linear and square terms of product diversification were replaced with the crospending terms of geographical divesification. In model 3, both product and geographic diversification were entered with linear and square terms along with control variables.

Table 2

Impact of Product and Geographic Diversification on Firm Performance

Variables	Product Diversification	Geographic Diversification	Combined Effect
ADVI	-0.05	-0.04	-0.05
	(0.01)	0.02	0.02
AGE	0.00	0.00	0.00
	(0.00)	0.00	0.00
LEV	-1.54	-1.59	-1.58
	0.12	0.12	0.13
SIZE	-0.02	-0.02	-0.02
	0.00	0.00	0.00
AG	0.05	0.04	0.05
	0.01	0.01	0.01
PD	0.05		0.06
	0.03		0.03
PDSQR	-0.04		-0.05
	0.02		0.02
GD		0.09	0.10
		0.03	0.03
GDSQR		-0.06	-0.07
		0.03	0.03
Constant	0.17	0.17	0.17
	0.03	0.03	0.03
Observations	1551	1551	1551
R-squared	0.85	0.85	0.85
Adj. R-Squared	0.83	0.84	0.84
F-Stat	56.08	57.01	56.50

Robust Standard Errors in Parentheses   ***$p < 0.001$; **$p < 0.01$; $p < 0.05$; *$p < 0.01$

According to Table 2, the explationary power of the model 1 is 0.85 which manifests that 85 per cent of the variation in the dependent variable was explained by independent variables. The value of the overall F-test is also significant specifying the fitness of model. The effect of firm size, leverage, firm age, advertising intensity, and assets growth were controlled. Model 1 also shows that firm age and asset's growth had positive impact on firm performance whereas advertising intensity, firm leverage, and firm size had negative impact. These effects generally remain the same across different models. Firm age was positively related to firm performance. It meant that the old firms had a better reputation in market and technology such as brand name, customer satisfaction as compare to younger ones. They had availability to cheaper resources as compare to new ones and therefore the older ones performed better than the

younger ones. Due to older firms' reputation and outperformance in the market, they got an opportunity to get loan based on more favorable terms (Qian, 2002).

The first hypothesis indicated to an inverted U-shaped relationship between product diversification (PD) and firm performance (ROA). In model 1, the linier term of PD was significant positive ($\beta = 0.059$, $p = 0.08$), while the square term of PD was significant negative ($\beta = -0.049$, $p = 0.07$). It suggested that an increase in product diversification could improve the firms' performance up to a certain point after which any further increase in product diversification were associated with declining firm performance. This effect remains the same in model 3 until the geographic diversification variable was introduced. Therefore, the first hypothesis was confirmed. The second hypothesis predicted an inverted U-shaped relationship between geographic diversification and firm performance. In model 2, the linear term of geographic diversification was significant positive ($\beta = 0.098$; $P = 0.01$), while the square term of geographic diversification was significant negative ($\beta = -0.069$; $P = 0.03$). Firm performance improves with an increase in geographic diversification up to a certain point. Any further increase in geographic diversification leads towards decline in firm performance. When both product and geographic diversification variables were introduced, this effect remained the same in model 3. Thus, the second hypothesis was confirmed. In model 3, the significance level of geographic diversification was more than PD. It stated that the geographic diversification had more prominent effect on firm performance as compare to product diversification. Firm size is negatively related to firm performance which suggested that an increase in the size of firm leads towards decrease in firm performance. The findings of the study supported the second hypothesis which expressed that the organizations had to bear extra costs such as management and cost and coordination costs. Coordination activities required exploiting completely the economies of scale and scope without cost; therefore, the large-sized firms create the additional challenges and difficulties including problems of communication and coordination (Jones & Hill, 1988; Sobel, 1984). Pressures on top managers' posture as the center of corporate who seek to manage an increasing number of diverse businesses and the net effect benefits and cost lead to declining firm performance (Berger & Ofek,1995; Qian, 2002). Advertisement intensity has significant and negative impact on firm performance and corporate diversification. It meant that as the firms diverted their business operation and expanded their product portfolio in different products and markets, they would face with higher advertising costs. In order to create awareness and make customers familiar with the new products, markets, and brands, the firms allocated much more money for their advertising activities as compare to returns. This finding was aligned with the studies of Kim and Mathur (2008), Lu and Beamish (2004), and Singh et al. (2010). The results revealed that leverage was negatively related with firm performance and this relationship was significant. Leverage of firm increased the financial risk of firms and imposed so many restrictions; therefore, the firms faced with the limited number of financial resources for investing and continuing their business operations. These findings also supported the notion of inverted U-shaped relationship in this study which stated that with increase in corporate diversification, the firms would face with declining in management resources. Thus, the firms' performance was declining due to higher diversifications. According to resource-based view and market power view, firms should possess some superior resources to solve their problems and maintain their resources when they

face with financial distress. The results of previous studies such as Lu and Beamish (2004), Singh et al. (2010), and Tallman and Li (1996) were also aligned the results of this study.

Assets growth was positively associated with firm performance. Those firms, which had more assets than previous year, participate more in firm performance than those ones that had less assets growth. So, the firms which had assets growth had more growth opportunities and better performance. This finding was aligned with the findings of previous studies such as Aleson and Escuer (2002) and Park and Jang (2013). On the other hand, an increase in corporate diversification could lead to cost increase. An increase in diversification levels would also lead to inconsistency in the growth of administrative expenses as well as great operational flexibility. The administrative cost might increase and direct operation of individual product units to control the construction of additional levels of corporate management. Operational flexibilities might increase due to disorganizations raised from the lack of compliance for environmental changes, the extent of politicization in making strategic management decisions, and pressures from senior managers as the corporate center (Grant & Jammine, 1988; Markides & Williamson, 1994, 1996). Therefore, the factors which determined the firm's performance would decline with increasing corporate diversification. Markides and Williamson (1996) also defined other indirect costs such as control efforts and losses due to the increase in shirking, inefficiencies in the internal capital markets, coordination costs, and other organizational diseconomies. The marginal costs of diversification increased rapidly as the diversification hit high levels. The net effect of these benefits and cost proposed that product diversification may be beneficial up to a certain point and then additional diversification might reduce firm performance. Thus, the findings of the study were consistent with the previous studies' results (Aleson & Escuer, 2002; Anil & Yigit, 2011; Boz et al., 2013; Chen & Ho, 2000; Kang et al., 2011; Kim & Mathur, 2008; Mathur et al., 2001; Palich et al., 2000; Qian, 2002; Singh et al., 2010; Tallman & Li, 1996). Markides (1992) provided a helpful argument that an increase in the firms' diversification which moved further away from its core business, could decline the marginal benefits of diversification. According to resourced-based view, firms can earn sustainable supra-normal returns if they have superior resources. When the firms directed towards corporate diversification either product or geographic diversification at this stage, the firms with superior resources and capabilities were growing. Therefore, firm managers decided to gain supra-normal profits by spreading their risk in different products and markets. Resource-based view firms tried to exploit economies of scope in several resources and capabilities including tangible, intangible, and human resources to enhance their performance (Barney, 1991). The level of corporate diversification increased as the firms moved futher away from their core businesses which cause the disconomies of scale, movement from tangible to intengible resources, and finally declining firms perfromance. According to Barney (1991), resources for sustainable competitive advantage must have four attributes. They should be valuable, rare, inimitable, and non-subsitutable. Such resources exploited every opportunies or neutralized threats in firm's environment. Some of these resources were relatively uncommon among the firms' current and poteantial positions like managerail talent. Inimitable resources could not be easily produced or copied by competitors. Sustainable competative advantage of valuable and rare resources could be enjoyable only if competitors faced high costs of imitating the resources. These non-substitutable resources

should consider as strategically equivalent resources that the competitor firms could easily obtain. When the firms moved toward the higher levels of corporate diversification, they actually moved away from their own core competencies. Therefore, they suffered a decline in their performances. Having higher levels of corporate diversification, the firms moved away from their core businesses and their current distinctive competencies became insufficient. As the corporate diversification hit the higher levels, the degree of corporate diversification was estimated to pursue lower profits (Barney et al., 2001; Barney & Hesterly, 2009).

Discussion

The purpose of this study was to analyze the nature of general relationship between corporate diversification and non-financial performance of firms listed at Karachi stock exchange market. The empirical estimation is based on 11-year data of 141 non-financial companies from 2002 to 2012. To explore the relationship between corporate diversification and firm performance, GLS fixed effects model was used. Corporate diversification was divided into two categories namely, product and geographic diversification, while return on assets was taken as proxy to measure the firm performance. Other variable like size of firm, age of firm, assets growth, debt or equity ratio of firm, advertising intensity of firm were taken as control variables. GLS fixed effects model was used because there were problems of autocorrelation and heteroscedasticity. GLS fixed effects model provided correction in the presence of heteroscedasticity and autocorrelation in the pooled time-series data (Brooks, 2008; Greene, 2002; Wooldridge, 2002). The current reasearchers built the models in a hierarchical manner to evaluate the stability of results. In model 1, they entered all the control variables along with linear and squared term of product diversification. In model 2, they replaced the linear and squared term of product diversification with their corresponding terms of geographic diversification. In model 3, they entered both product and geographic diversification with linear and squared term along with the control variavles. First model depicted the impact of product diversification on firm performance under the influence of some control variables. Findings indicated that product diversification had an inverted U-shaped relationship with firm performance. Therefore, it was concluded that an increase in product diversification improved firm performance up to a certain point after which any further increase in product diversification were associated with declining firm performance. Second model showed the impact of geographic diversification on firm performance. Empirical investigation revealed that geographic diversification had an inverted U-shaped relationship with firm performance. It also manifested that firm performance improved with an increase in geographic diversification until a certain point, after which any further increase in geographic diversification caused a decline in firm performance. Third model reflected the impact of both product and geographic diversification on firm performance. The findings remained the same for the first and the second models. Furthermore, there were negative significant relationships between some of control variables including advertising intensity, leverage, and firm size and firm performance, while there were positive significant relationships between other control variables such as firm age and assets growth and firm performance. These three models seemed to have the similar effects. They investigated the effect of product and geographic diversification on firm performance in Pakistan. This study showed that product and geographic diversification had an

inverted U-shaped relationship with firms' performance. Product and geographic diversification had a curvilinear inverse relationship with Pakistani firms' performance. The firms' performance increased up to a certain point with each increase in product and geographic diversification in a way that after that point any further increase in product and geographic diversification would result in a reduction in firm performance.

Conclusion

Based on findings from this study, top management of Pakistani firms should not scare to venture into product and geographic markets that can help them in developing capabilities. At the same time, the inverted U-shape relationship between corporate diversification and firms' performance suggested that firms' managers should be careful not to diversify their firms. Even though product and geographic diversification were the sources of strength for firms, there were diseconomies associated with excessive diversification. In their pursuit of growth, the managers may become overwhelmed by the available opportunities in the external environment. It was important for managers to keep a balance between the managing core and other businesses. More specifically, this study suggested that each firm should conduct an elaborate cost-benefit analysis through considering demand externalities associated with high level of both product and geographic diversification and internal capabilities such as tangible, intangible, and human resources. When firm operating with product and geographic market portfolio to increase firms' performance, the managers should develop devices for alleviating distribution, coordination, and the cost of governance to facilitate synergies. On the other hand, the investors should also study long-term policies of such organizations which are involved in operating the corporate diversification and gaining profits through minimizing their risk.

This study had some limitations which have to be pointed out. First, the findings for this study can hardly be generalized to other private firms in Pakistan and it was just limited to small number of listed companies at Karachi stock exchange firms. Second, it just restricted to Pakistan and excluded other countries. Third, it was not identifiable whether foreign sale was due to commercial activities or service activities, while such differential can help us gain deeper insight into internationalization process. In order to strengthen and back up the findings and conclusions in this study, it is essential to implement further research in analyzing alternate conceptualization and testing the reliability of our finding. The major finding of this study was related to the inverted U-shaped relationship between product and geographic diversification and firm performance and ignored other relevant variables. Therefore, other firms can also corporate other variables such as internal capabilities, ownership structure, demand interaction, industry specific variables, and further macro-economic variables to investigate the effect of other factors on firm performance.

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APENDEX A:

Cross Section Fixed Effects

SR	Symbol	Effect	SR	Symbol	Effect	SR	Symbol	Effect	SR	Symbol	Effect
1	AABS	0.06	36	DGKC	0.01	71	INKL	0.02	106	PGCL	-0.05
2	AASM	-0.05	37	DINT	0.02	72	ISIL	0.03	107	PRWM	0.03
3	AATM	-0.11	38	DMTM	-0.06	73	ISTM	-0.01	108	QUAT	-0.00
4	ABOT	0.09	39	DSML	-0.06	74	JATM	-0.05	109	QUET	0.00
5	ADAMS	-0.07	40	DWSM	-0.00	75	JDMT	-0.13	110	RCML	0.03
6	ADMM	0.07	41	DWTM	-0.04	76	JDWS	0.09	111	REDCO	-0.02
7	AGIL	0.17	42	EFERT	0.12	77	JKSM	-0.02	112	REST	-0.01
8	AGTL	0.23	43	ELSM	0.04	78	KML	0.00	113	REWM	0.03
9	AHTM	0.01	44	EMCO	-0.08	79	KOHC	0.08	114	RMPL	0.14
10	ALNRS	-0.06	45	EXIDE	-0.08	80	KOHE	0.10	115	RUBY	-0.06
11	ALQT	-0.03	46	FAEL	0.07	81	KOHP	-0.05	116	SAIF	0.02
12	ANL	0.03	47	FASM	0.03	82	KOHS	-0.12	117	SAPT	0.04
13	APOT	-0.05	48	FFC	0.24	83	KOSM	-0.04	118	SEARL	-0.01
14	ARUJ	-0.03	49	FTHM	-0.10	84	KSBP	-0.06	119	SEL	0.02
15	ASHT	-0.02	50	FZCM	-0.02	85	KTML	-0.08	120	SFAT	-0.07
16	ASTM	-0.04	51	FZTM	-0.05	86	LPGL	-0.07	121	SFL	0.03
17	ATLH	0.12	52	GADT	0.07	87	LUCK	0.11	122	SGML	-0.05
18	AYTM	-0.11	53	GATI	-0.08	88	MEHT	-0.02	123	SHCM	-0.03
19	BATA	0.01	54	GATM	-0.06	89	MQTM	-0.09	124	SHEZ	0.01
20	BERG	-0.12	55	GFIL	-0.00	90	MSOT	0.02	125	SHFA	0.02
21	BGL	-0.06	56	GHGL	0.15	91	MUREB	-0.03	126	SHSML	-0.02
22	BHAT	0.03	57	GLAT	-0.07	92	NAGC	-0.01	127	SIEM	-0.00
23	BILF	-0.03	58	GLAXO	0.241	93	NATF	0.01	128	SING	-0.03
24	BTL	0.05	59	GLPL	0.07	94	NATM	-0.00	129	STJT	0.00
25	BWHL	0.03	60	GSPM	-0.00	95	NCL	0.08	130	STML	-0.06
26	CHAS	0.00	61	GUSM	-0.10	96	NESTLE	0.24	131	SURC	0.04
27	CHCC	0.05	62	GUTM	-0.01	97	NML	-0.05	132	SUTM	0.03
28	CJPL	-0.15	63	HAEL	-0.09	98	NONS	-0.08	133	SZTM	-0.05
29	CLOV	0.13	64	HAL	0.08	99	NOPK	-0.07	134	TAJT	0.00
30	CML	-0.10	65	HINOON	0.01	100	NPSM	0.05	135	TATM	-0.01
31	COLG	0.21	66	ICCT	-0.04	101	NRL	0.06	136	TCLTC	0.02
32	CRTM	-0.11	67	IDRT	-0.01	102	NSRMR	-0.17	137	TGL	-0.01
33	CSAP	0.10	68	IDYM	-0.00	103	OLSM	-0.11	138	TOWL	-0.10
34	CWSM	-0.04	69	ILTM	-0.03	104	PAKL	-0.03	139	UPFL	0.04
35	DAWH	0.11	70	INIL	-0.05	105	PASM	-0.05	140	WYETH	-0.00
									141	ULEVER	0.20