

## **Impact of Internal and External Factors on Leverage: A Case from Pakistan**

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**Abstract:** Pakistan despite having largest irrigation system in the world, numerous mineral resources in its different geographical areas along with nuclear technology at its hand, is still facing severe energy crisis. Economy as whole is moving through a transitional phase of acquiring advanced machinery, technology for its goods and services which consequently has increased the demand for energy manifolds. A research therefore, is needed to be carried out pertaining to the energy sector of Pakistan to identify how the firms operating in the energy sector manage their capital structure, which factors are more influential in determining the level of their leverage. To achieve this goal, panel data of 19 firms within fuel and energy sector was taken to scrutinize the impact of some internal and external independent variables on leverage of the firm for the period of 1999 - 2012. The statistical facts and figures were obtained from State Bank of Pakistan's financial statement analysis of KSE listed joint stock companies'. The study concluded a negative yet significant relation of leverage with profitability, tangibility, liquidity and forex while it has positive but insignificant relation with size and inflation. Leverage is also negatively related to GDP but results are insignificant. The results suggest that Government should take steps to rescue the economy by keeping prices at a controlled level and should introduce reforms to have foreign exchange rate stable.

**Keywords:** Corporate finance, Inflation, Foreign Exchange, Equity

**JEL Classification:** G33, E31, F31, D63.

### **1. Introduction**

The term capital structure explains the approach or the system a corporation backs or supply funds for its assets or operations, with either debt, equity, hybrid securities i.e. a security having characteristics of both debt and equity, or a combination / mix of the three, with an aim to improve its overall worth / value. It is a universal truth that every choice concerning capital structure tool brings along with it a sweet and sour flavor to the menu. Let's say for example choosing more debt results in increasing a risk in income flows of the firm and high risks linked with debts decreases stock

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prices however, increased debt risk also raises expectations of lenders for their return which attracts other investors leading to a stock price rise in the end.

It is due to the very fact that capital structure decisions are said to be the most important and significant decisions done by the financial managers relying on the tradeoff between risk and returns associated. It is therefore, an important objective of a financial manager to maximize wealth of the firm keeping its cost of capital at the lowest level and his decisions be in accordance with debt target ratio.

When we go through literature, we observe that even though there has been profound and plenty of research focusing on the most important determinants of capital structure yet there is still variation and discrepancy regarding which factors considerably and notably have an effect on or able to influence a firm's capital structure.

Most of the researches carried out or prepared on the subject under discussion accomplished that an optimal capital structure is influenced as a result of a mixture / array of internal and external variables. Such variables on the whole differ and vary state to state and even industry to industry inside the same country. Variables of such nature can comprise: managerial factors, macroeconomic indicators, tax rates prevailing within the country, social, legal and financial factors. Studies also recommended that there are a few common and similar factors for the capital structure of different countries but each country also has other factors along coming into play / influencing capital structure decisions therefore, the country, where research is being conducted, should be examined discretely with the purpose of having a better understanding of the exclusive capital structure features in general and of that country in particular. Researchers have studied the topic "capital structure" and a large thread of academic and empirical research is focused and paying attention to it mostly in developed countries. In general adequate work regarding capital structure is done in Pakistan keeping in view of the cement, textile, insurance, banking and energy sector of Pakistan but no extensive work is conducted in terms of external factors in energy sector

of Pakistan. It is therefore, a reason to focus / study energy sector, not just because it acts as the main catalyst to the economy in both, favorable or unfavorable way, but also is a long run capital-intensive sector which needs much larger funds to sustain and develop new firms.

This study intends to augment and enlarge the information, knowledge and a better understanding of capital structure within the energy sector in the light of some specific internal and external factors. Most of the research in Pakistan concerning the topic capital structure spotlighted on specific determinants while overlooked the institutional or macroeconomics variables which ought to influence or affect the capital structure decisions. Hence the findings or conclusions derived from this research will augment the information regarding determinants of capital structure and is ought to help firms to choose efficient and effective decisions as per their requirements. Furthermore, the study is expected to help the financial managers who are responsible to make decisions related to capital structure. This study will enhance and alter them in the direction of adopting, accepting and taking into consideration proficient ways of managing a firm's capital structure.

## **2. Literature Review**

Shah and Khan (2007) attempted to establish which aspect or variable has important impact on capital structure decision. The data, 1994-2002, was taken from of KSE- listed non-financial firms with leverage as dependent variable and six independent variables which include size, NDTs, tangibility, Earning volatility, growth opportunity and profitability. It was found that Tangibility, growth (-) and profitability (-) variable were significant while the remaining were insignificant.

Mahvish and Qaiser (2012) investigated the influence of profitability, tangibility, size and liquidity on capital structure decisions. The findings of the study results showed that profitability was the only factor that showed an inverse association with leverage, while the other variables, size, tangibility, and liquidity had positive relationship.

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Ahmed *et al.*, (2010) investigated the capital structure of life insurance companies of Pakistan. The data was taken from the year 2001 to 2007 with Ordinary least square method while Leverage is taken as dependent variable; at the same time profitability, size, growth, age, risk, tangibility of assets and liquidity are selected as independent variables. The empirical results of OLS regression indicated that the independent variables: size, risk, growth and tangibility are directly related with leverage but only size and risk is significant whereas profitability and liquidity both are negatively related to leverage. The outcome of the regression also demonstrates that leverage has no significant relations or association with growth of the firm and tangibility.

Shah and Hijazi (2004) envisaged to analyze 16 firms out of 22 firms in cement industry sector of Pakistan and were listed at the KSE. The time span for this study was from 1997 to 2001 with application / model of pooled regression technique to determine capital structure factors of the firms within the cement industry. The study brought into play independent variables i.e. size, tangibility, profitability and growth. They found a contrary association between size and growth. Firm size is -ve with leverage, bigger the firm size, less debt would be used. Profitability also has an inverse relation with leverage which supports the Pecking Order Approach. Asset tangibility is +ve with leverage while Growth also resulted to have a direct association with leverage of the firms operating within the cement industry.

Çekrezi (2013) studied the impact of firm specific factor on capital structure. There were sixty five non listed firms in Albania which were selected for the time span of 2008 - 2011. This study used three capital structure measures that is STDA, LTDA and TDTA as dependent variables while Profitability, tangibility, liquidity and size as independent variables. Multiple regression technique was used to determine the results. This study concluded that tangibility, liquidity, profitability and size have a significant impact on leverage. The empirical evidence also divulges a significant yet negative relation of return on assets with leverage and a significant yet positive association of SIZE with leverage.

Zabri (2012) took into consideration 50 award winning small & medium enterprises of Malaysia as sample. Regression analysis was resorted to taking profitability, size, tangibility of assets, growth of firm, age of firm, non-debt tax shield and liquidity as variables for analysis. Out of these seven, only three variables viz. liquidity of the firm, tangibility and NDTS were proven to have significant association with firms' capital structure. In addition, it was also established that these variables were responsible for deviations in capital structure. Additionally, all the three variables of liquidity, tangibility and NDTS were also responsible for capital structure variations.

### 3. Data

This part of study explains criterion for sample selection, data sources, model of study, variables and their explanation in the context of present study. Present study revolves around Pakistan's fuel and energy sector. Current study used panel data of 19 firms within fuel and energy sector to scrutinize the impact of some internal and external independent variables on leverage of the firm for the period of 1999 to 2012. The statistics / information in use for the current study is obtained from State bank of Pakistan's financial statement analysis of KSE listed joint stock companies.

### 4. Estimation of Model

The proposed model is followed:

$$LEV_{it} = \beta_0 + \beta_1 PROF_{it} + \beta_2 LIQ_{it} + \beta_3 TANG_{it} + \beta_4 SizS_{it} + \beta_5 Gro_{it} + \beta_6 GDP_{it} + \beta_7 Infl_{it} + \beta_8 FX_{it} + w_{it} \quad (11)$$

Where

LEV = Leverage is the amount of debt used finance a firms assets and is measured by total debt / total equity

PROF = stands for profitability is calculated by the proportionate increase or rise in the total value of the firm

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LIQ =Liquidity measures cash and securities easy to be converted to cash measured by current assets/current liabilities

TANG =Tangibility is the extent to which debt is backed by physical assets of the company

SIZ =The volume of sales

GRO = Company growth

GDP = Gross domestic product measures the annual production of Goods and Services in the economy

INFL = Sustained increase in the general price level

FX =The price or cost of foreign currency in terms or against the domestic currency

The current study involves profitability, liquidity, size, tangibility, company growth, Inflation, forex , GDP , as independent variables while leverage will be kept as dependent variable. The study use book value of total liabilities divided by total assets to measure leverage because most firms in Pakistan rely on short-term debt to meet their capital requirements as the average firm size is small and banks are more inclined to lend for short-term than for long-term.

Profitability is the difference left off after all operating expenses are deducted from firm's total earnings or revenues. Liquidity is the capability of any business to meet its due, short term, responsibilities. This study will use in this ratio of current assets to current liabilities for measuring this variable. Firm size is the representation of a firm or company's share in competitive market of products comparing other competitors.

The quality of being perceivable by touch is said to be Tangibility. It is used for measuring the level of guarantee/protection/corroborative a firm can look at its debtor to assure the giver that his or her loan is secure. Tangibility is actually the value derived after deducting all liabilities and intangible assets from total assets of the firm.

Growth opportunity is considered to be an un-collateralized intangible asset, adding worth to a business which not charged under taxable income (Titman & Wessels, 1988). In this study, percentage change in total assets is used. Inflation is a continued, constant or continual raise in the general Price level of goods and services over a period of time within an economy.

Gross Domestic Product (GDP) is one of the most important indicators used to measure or estimate the fitness of a country's economy. Foreign Exchange rate, also acknowledged as the Forex rate, involving two currencies specify or indicates that to what extent currency of a county is worth in terms of the other.

To ascertain the extent of relationship between the above cited variables, panel data has been used. It is often better to use panel data in case a difficult financial situation is confronted. Using panel data is superior in comparison with other types of data such as time serious and cross section etc. The structure wise panel data has further been divided into balanced and unbalanced data. Balanced data has been termed so, when sample set in totality is taken into account while unbalanced data is the one where values are either missing or not available due to any logical restriction. In this study unbalanced data set has been measured as some figures were missing.

This study relied on fixed effect method or least square dummy variables estimator (LSDV) for the sake of analysis of panel data. The aforementioned model encompasses heterogeneity or individuality within cross sections allowing to have its own intercept. The major cause of selecting this method is the problem which had to face due to the missing values which could give rise to suspicion of having correlation with major predictors at group level. But fixed effect can also address such issue as fixed effect is invariant with respect to time considering all effects that relate to cross section.

#### **4.1 Post Estimation Tests**

The assumption of OLS model is that independent variables are not vehemently associated which in turn implies the fact that there exists a

perfect liner relationship among explanatory variables of a regression model. Multi co-linearity can be termed as the major disease in regression line. In multiple regression line it is relevant but known as a syndrome of fixed variables.

On account of Multi co linearity, VIF reveals the variance of estimator's inflation. Approaching to 1, VIF turns to infinity which shows an increase of co linearity degree. Rule of thumb for VIF values is that once the variance of an estimator takes hike, it becomes infinite.

In classical liner regression model (CLRM), one of the assumptions is that in case of error terms, covariance approaches to zero over time. Residuals are said to be serial correlated if error terms are correlated. So, while taking into account CLRM, one indispensable assumption is that residuals are uncorrelated.

In conformity with CLRM, it is comprehended that error/residual variance is constant and can be in turn titled as one of the assumptions of Homoscedasticity. Neutral coefficient estimates will be the outcome of OLS approximation but will not be BLUE for any longer. It implies that within the class of unbiased estimators coefficients have no minimum variance and in result standard error could be proved erroneous. To verify if Heteroscedasticity exists, the white test for Heteroscedasticity would be performed testing the following hypothesis:

Disorder in panel data models is cross sectional autonomous which holds true for panel data spanning to a larger cross section (N). To identify cross section dependence within panel data model, a simple test was devised in 2004 which considers stationary dynamics and unit root heterogeneous panels with shorter time T and a rather bigger N. The experiment thus performed, relied mostly on correlation coefficients pertaining to OLS residuals from separate regressions. This test has been resorted to in order to test the following hypothesis:

## **4.2 Generalized Least Square**

In order to trace unknown parameters, Generalized least square (GLS) method is commonly used. In event of occurrence of Heteroscedasticity,



the above cited method is taken into play. The OLS coefficients in this study are unbiased but at the same time taking departure from being BLUE. It implies that though OLS estimates are steady statically, yet they prove to be inefficient rather misleading in some cases. Alexander Aitken introduced GLS in 1935. Assumptions of GLS are almost the same as of OLS except for assumption of residuals. In case of Heteroscedasticity, GLS is considered the best to calculate unbiased  $\beta$ .

One of the assumptions of GLS is that Heterogeneous variance is allowed between residuals. This assumption extended its spectrum to give room for non-zero covariance within residual terms. Empirically, this assumption can be used to provide permission to incorporate different types of correlation. Auto and serial correlation is one of the instances. On the other side of the picture, co-variance matrix does not vary with the passage of time. The major drawback with GLS is that covariance matrix for GLS remains unidentified. This short coming of GLS draws our attention to Feasible Generalized Least Square (FGLS).

### **4.3 Feasible Generalized Least Square (FGLS)**

FGLS tag along the similar technique as Generalized Least Square but with the exclusion that an estimated variance covariance matrix for the residuals ( $\hat{\Omega}$ ) is used in place of unknown  $\Omega$ . In order to generate  $\hat{\Omega}$ , OLS is applied first to the model and it provides consistent estimation of  $\beta$ :

The residual values are also consistent and are applied to estimate the variance covariance matrix  $\Omega$ :

FGLS agrees or permits for the realistic application of GLS and it has been proved to be correspondent to the maximum likelihood estimator in its limit. It is therefore, also possesses the asymptotic properties of the maximum likelihood. One disadvantage of FGLS is that it works better for huge and hefty sample and awareness with respect to its behavior in undersized restricted sample is less recognized or known. FGLS is preferred over OLS under HAC (Heteroscedasticity and Autocorrelation Consistent). However, in a model where classical assumptions of OLS are met, then least squares shall be more efficient than FGLS.

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## 5. Results

This part of current study first explains the descriptive statistics of all variables. Further in next part, the correlation analysis of all variables of the study is reported. Afterword, the findings of regression model is explained and lastly the validity of multivariate regression model is tested.

Descriptive statistics of all variables indicates that data is an unbalanced data with a range of 232 maximum while 214 minimum observations for variables. Further there is high variation especially in liquidity and company growth. The highest variation is in liquidity variable which is 396.42 while the company growth is on second number with variation value of 41.9 GDP , inflation and size variables seem normally distributed as their variation are less as compared to other variables. The lowest standard deviation is in GDP variable with value of 2.07 while inflation is at second lowest position with value of 4.76

Similarly the means value of liquidity variable is at top i.e. 249.8 and forex is at second number with value of 67.9. The mean value of GDP variable is at lowest with value of 4.50. The detail of descriptive statistics of all variables is hereunder:

**Table 2: Description of all variables statistically**

Variables	Observations	Mean	Std. Dev.	Minimum	Maximum
leverage	232	54.72177	27.2159	1.39	99.68
roa	231	6.288571	13.22609	-22.4	60.4
size	232	21.22668	5.378547	0	26.96
tangibility	232	50.52789	25.59903	2.93	97.65
Company growth	214	12.91701	41.90067	-52.46	481.19
liquidity	232	249.8983	396.426	11.4	2713
fx	232	67.91194	13.64937	51.77	96.38
inflation	232	8.274138	4.768241	2.9	20.3
Gdp	232	4.505129	2.073651	1.72	8.96

Correlation analysis is carried out to check the degree of association or uniformity between variables. This analysis further helps to determine the level of multi co-linearity between independent variables. Further the correlation analysis is considered as essential part of primary analysis in empirical studies. The correlation matrix of this study is hereunder:

**Table 3: Correlation Matrix**

	leverage	roa	size	tang	cogwt	Liq	fx	infl	gdp
Leverage	1.00								
Roa	-0.26	1.00							
Size	0.34	0.32	1.00						
tang	0.03	-0.35	-0.20	1.00					
Cogwt	0.08	0.08	-0.11	-0.29	1.00				

Liq	-0.60	-0.07	-0.51	-0.08	-0.04	1.00			
Fx	-0.03	-0.09	-0.02	-0.24	0.06	0.19	1.00		
infl	-0.03	-0.01	-0.02	-0.15	0.05	0.23	0.68	1.00	
Gdp	0.00	0.05	0.06	0.08	-0.08	-0.16	-0.46	-0.39	1.00

According to aforementioned correlation matrix it is evident that profitability (roa), liquidity, forex rate, inflation and GDP have negative association with leverage while size, tangibility, and company growth has positive association. The liquidity variable has the highest negative association with leverage while size is the highest positive correlation variable with leverage. The association of profitability is negative with tangibility, liquidity and inflation while alternatively the same variable has positive relationship with size, company growth and GDP. It is interesting that, size has affirmative relation with Profitability (roa) and GDP while tangibility has negative associations with all other variables except GDP. Moreover, the correlation of liquidity is negative with all variables except forex and inflation while forex has positive relation with Inflation, liquidity and company growth only. The aforesaid correlation will be taken into account during regression analysis and further evaluation will be performed to confirm the degree of association or multi co-linearity.

**Table 4: Summarized results of estimated model**

<b>Independent variables</b>	<b>OLS</b>	<b>Fixed Effect</b>	<b>FGLS</b>
roa	-0.803 (0.000)***	-0.573 (0.000)***	-0.597 (0.000)***
size	0.935 (0.010)***	0.691 (0.039)**	0.504 (0.237)
tangibility	-0.106	-0.375	-0.1888318

	(0.099)*	(0.000)***	(0.003)***
cogwt	.046 (0.195)	-.069 (0.011)**	-.027 (0.240)
liquidity	-.037 (0.000)***	-.0169 (0.000)***	-.020 (0.000)***
Fx	-.164 (0.276)	-.248 (0.022)**	-.249 (0.028)**
inflation	.565 (0.155)	.307 (0.225)	0.073 ( 0.736)
Gdp	-.907 (0.214)	-.692 (0.138)	-.468 (0.293)

\*\*\*, \*\* and \* indicates significance at level 1%, 5% and 10% respectively. p-value in parentheses.

The regression analysis provides a strong linkage to take a decision for any hypothesis and recommend a policy framework for the regulatory authorities. In present study, fixed effect model is used. The stepwise movement towards OLS to fixed effect regression model and then FGLS is made due to results of post estimation tests that will discuss in next section. Results of regression analysis under OLS, Fixed effect & FGLS method of estimation are here under whereas leverage is dependent variable under all methods of estimation

The results mentioned in Table 4 describe the impact and nature of relation between dependent variable i.e. leverage and independent variables i.e. profitability (roa), size, tangibility, company growth, liquidity, forex, inflation and GDP by using OLS, Fixed effect method and FGLS. The findings displayed that profitability (roa) and liquidity have significant but

negative relation with leverage which supports the result found by Çekrezi1 (2013). The results of size showed positive relationship with leverage Mahvish and Qaiser (2012). The nature of relationship for tangibility showed an inverse relation with leverage and is also supported by studies of Amjad and Tufail (2012). The results of forex indicates a negative but significant relationship with leverage.

In a nutshell, it is evident from discussion that the leverage has negative but significant relation with Profitability, tangibility, liquidity and forex while it has positive but insignificant relation with size, inflation. Leverage is also negatively related to GDP but results are insignificant.

This study has applied different post estimation tests to testify the validity of available results. These tests will ensure the status of Multi co-linearity, Autocorrelation, Heteroskedasticity and Cross Section Dependence in available panel data set. Firstly for multi co-linearity this study used VIF (variance inflation factor). The VIF table shows that all variables are free from multi co-linearity and no independent variable in the model is strongly associated with other independent variables. Further auto / serial correlation has been tested through Wooldridge test. This test indicates the presence of this disease in the data. The result clearly describes that there is existence of auto/serial correlation in the data. In addition to this, white test has been applied to testify the presence of Heteroscedasticity in panel data. The result of white test endorse that there is presence of Heteroscedasticity in panel data. Hence it is proved that results through OLS way of estimation do not meet major assumptions of OLS as there is existence of auto/serial correlation and Heteroscedasticity in panel data.

In continuation above mentioned findings, this study applied fixed effect method of estimation and also testified results extracted from this method. Firstly, Modified Wald test for group-wise. The result of this test supported that there is existence of Heteroscedasticity. Further this study checked Cross Section Dependence. The results of this test clearly states that Cross sections are not independent  $CD \sim N(0, 1)$ . Hence the results from fixed effect way of estimation are not consistent as these have problem of Heteroscedasticity and Cross section independence.

In this situation where OLS and fixed effect way of estimation do not meet the basic assumptions and there is doubt on the consistence and reliability of results then this study moved towards FGLS way of estimation wherein no problem of auto / serial correlation exist and panels are homoskedastic. Through FGLS results are certainly capable to predict the relation without any violation.

## **6. Conclusions and Policy Recommendations**

It is without doubt accepted from existing fact findings that leverage / the capital structure of the company plays a vital role to ensure the long run stability in Pakistan. This study involves forex inflation, GDP as external factors while profitability, liquidity, size, tangibility and company growth as internal factors to find any relationship with leverage.

This study followed the existing literature which used panel data of 19 firms within fuel and energy sector to scrutinize the impact of some internal and external independent variables on leverage of the firm for the period of 1999 to 2012. The core purpose of this study is to measure the impact of external factors on leverage specifically and internal factors generally. The feasible generalized least square (FGLS) method of estimation is used to measure the nature of relationship and also to quantify the significance of all independent variables taken into account. The findings/outcomes of this study support certain independent variables have significant effect on leverage. The results such drawn demonstrate that profitability, tangibility, liquidity, company growth and foreign exchange all have inverse relationship with leverage. This negative relationship does not imply that leverage as a whole plays a negative role in the capital structure of the firm. It actually clarifies the fact that increased profitability would suffice the financing needs of the firm allowing it the liberty to take a departure from reliance on leverage. Similarly, relationship with tangibility interprets that a firm with already sufficient assets would not require to take extra debt. Inverse relationship with liquidity implies that the more liquid a firm is, the less debt financing it requires which is but self-evident fact. Likewise, a company with better growth would not have to opt for leverage unlike budding firms which have to reach the growth stage and require debt financing to tap the potential opportunities. Last and

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most importantly, Foreign exchange which has been taken as external factor and could be considered as the pivot on which the whole study hinges as the other external factors did not have any significant impact on leverage. Negative relationship with foreign exchange means that once the foreign exchange rate increases (Direct quotation whereby the price of Dollar would decrease in terms of Pak Rupee) , leverage of the firm would decrease and vice versa. As energy sector is highly capital intensive one, firms have to import most of the respective machinery for which they have to pay in Dollars. Increase in FX rate would mean that Dollar would depreciate in terms of PKR and vice versa. This in turn would indicate that firms would have to pay less than they borrowed and reverse would be the case if FX rate decreases or USD appreciates.

Pakistan is undergoing a sever energy crises presently and has lost billions on account of sheer dearth of energy in recent past. In such circumstance it becomes highly imperative to revamp the whole structure and energy related infrastructure. Keeping in view the outcomes of this study, research work done previously and the urgency of reviving the energy sector in Pakistan it is but evident that external factors have significant bearing on the capital structure of energy related firms. Even though GDP and inflation were not proven to have any direct impact on leverage of the firm, they do indirectly affect the overall performance of energy sector and get affected in turn. If only external anomalies could be bridled, energy sector would thrive providing electricity at cheap rates to already inflation ridden Pakistani people. It is high time Government should come to the rescue of economy by keeping prices at a controlled level and should introduce reforms to keep foreign exchange rate stable. This is the only way the deteriorating economy could be bailed out.





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## References

- Ahmed, N., Ahmed, Z. and Ahmed, I. 2010. "Determinants of capital structure: A case of life insurance sector of Pakistan". *European Journal of Economics, Finance and Administrative Sciences*, 24, 7-12.
- Amjad, S. and Tufail, S. 2012. "Determinants of Capital Structure". *Proceedings of 3rd International Conference on Business Management*, ISBN: 978-969-9368-07-3.
- Çekrezil, A. 2013. "Impact Of Firm Specific Factors On Capital Structure Decision: An Empirical Study Of Albanian Firms". *European Journal of Sustainable Development*, 2(4), 135-148.
- Mahvish, S. and Qaiser, A. M. 2012. "Determinants of Capital Structure: A Study of Oil and Gas Sector of Pakistan". *Interdisciplinary Journal of Contemporary Research in Business*, 3(10), 395-400.
- Shah, A. and Hijazi, T. 2004. "The Determinants of Capital Structure of Stock Exchange-Listed Non-Financial Firms in Pakistan". *Pakistan Development Review*, 43, 605-618.
- Shah, A. and Khan, S. 2007. "Determinants of capital structure: Evidence from Pakistani panel data". *International review of business research papers*, 3(4), 265-282.
- Titman, S. and Wessels, R. 1988. "The Determinants of Capital Structure Choice". *The Journal of Finance*, 43(1), 1540-6261.
- Zabri, M. S. 2012. "The determinants of capital structure among SMEs in Malaysia". *Proceedings, International Conference of Technology Management, Business and Entrepreneurship 2012*, (ICTMBE2012), Renaissance Hotel, Melaka, Malaysia 18- 19 Dec, 2012.

