

Impact of Key Performance Indicator on Systematic Risk! An Empirical Analysis of Cement Industry

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Abstract

The risk factor exposure is highly admirable in academic as well as applied perspective. The purpose of this research is to identifying the relationship between key performance indicators (KPI's) and systematic risk. The methodology has been applied on Cement sector. To test the hypothesis of study, panel data has been used in this research pertains to the period form 2005-2015. The panel data was available from literature and hence panel test (Fixed effect, Random effect and Hausmann test) was applied which showed that most of the KPI's have a significant relationship with systematic risk (Beta). On the basis of findings of the study, it may be concluded that, systematic risk of the studied sector is prone to be affected by the variations in corporate financial decisions. The findings are very fruitful for investor, CEO, BoD and financial policy makers to maximize the return by decreasing the systematic risk factor.

Keywords: Systematic Risk, KPI's, Cement Sector, Pakistan Stock Exchange

INTRODUCTION

The financial crises of the world made the financial scholars to adopt the strategies to reduce the crises ratio, for that purpose they need to tackle the risk factor. This study examines the impact of key performance indicators (KPIs) as considers of systematic risk in Cement Industry of the Pakistan economy. We address the concept of systematic risk in investor prospective and as well as companies management because systematic risk affect the industry aggregately. Top management, Board of Directors (BoD), Chief Financial Officer (CFO) and Chief executive Officer (CEO) of the companies and financial advisors & investors are concerned with systematic risk. Their business decisions are highly correlated with the company's performances and good will. But somehow, their decision is directly and indirectly affects the overall performance of the companies and increasing the risk factor.

Systematic risk is revealed as market risk and its un-diversifiable risk. It does bring the volatility/ambiguity situation in the market and bring instability in day to day business activities and stock's price. Lo (2009) "To eradication the systematic risk is really tough condition, is neither feasible nor acceptable situation. But positive way the risk is a necessary elements to real economic development. Aftab (2013) setting the objective to identifying and building an infrastructure, which is

proficient of estimating/evaluating systematic risk as considered to the banking system and the overall financial system in general form. Rowe and Kim (2010) are highlighted that the financial indicators are the best predictor of systematic risk by using the data of casino Industry. Gu and Kim (2002) driven out on determinants/analyzing of beta by using the data of restaurant industry. Wooi, Hooy, Hwa, Lee (2010) define the systematic risk by using the airline industry in East Asia. Kim, et al (2007) analyzed the financial ratios in 58 quick service and full service restaurants. Louge and Merville (1972) suggest that financial ratios predict systematic risk by varies industry.

In term of the Pakistan, decent studies available for determents of systematic risk of stock market. Iqbal and Shah (2012) determent the systematic risk of Karachi Stock Exchange (KSE 100 index) by using the eight into financial variables, define the important aspects of systematic risk and impact afore said financial variables on it.

Stock Market

The concept of stock markets was developed in Europe after the industrial revolution when an increasing number of Industries acknowledge the importance of high capital provision. In this way the stock exchange market was developed. Pakistan stock market Ltd (PSX) (formerly: Karachi Stock Exchange Ltd (KSE)) was established on 18 Sep 1947. Financial institutions within the KSE have been established in the form of KSE having 100

index in Pakistan 1991 with base value 1000 points. PSX is established after the merger of individual stock exchanges of Karachi, Lahore and Islamabad. Currently, there are 576 companies and 35 sectors are listed in PSX and total market capitalization is Rs, 9,969,782 billion. Ahmed E, Zaman (2000) the presence of volatility across the market is importance for stockholder, brokers, investor prospective as well as individual company. All those who are seeking profit while trading the stocks of different companies.

Cement Industry

Cement industry in few well reputed and influential industrial sector of Pakistan that have a key contribution in the economic growth of Pakistan. It is existed in Pakistan before the time of partition of sub-continent. In 1921 the first cement industry setup was established at Wah. Exactly there were four factories with installed capacity of 470000 tonnes per annum, are available. The major reason behind the establishing this business is availability of raw materials. This industry is on booming condition at the time of the creation of Pakistan. Its increases day by day with the innovation of new technology. This industry is witness of different era does belong to ups and downward movement of cement business. The industry was nationalized in 1972, through the executive order (state owned policy order) by Prime Minister Zulfiqar Ali Bhutto. The state cement corporation of Pakistan (SCCP) was established through economic reforms order. As consequence of this order only 10 units moved under the umbrella of SCCP. SCCP introduce effective price control system, almost one and half decade industry operates under a regime of strict regulation and aforesaid price control System. In lieu of above action, for the next one and half decade no new cement plant was installed, which result of serious shortage of cement in late 70's and early 90s. To address the shortage of cement, government imported from other countries. During the regime of prime minister Nawaz Sharif the industry went through major revolution. Government introduce privatization policy, as a result of this action 8 cement plant has privatized since 1992. Due to privatization policy, SCCP lost his control on price and also decline production capacity those unit

who's operate under SCCP. SCCP holding old and inefficient unit as compare to private units who's more efficient. At the present time cement industry consider as prominent industry with the 44768250 metric tons cement production capacity. Pakistan has major exporter of cement with the international ranking it's have an 8th number. These days very advanced processes are being used in manufacturing of cement which also has a strong impact on the economy of Pakistan.

Objectives of the study

- To examine the of impact KPI's on systematic risk on Cement Industry

Significance of the study

This study help out BOD, CEO, CFO, financial managers, investors and researcher to better understanding the systematic risk of Cement industry. To developed the comprehensively understanding of concerned factors and their relationship which influence on systematic risk. As well as providing useful information to investors, it also provided guideline to firm's owner to prevent the effect of systematic risk and try to reduce it.

Research question

Does the KPI's affect the systematic risk on cement industry of the Pakistan economy?

LITERATURE REVIEW

In finances, two type of risk is more prominent, systematic & un-systematic risk. It is necessary that for aversion of financial issues and crises to understand the nature of risk and all term & tool (Keys) of occurrence the crises. This word is referring a situation where market (listed company/industry) fails to bear the common shocks, Allen, et al (2009) investigate the risk of taint and failure of one financial institution leads to the default of other financial institution through a networking/chain effect, e.g central bank is the best example of such type of risk. The author creates an collaboration between financial influences and funding maturity in causing systematic risk.

Tasca et al (2000) point out that the unnecessary increasing part of leverage i.e the debt financing is considered one of the primary factors in the default of financial institutions since it magnifies/potential investment decrease/losses. In oppose to this situation portfolio diversification acts as decrease the effects/losses.

Systematic risk is directly associated with market while un-systematic risk is linked with an individual company. The term beta used as symbolized for Systematic risk, it means that variation in stock due to change in market or in generalize form it is covariance of stock returns of capital market, Gu and kim (2002). The worst effect of systematic risk is that it can't be eradicated from any security by applying diversification technique but un-systematic risk can be removed or reduce with the help of diversification techniques. The main objective of investors, shareholder and stakeholder is to diversify the risk, which affect the individual firms and market performance. Rowe and kim (2010) described the association between systematic risk and financial variables by using casino industry data, result shows that significant relationship between betas and financial variables. Iqbal and shah (2012) using the eight financial variables are used to explored the systematic risk of non-financial firms in Karachi stock exchange. The outcomes are very fruitful for investor and policy makers. Most of the variables are significantly as per suggested at hypothesis. Gupta and Gurjar (2014) explored the betas and average returns for providing a supportive role for a investor in decision making process. Randomly two companies are selected from three selected Industry. The beta co-efficient measure the relative systematic risk of assets (industry to industry). Adhikari (2015) finding indicate that financial elements have significant projecting power for determents of systematic risk while applying stock investment. Lee and Hooy (2012) a five factors asset pricing model is employed to estimate the systematic financial risk exposure of airline industry. Emre and Demircioglu (2015) relationship between co-efficient beta and CAPM of the cement industry and power generation and distribution sector in Turkey. Darmayanti (2015) found a significant effect on stock price on food and beverage firms of Indonesia stock exchange. In this study, used multiple regression analysis that has different results, it showed a simultaneous effects of return on equity, earning per share and systematic risk on stock price. T test result showed partially significant effects on stock price.

Mohammadi et al., (2015) found significant relationship between portfolio of 21 selective

companies of Tehran stock market and systematic risk as well as financial leverage. Wang (2003) calculated the conditional relationship between risk and returns by using two conditional beta tools and the correlation coefficient. Mosadegh (2005) study the relationship between risk and size with returns in numerous conditions of stock market. In this study, used the multifactor model for testing conditional situation and cross sectional multivariate regression for testing hypothesis. Mandell (1986) identifying the impact of the financial and operational leverage on the systematic risk of the common stocks and get the conclusion that there was positive and significant relationship between the systematic risk and the degree of financial leverage. Muturi and Omondi (2013) study conducted at Nairobi securities exchange, the finding shows that leverage has negatively relationship on financial performance. In oppose of this, liquidity is more essential to determinant and improving the firm's financial performance. Beaver, et al (1970) highlighted that the significant correlations between beta and financial variables. Lougue and Merville (1972) that there are significant outcomes of leverage, profitability and firm size to determents of beta. Most of the researchers, Brean and Lerner (1973), Decleoure and Dickens (2004), Kim and Gu (2004) suggests that movement of systematic risk should be related to change in financial and operating management practices

Hypothesis of the study

In order to achieve the objectives of the study and answer the research questions, following research hypothesis have been designed;

H1: Liquidity has negative relationship with systematic risk.

H2: Leverage has positive relationship with systematic risk.

H3: Firm size has negative relationship with systematic risk.

H4: Profitability has positive relationship with systematic risk.

H5: Operating efficiency has negative relationship with systematic risk.

H6: Growth has negative relationship with systematic risk.

H7: Dividend payout has negative relationship with systematic risk.

H8: Tobin Q has negative relationship with systematic risk.

H9: CHIN model has negative relationship with systematic risk

DATA AND RESEARCH METHODOLOGY

Sample:

In this study, we used secondary data for more reliability of the results. We selected 15 into companies from cement industry from (2005 ~ 2015) by using convenient sampling. For a briefed analysis, we have a both cross-sectional and time series data. This type of data is called panel Data, Its multidimensional data.

Selection Criteria:

The cement industry holds total 19 companies in whole sector. We choose only 15 companies that are well prominent

Variables:

There are ten variables used in the regression. These included both the dependent and independent. They are Systematic Risk as dependent variable while Liquidity, Leverage, Firm Growth, Profitability, Operating Efficiency, Growth, Dividend Payout, Tobin Q, Chin model are the independent variables. In our study, we identify some KPI that are consider as the best measure of performances of any company The following are the KPI of different company that we use to detecting the systematic risk.

Data Sources:

We used panel data in this study. Panel data was taken from;

- Annual report of Companies
- Companies Websites
- Website of Pakistan Stock Exchange
- Website of Yahoo (Yahoo Finance)

Data of KPI's are collected using different financial ratios from annual reports of companies.

Dependent variable Systematic risk (Beta) data was annually collected from PSX and Yahoo finance website.

Methodology: In order to test these hypothesis simultaneously, we have an Multiple regression equation in the study, due to large set of independent variables. We have applied panel test (Fixed and Random Effect tests) to observe the impact of KPI's on systematic risk.

RESULTS & DISCUSSION

The regression equation developed in this study takes the following form:

$$Y = \beta_0 + \beta_1 LIQ + \beta_2 LEV + \beta_3 SIZE + \beta_4 \pi + \beta_5 EFY + \beta_6 g + \beta_7 DP + \beta_8 TQ + \beta_9 CHIN + \mu$$

Y = Systematic Risk (Beta), β_0 is the Constant or intercept,

β 's = Slope or Coefficient of independent variables

LIQ = Liquidity,

Lev = Leverage

$SIZE$ = Firm Size

π = Profitability,

EFY = Operating Efficiency

g = Growth

DP = Dividend payout

TQ = Tobin Q

$CHIN$ = CHIN Model

μ = Standard Error Term of Coefficient

Descriptive Statistics

Descriptive statistic is used to bring the data into summarize form and describe in a meaningful way. It is very important to check the normality of the data in a summarize form. It have an different characteristic that are really helpful for visualizing the data, Mean, Median, Mode, Standard deviation, Maximum, Minimum, Kurtosis, Skewness etc.

Table No. I: Descriptive Statistics

Description	Beta	Liq	Lev	Size	Profity	Op. Eff	Growth	DP	TQ	CM
Mean	0.7420	-1.7147	0.6861	3.1198	5.6595	0.8024	4.0679	0.4827	1.0976	2.4232
Median	0.7690	-1.7147	0.6012	3.1386	5.0408	0.6539	4.2191	0.0000	0.8168	1.9029
Max	4.5527	1.6863	1.7653	3.2949	16.6808	3.9120	5.6748	6.3656	4.4967	10.9147
Min	-2.2798	-4.6051	0.0056	2.7498	0.9567	0.0000	0.0000	0.0000	0.0000	0.0000
Std Dev	0.6766	1.5968	0.3816	0.0908	2.5683	0.7403	0.8816	0.8635	0.9192	2.2964
Skewness	0.1619	-0.0446	0.6293	-2.2257	1.2481	1.9245	-1.5057	2.9555	1.0644	0.9601
Kurtosis	10.9980	2.0401	2.8953	9.0977	5.0366	7.5117	6.7616	16.4989	3.8918	3.5591
Obs	165	165	165	165	165	165	165	165	165	165

Here in table (I) the summarized the data of systematic risk (beta) and nine independent variables. The mean value of all the variables such as leverage, firm size, profitability, operating efficiency, growth dividend payout, tobin q, chin model are positive expect that liquidity is negative mean value. The mean value of beta is 0.7420 that is greater than market beta. It's indicating that the stock of selected Industry is less risky and less volatility than the market. In same way, mean value of liquidity is -1.714 and standard deviation of 1.596 and leverage is 0.6861 and standard deviation is 0.3816. As far as describing the other variables firm size mean value is 3.119 and standard deviation value is 0.0908. Subsequently the mean

value of profitability, operating efficiency, growth, dividend payout, tobin q and chin model are 5.659, 0.802, 4.067, 0.482, 1.097, 2.423 respectively.

Correlation Analysis

To investigating the multicollinearity problem we apply Pearson correlation to examining the relationship and strength of the association among all quantitative variables. According to rule of thumb that if the correlation among independent variables are 0.9 or greater. It will address the problem of multicollinearity. According to Frisch R (1934), the multicollinearity means the perfect or exact linear relationship between all explanatory/independent variables of a regression model.

Table No. II: Correlation Matrix

	Beta	Liq	Lev	Size	Profity	Op Eff	Growth	DP	TQ	CM
Beta	1.000									
Liq	0.0169	1.000								
Lev	0.0812	0.4090	1.000							
Size	-0.0857	0.1201	0.1580	1.000						
Profity	0.1373	-0.1636	-0.1543	0.1393	1.000					
OP Eff	0.1205	-0.1998	-0.4341	-0.0950	0.0882	1.000				
Growth	-0.0019	-0.1065	-0.2000	-0.1211	0.1622	0.0193	1.000			
DP	0.0994	0.2387	0.2882	0.1592	-0.0712	-0.2432	-0.0754	1.000		
TQ	0.1385	-0.2530	-0.2871	0.0492	0.2730	0.0105	0.1941	-0.2133	1.000	
CM	-0.0296	0.0900	0.1471	0.0294	-0.3103	0.0445	-0.4572	-0.0004	-0.1051	1.000

In our study, Table (II) shows the correlation among all variables and it's highlighted that there is no problem of multicollinearity. The coefficient values of explanatory variables are less than benchmark figure. In this study we have seen most of the variables have a both positive and negative relationship with each other. The maximum correlation is lie between leverage and liquidity (0.40) and also with operating efficiency (-0.43) that will not disturb the finding of this study.

OLS RESULTS INTERPRETATION

The finding shows that the five KPI's (Leverage, Firm size, profitability, Operating

Efficiency, Tobin Q) are significant relationship at the level of 5% and rest of the explanatory variables are insignificant (Liquidity, growth, dividend payout, chin model). The outcomes of research provide the evidence that the value of R square and adjusted R square indicate that the overall significant impact of KPIs on systematic risk, their values 12% and 7 % respectively. The f-statistic has shown the model is significant at 1%, 5% and 10% level. Durbin-waston value (1.52) shows that there is no autocorrelation problem.

Table No. III: Result of Panel Least Squares

Variables	Coefficient	Standard Error	t-statistic
Intercept	3.7786	1.0108	3.7382
Liquidity	0.0106	0.0293	0.3645
Leverage	0.4126	0.1114	3.7018*
Firm Size	-1.2054	0.3071	-3.9242*
Profitability	0.0336	0.0138	2.4306*
Operating Efficiency	0.2189	0.0385	5.6815*
Growth	-0.0316	0.0702	-0.4505
Dividend Payout	0.1283	0.0638	1.8863
Tobin Q	0.1636	0.0561	2.9124*
CHIN Model	-0.0082	0.0270	-0.3033
R Square	0.12	Durbin-Waston	1.52
Adj R Square	0.07	F-Statistic	0.01
Observations	165		

According our first hypothesis of study that liquidity is inversely associated with systematic risk. The finding of regression shows that the liquidity is insignificant relationship with dependent variables. Its highlighted that the cement Industry has a weak liquidity power, this relationship expose that liquidity have no effect on systematic risk. The previous studies Iqbal and shah (2012) have also found positive coefficient and significant results between liquidity and systematic risk. But in oppose to Lee and Jang (2007) have negative and insignificant results. Our second hypothesis stated that leverage and systematic risk (beta) is positively association. Leverage found a useful tool to boost up industry performance. If we investigate the relationship, then the results show that increase in leverage, which is alternatively increase in risk factor. It's created the disorder in business

transactions. The industry can't bear the burden of excess debt. The results show that the coefficient sign of leverages is positive and this relationship is significant at 5%. It shows the increase in leverage then systematic risk increase also.

To holding the maximum tangible and intangible assets and also utilize them, called firm size. The firm size in tactical way, it helps a lot for individual firm and industry to avoid the risk factor. According to hypothesis stated that inversely association between firm size and systematic risk. The coefficient is negative sign and result is significant, its reveals that with increase in firm size will decrease the systematic risk. Iqbal and shah (2012) found significant relationship between firm size and systematic risk. The priority of any type of business is to reduce the cost and increase the level of income. This terminology called profitability.

According to our fourth hypothesis, the profitability is inversely related with systematic risk (beta). The results show that the coefficient sign is positive and significant relationship with systematic risk. This relationship is identify that the increase in profitability that will also increase the risk factor. In previous studies, Iqbal and shah (2012), Melicher (1974), Borde (1994) found statistically significant results.

Fifth hypothesis, operating efficiency have a positively association between systematic risk. This relationship is shown statistically highly significant (5.68) and positive coefficient (0.21) value. It increases the reputation of individual company or industry in the market that will decrease the systematic risk. Sixth hypothesis, the growth is inversely associated with systematic risk (beta). The consistency in the growth is highly appreciated attitude of industry and individual companies. The positive growths rectify the good glimpse of industry. In this study, our outcomes show that negative and insignificant relationship with dependent variables. The previous studies also, Iqbal and shah (2012). Roh (2002) and Gu and Kim (2002) argue with their finding that negative coefficient of growth lead to create problem of financing, alternatively it hit systematic risk.

The dividend payout is inverse relationship with systematic risk (beta). This hypothesis is rejected due to insignificant finding. Previous studies, Iqbal and Shah (2012) have a positive and significant relationship. According to Benavides, J.,

Berggrun, L. & Perafan, H. (2016) that dividend payout has positively related to profitability and negatively linked to past indebtedness and investment opportunities. The investors are most of the time to follow dividend payout pattern before they invest in stocks. In this study, we used tobin q ratio for analyzing the market worth of selected Industry. The finding shows that if industry performing well in the market respectively, it identify to decrease the systematic risk. The coefficient has positive sign 0.1636 and t-statistic show the significant relationship with systematic risk. chung, K. H., & Pruitt, S. W. (1994) found the significant outcomes and Vicaino, M & Chousa, J. P (2016) this ratio is very useful to indicating the financial crisis significant qualitative change appears.

Our last hypothesis that the CHIN model has an inverse relationship between systematic risk (Beta). The term of CHIN truly describe the variation level in net income. This term is first time used in 1973 by mckibben, for especially discuss the bankruptcy condition. The finding shows that the insignificant relationship with dependent variable. In previous study, Keener, M. H. (2013) this model has a significant impact on firm health to avoid the bankruptcy situation. The increase in level of income will decrease the level of risk. The selective Industry have a strong capacity to hold minimum level of income. Further to depth of the analyzing we applied some panel test to more reliable outcomes.

Table No. IV: Fixed vs Random Effects Model

Variables	Fixed Effect Model			Random Effect Model		
	Coefficient	S.E	t-stat	Coefficient	S.E	t-stat
Intercept	0.8110	1.7608	0.4606	2.1860	1.1350	1.9260
Liquidity	-0.1069	0.0392	-2.7209	-0.0596	0.0350	-1.700
Leverage	0.3083	0.1084	2.8420	0.3452	0.0933	3.6980
Firm Size	-0.2087	0.5416	-0.3853	-0.6688	0.3498	-1.9116
Profitability	0.0321	0.0161	1.9917	0.0335	0.01473	2.2756
Operating Efficiency	0.0462	0.0727	0.6355	0.1181	0.0475	2.4875
Growth	-0.0272	0.0380	-0.7150	-0.0259	0.0521	-0.4977
Dividend Payout	0.0514	0.0261	1.9635	0.0772	0.0467	1.6525
Tobin Q	0.0940	0.0469	2.003	0.1131	0.0545	2.0740
CHIN Model	-0.0201	0.0231	-0.8742	-0.0152	0.0235	-0.6473
R Square	0.44			0.10		
Adj R Square	0.35			0.04		
Durbin-Waston	2.15			1.83		
F-Statistic	0.00			0.04		
Observations	165			165		

While applying the panel test, most of the independent variables (Table-IV) are significant relationship with dependent variable. But it is necessary to determine either random test used or fix test. A common practice used to judge either fix test used or random test to be use, in panel data analysis is Hausman test. In order to conduct Hausman test it is compared either cross sections are more or coefficient to be measured are more.

Random and fix test is also used in different imperial studies in order to analyses overall impact of KPI's on the systemic risk, Hausman test is applied in imperial studies in order to determine

either fix test is applied or random test applied. As random test is a type of regression so, we can get conclusion either accept null hypothesis or reject null hypothesis, random and fix test is used in order to reach the objectives of study. Regression analysis helps researcher in or to test the hypothesis empirically and to reach the objective of research.

There are two hypotheses

H_0 = Random effect is most suitable and consistent for panel regression analysis.

H_1 = Random effect test will be inconsistent in panel regression analysis.

Table No. VIII: HAUSMAN Test Result

Test Summary	Chi-Sq Statistic	Chi Sq. d.f	Prob
Cross Section random	23.3276	9	0.00

H_0 will be accepted if value of p in Hausman test is greater than 0.05, if value is less than 0.05 then H_0 will be rejected. The test shown that the p value is less than 5%, then we can consider the fixed effect model more appropriated and more efficient then random effect model. In that case we can justify that the KPIs of Cement industry have a significant relationship with systematic risk.

CONCLUSION

This study was conducted to analyze the impact of KPI's on systematic on cement industry in Pakistan. The finding of this study, related to systematic risk is very fruitful for BOD, CEO, investors and financial policy makers. In investor point of view is very important and as well as financial policy makers should take them into account at the time of policy making. This study employed the relationship among systematic risk and KPI's. Nine explanatory variables (Liquidity, Leverage, Firm size, Profitability, Operating Efficiency, Growth, Dividend Payout, Tobin Q, Chin Model) have and both positive and negative also inversely effect on determinant of systematic risk. Being a panel data we applied different panel tests on data. The results of unit root test shown that the KPIs/ explanatory variables are stationary at level. The descriptive statistics shown summarize form of data in a meaning full way. The finding of regression technique shows the aggregately our

explanatory variables have statistical significant impact on systematic risk.

The finding of this study is helpful for investors, top management of companies (CEO, CFO, BoD) and policy makers. To understand the situation and to tackle the problem those occurs in the market and indirectly affect the company performance. In modern era, the financiers/policy makers day to day face the problem of the fluctuation in the stocks and companies performances. This study helps those stakeholders to understand the nature of risk and its solution to reduce. As a result of good performance of companies and financial market that ultimately the economy of the country will grow in a better way.

This study is specific address the cement industry due to convenient sampling it may not be generalized on whole population. In this study we used only financial variables (KPIs) for analyzing the systematic risk, in this regard we can't be apply our results economic perspective.

To meet the future need, it is important to expand the study area by including financial & Non-financial industries, in order to carry out a comparison of the results with other industries. To determents the systematic risk by using the economic variables and as well as the comparison between financial and economic variables.

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Table: List of Variables

Type of Variables	Name of Variables	Measurement of Variables
Dependent Variable	Systematic Risk (Beta)	= Slope(First Value/Second value -1)
Independent Variables	Liquidity	$Quick\ Ratio = \frac{Current\ Ratio}{Current\ Liabilities}$
	Leverage	$Debt\ Ratio = \frac{Total\ Debt}{Total\ Assets}$
	Firm Size	$LN = (Total\ Assets)$
	Profitability	$Return\ of\ Assets = \frac{Net\ Income}{Total\ Assets}$
	Operating Efficiency	$Assets\ Turn\ Over = \frac{Total\ Revenue}{Total\ Assets}$
	Growth	$Annual\ \Delta\% EBIT$
	Dividend Payout	$DP\ ratio = \frac{Annual\ Dividend\ Payout}{Net\ Income}$
	Tobin Q	$Tobin\ Q = \frac{Total\ Market\ Value\ of\ the\ Firm}{Total\ Asset\ Value}$
	Chin Model	$CHIN = \frac{(Nit - Nit - 1)}{(Nit + Nit - 1)}$

APPENDIX**LIST OF SELECTIVE COMPANIES OF CEMENT INDUSTRY**

CEMENT INDUSTRY		
1.	ACPL	Attock Cem Pak Limited
2.	BWCL	Bestway Cement Limited
3.	LPCL	Lafarage Pakistan Cement Limited
4.	CHCC	Cherat Cement Company Limited
5.	DNCC	Dandot Cement Company Limited
6.	DGKC	D.G Khan Limited
7.	FCCL	Fauji Cement Company Limited
8.	FECTC	Fecto Cement Limited
9.	GWLC	Gharibwal Cement Limited
10.	KOHC	Kohat Cement Limited
11.	LUCK	Lucky Cement Limited
12.	MLCF	Maple Leaf Cement Factory
13.	DCL	Dewan Cement Limited
14.	PIOC	Pioneer Cement Limited
15.	ZELP	Zeal Pak Cement Factory Limited