

Determinants of Systematic Risk: An Empirical Investigation of the South Asian Countries

By

Hafiza Nayab Gul Cheema

A research thesis submitted to the Department of Management Sciences,
Capital University of Science and Technology, Islamabad
in partial fulfillment of the requirements for the degree of

**MASTER OF BUSINESS ADMINISTRATION
(FINANCE)**



**DEPARTMENT OF MANAGEMENT SCIENCES
CAPITAL UNIVERSITY OF SCIENCE AND
TECNOLOGY
ISLAMABAD
DEC 2016**



C.U.S.T.

**CAPITAL UNIVERSITY OF SCIENCE & TECHNOLOGY
ISLAMABAD**

CERTIFICATE OF APPROVAL

**Determinants of Systematic Risk: An empirical investigation of the emerging
Asian Countries**

by

Hafiza Nayab Gul Cheema

MBAG 143011

THESIS EXAMINING COMMITTEE

S No	Examiner	Name	Organization
(a)	External Examiner	Dr. Amir Shah	AIOU, Islamabad
(b)	Internal Examiner	Dr. Jaleel Ahmed	CUST, Islamabad
(c)	Supervisor	Mr. Ahmad Fraz	CUST, Islamabad

Mr. Ahmad Fraz

Thesis Supervisor

Dec, 2016

Dr. Sajid Bashir

Head

Department of Management and Social Sciences

Dated : Dec, 2016

Dr. Arshad Hassan

Dean

Faculty of Management and Social Sciences

Dated : Dec, 2016

DEPARTMENT OF MANAGEMENT SCIENCES

Disclaimer

This report is submitted as part requirement for the degree of MBA at Capital University of Science and Technology, Islamabad. It is the product of my own labor except where indicated in the text. The report may be freely copied and distributed provided the source is acknowledged.

**CAPITAL UNIVERSITY OF SCIENCE AND
TECHNOLOGY
ISLAMABAD
DEC 2016**

Certificate

This is to certify that Ms. Hafiza Nayab Gul Cheema has incorporated all observations, suggestions and comments made by the external evaluators as well as the internal examiners and thesis supervisor. The title of her Thesis is: Determinants of Systematic Risk: An Empirical Investigation of the South Asian Countries.

Forwarded for necessary action

Mr. Ahmad Fraz
(Thesis Supervisor)

ACKNOWLEDGEMENT

All praises to Almighty Allah, The most Gracious, Compassionate and Ever Merciful, who endowed me with the potential to complete this research.

I would like to express some words of gratitude to people who contributed in some ways to its achievement.

First and foremost, I want to express my deepest gratitude to my supervisor Sir Ahmad Fraz for having given me the opportunity to work on this exciting research topic which left the others in wonder about such a difficult topic. The work was only possible because of his efforts. I am also grateful to him for the time he spent listening, reading and commenting my works, and also for his many constructive criticisms that enriched me. Also, the constant direction and availability of him to support me throughout has been phenomenal.

And a huge thanks to all my other teachers especially Ms. Khansa Zaman for their constant support and guidance.

I would like also to address personal thanks to all the lovely friends for their advice and I met during my stay at Capital University of Science and Technology, Islamabad.

In random order: Aqsa Anum, Mahnoor Zafar, Waqar Bangash..... Thank you for your friendship and for the wonderful and memorable moments spent together!

Last but not least, love and thanks to my family for their endless love, support and encouragement during all my studies.

Table of Contents

1	Introduction:	1
1.1	Theoretical Background:	2
1.1.1	The Modern Portfolio Theory:	3
1.1.2	Capital Asset Pricing Model:	5
1.2	Problem Statement:	6
1.3	Study Question:	7
1.4	Study Objectives:	7
1.5	Significance of Study:	7
1.6	Plan of the study:	8
2	Literature Review:	9
2.1	Dividend Yield:	12
2.2	Earnings to Price Ratio:	16
2.3	Price to book ratio:	19
2.4	Government Surplus:	21
2.5	Credit Ratings:	24
2.6	Exports:	27
2.7	Stock market Capitalization:	28
2.8	Tax:	29
2.9	Term Spread (long term GB minus the short term yield):	30
3	Data Description and Methodology:	32
3.1	Data Description:	32
3.1.1	Variable Description:	32
3.2	Model Specification:	36
3.3	Measurement of Variables:	39
3.3.1	Exports:	39
3.3.2	Government Surplus:	39
3.3.3	Credit Ratings:	39
3.3.4	Dividend Yield:	40
3.3.5	Term Spread:	40
3.3.6	Price to book ratio:	40

3.3.7	Earnings to price ratio:	41
4	Empirical Results and Discussion:	42
4.1	Descriptive Analysis:	42
4.2	Correlation Analysis:.....	44
4.3	Regression Analysis:	46
4.3.1	Regression Using Macroeconomic Variables as Independent Variables:	46
4.3.2	Regression Using Financial Variables as Independent Variables:	48
4.3.3	Regression Using Macroeconomic and Financial Variables as Independent Variables:.....	50
4.3.4	Pool Dummy Regression using Macroeconomic and Financial Variables with Base Country Pakistan.....	53
5	Conclusion and Further Recommendations:.....	56
5.1	Conclusion:.....	56
5.2	Future directions.....	57
5.3	Policy Recommendations:.....	57
	References.....	58
6	Appendix:	66
6.1	Definition of the Variables:.....	66

1 Introduction:

The riskiness of any venture or an investment is associated to ambiguity, which is linked with the expected result from that particular investment. Moreover, the aggregate risk of endowing in a stock is made up of two distinctive types of risks. The certain type of risk that can either be handled or dealt with is known as unsystematic risk which is related to the company or firm associated with it. Whereas, the stock market and the share prices are vulnerable to the external threat that can neither be eliminated or diversified. This kind of risk is acknowledged as the systematic risk and the common measure of this systematic risk is the beta. On the other hand, a conceivable different hypothesis would consent to the systematic risk of any company's stock to show a discrepancy in the course of occasion as it is affected by the external environment in which it is operating. Such distinction may crop up all the way through the pressure of what's more of the causes concerning to the economic circumstances of the state at the outer perspective. It also may be due to the dynamics of the financial institutions carried out in the stock market. And somewhat could be due to some alterations in the features of the surroundings affecting any firm in an asymmetrical or jagged manner such seeing that the cadence of inflationary effects, and prospects a propos pertinent to upcoming affairs. The variation in the systematic risk has up to that time been worn out as a result of a numerous studies (Jacob, 1971) and (Blume, 1975).

The concern in this study is the second type of risk that is known as the systematic risk and its determinants. While taking into account the modern theory of portfolio management, the beta or the systematic risk holds the centre and is of great importance to consider for. Systematic risk is a combination of certain risks including the business, financial, country, liquidity and exchange

rate risk. The modern portfolio theory considers the systematic risk as a great concern of investment.

It has been observed that the security prices are also affected by the macroeconomic variables. These economic activities are reflected in the share returns and eventually we see a connection among the returns of the stock and the macroeconomic variables for that reason a significant association exists among the stock market returns and economic variables (Fama E. F., 1981). The macroeconomic factors contribute to the determination of systematic risk including tax revenues, government surplus, equity market capitalization, exports and imports while referring to GDP, the credit ratings, money supply growth and inflation (Patro, Wald, & Wu, 2002). It has been long debated by economists that constructive liaison between a country's commitment in international trade and its economic performance.

The objective of this study is to identify the factors affecting the systematic risk and determining which factors are directly linked to the increase in beta (β) and which factors have an inverse relationship. In the study different micro and macroeconomic variables are used to determine the systematic risk. It also aims to determine how the international trade affects the systematic risk of a country as it is involved in the direct relation of exchanging with other countries.

1.1 Theoretical Background:

The evolution of the modern portfolio theory presented for the first time laid down the foundation of finance as a separate discipline which was previously treated as a part of micro-economics. Therefore, when crafting the perfect investment, its features incorporate maximum returns tied with little risk.

1.1.1 The Modern Portfolio Theory:

Harry Markowitz presented the Modern Portfolio theory in 1952. The theory articulates so as to enlighten that it is not adequate enough to come across at the expected amount of the risk and return of whichever scrupulous stock. The advantage of diversification can be obtained primarily by an investor by means of endowing in more than one stock, resulting in the diminution in the riskiness of the portfolio. When the investor does not intend to put all eggs in a single basket then it is claimed that the benefits of diversification have been counted for. In the literal context, if all the investment is not put in one type of industry, then the risk would be reduced to a minimum level that is hard to avoid. The return that the investors will obtain is slighter and lesser than the expected amount whereas the risk aligned with it is assumed to be higher for the widely held mindset of the investors. This is considered as a deviation and variation from the usual return in other terms. He defines “risk” of any stock as it having a certain standard deviation from its mean.

Any risk that is associated with any individual stock is supposedly higher than when such individual stocks are bound together in a portfolio. This risk of the formed portfolio is significantly lesser than the individual stocks if considered separately (whereas it is considered that the risks associated with different securities are inversely related). When any investment is to be done, it not only means the selection of stocks merely, however also determining what is the spot on perfect merging of stocks amongst which to invest for the minimum amount of risk and resulting in the maximum return. The investment needs to be made in the industries that are totally divergent of each other and they possess the minimum correlation between them. The theory also explained that there are two different types of risk: **Systematic Risk:** The risk that can neither be eliminated nor diversified since it is associated with or in close relation to the

market. **Unsystematic Risk:** The association of risk with the involvement of individual stocks and the number of stocks added up. This risk is purged by increasing the number of such individual stock in the portfolio. The significance of such a risk and its elimination is in fact linked to some certain factor of any stock's return that does not get affected with the general shifts in the market behaviour. It is also known as definite or particular risk. For a strongly varied portfolio, the risk or the average divergence from the mean of apiece stock donates minute to the portfolio risk. In its place, it is the differentiation or the covariance between a single security's intensity of risk which facilitates the determination on the whole of the portfolio risk. As a consequence, depositor or investor gets advantage from having a diversified portfolio instead of single stocks.

For a certain investment, to have its risk at a minimum level that is linked to the certain security, the concept of diversification was introduced. The people who want to wallop the market which is inflexible as much as necessary are those individuals who are not only willing to take risks but they also incarcerate the risk is above average. This is known to be the gist of modern portfolio theory. When the market turns along to the path and accordingly, such risk bearers will get their reprisal alongside it.

The modern portfolio theory gave birth to a type of risk known as the systematic risk which was referred to as co-variance risk or common risk. The theory stated that risk can be diversified if the correlation between the selected securities in a portfolio is negative, the more positive the correlation, the less would be the advantage of diversification. (Markowitz, 1952) From the grounds set by Markowitz; it has been acknowledged and identified that the risk that is relayed to any security or portfolio of securities is the systematic risk but no further information was given

regarding the factors affecting systematic risk or how this risk is to be calculated. The portfolio theory is rather the allocation of resources according to the set amount of risk that each security possesses individually and collectively. Markowitz also gave the efficient portfolio frontier. This frontier constitutes those given portfolios formed in sets with the intention of putting forward lowly risk at a prearranged level of return or presumes the maximum return at a specified level of risk so as to help in the arrangement of an optimal portfolio. So the work of Markowitz was further extended by **William Sharpe**.

1.1.2 Capital Asset Pricing Model:

In stability, if the investor wants to pursue the articulated method (principally diversification), the capital asset prices have been attuned accordingly, so any desired point of reference in alignment with the capital market line (CML) is to be achieved by the investor. By carrying on with the added risk, the investor may be able to achieve on his choice of assets, the gain on the return more than he has anticipated. As a consequence, two prices are given by the market: the risk-free rate that can be thought of as the pure interest rate or the price of time where the individual will incur no risk and secondly the price of risk which the individual will abide by on every additional unit. A straightforward linear relationship would manage to survive between the two variables among which the relation is to be determined and the variables include the standard deviation or the risk associated with the return for the adept blending of such assets that are risky in nature to maintain the balance and the expected return on such assets. However, the ineffectiveness of the undiversified individual assets can just be determined by observing that the values of the standard deviation and the expected return of such individual assets will stretch out on top of the capital market line (CML). It would be scattered throughout the feasible region with the purpose of explaining that a relationship between the systematic risk instead of the total

risk associated with the assets and the expected returns of the assets involved exist. By the identification of the security market line (SML), this relationship was identified of single securities. So in order to minimize or diversify the risk certain risk free securities needed to be included in a portfolio as the quantity of non-divergent risk of an asset depends on its covariance with other assets forming a market (Sharpe, 1964).

The assumptions of the expansion done by (Lintner, 1965), (Sharpe, 1967) and (Mossin, 1966) on the mean-variability approach are as follows: All investors may have access to and let somebody borrow freely at a risk-free interest rate that is commonly being used, and all are agreeable to use indistinguishable approximation of security standard deviations, its co-variances and the expected returns.

This expansion has one of the basic implications that of any individual security or portfolio's systematic risk, in lieu of the inclination of their returns to oscillate with those of a portfolio made up of all the securities in the market in accordance to their total outstanding values, is the assessment of risk pertinent to the investors. It is that part of risk which exists even when a certain security joins up with others to structure a proficient portfolio, however all the unsystematic or residual risk is diversified or reduced. Thus, under the supposition of the model, the systematic risk presents all crucial and essential information about security risk for the selection of optimal portfolios. (Treyner, 1965)

1.2 Problem Statement:

In spite of many studies being done in the area of systematic risk and its determinants, the main focus of the previous studies was to identify the determinants internationally on the developed countries such as the OECD countries whereas, the focus of this study is to determine the factors that affect the Asian Countries where the corporate models are different as compared to the other

foreign countries. Also, the markets that are the focus of this study are the developing, emerging markets of South East Asia where the dynamics of the market affairs that are affecting may possibly be diverse from the factors that affect the developed markets as compared to the emerging ones. The study is being carried out to understand how these emerging markets are moving with the changes in the world market conditions and how the international trading would affect the systematic risk of the country involved.

1.3 Study Question:

- What are the different factors that affect the systematic risk?
- Whether different systematic risk is same in emerging Asian markets

1.4 Study Objectives:

The objectives of this study are as follows:

- To identify or categorize the factors that affect the systematic risk
- To determine whether the different emerging Asian markets are exposed to the identical extent of risk made up of such factors.

1.5 Significance of Study:

The study aims at analyzing the certain factors that affect the impact of systematic risk across different countries. It has previously been conducted but for the developed markets. The study focuses on determining the factors that have an impact on the emerging markets of Asia. Since the South East Asian markets are still under the process of getting developed, they still need a lot of attention and focus to understand what factors are affecting the markets in which the securities are traded and how the fluctuations in the world macroeconomic factors would affect these markets and the undiversified risk associated with it. Therefore, it has been argued that

systematic risk not only varies across countries but also across industries. But in this study the main focus is to pay attention to the factors that affect the country as a whole and not only some industry as the developing countries are exposed to different risks than the developed and fully functional countries. The spatial context is what is different from the previous studies.

Furthermore, the study will help the portfolio managers in understanding that market risks are different across different countries especially between the emerging and fully developed markets and what the causes of these differences are. This relationship between the macroeconomic factors and the systematic risk across various countries can facilitate the policy makers of different countries that are considered in the analysis as it would help them understand that the market is prone to which macro factors and how the risk is to be reduced. The study would also be beneficial for the investors from all over the world who want to invest in the South Asian markets in determining the predicted sensitivity a local equity market will have to the world market. Moreover, the study would help the policy makers to implement new policies by the use of macroeconomic policies in order to influence the betas and equity returns.

1.6 Plan of the study:

The study is organized and divided in a set pattern. The first section of the study includes the introduction, theoretical background, research questions, objectives, problem statement and significance of the study. The second section puts light onto the literature review of the variables involved. Subsequently, the next section includes the data description and the methodology employed. The fourth and next section gives explanation in detail about the empirical results and its discussion. The following fifth section gives details regarding the conclusion, further directions and policy recommendations. And lastly, is the appendix.

2 Literature Review:

Risk by means of explanation can be read between the lines as a probable apprehension of the divergence linking the return on investment asset through a price up to that time anticipated to turn out. The larger the expanse (distinction) of the return price is projected to crop up (likely return) to its real value will be acknowledged (actual return), the intensified the risk of the investment assets. Risks are capable of commencing from a multiplicity of causes. A number of sources with the intention of may possibly confer an augment to risks, along with others: the interest rate, the market conditions depicting the rate of inflation, quantity of corporate liability (debt) levels, the altitude of liquidity (convertibility) of investment assets, ebb and flow in currency values and the political and economic conditions. All the causes with the intention of having a say on the risk of investment can be clustered into two sorts of risk. These two types of risk are: Systematic risk which defines to facilitate that this risk cannot be detached and attached to all on hand investment instruments. The reason for the occurrence of this type of risk is owed to macro economic factors (market). The second is the non-systematic risk that is distinctive to every asset investment; meaning so as to explain that any assets may have diverse risks.

Systematic risk (beta) is of great significance in capital markets study. At the same time price unearthing and sighting and market comprehensiveness every now and then are pointed out as validations for the subsistence of conditionally argued markets, risk alteration is the for the most part recurrently advocated advantage. The Modern Portfolio Theory (MPT), invented by Markowitz (1952), defined and determined with the aim that firm-specific (unsystematic) risk can be get rid of all the way through the appropriate diversification of one's portfolio. Market (systematic) risk, on the other hand, cannot be eradicated from beginning to end through diversification. In a lot of speculation state of affairs the manager would be pleased about

opportunities to eradicate or abolish market consequences as of individual stock returns or to transfer the intensity of systematic risk innate in a portfolio promptly and on a shoestring. In both occasions stock index futures can be useful. For the portfolio manager it is important to call attention to stock assortment, one apprehension is that inauspicious market dynamics may perhaps make up for constructive firm-specific recitals. Attracting the suitable stock index potential spot may cut off this manager's portfolio as of undesirable market upshots. As well, stipulating the manager's emphasis that focuses on traumatic timing aptitudes, stock index futures make available a well-situated technique to fine-tune the kindliness of a specified portfolio to market associations. Not including the future convention, managers may perhaps bring upon themselves considerable transaction charges to poise a portfolio in the existence of altered market estimations (Graham & Jennings, 1987).

It is important to determine and testify the economic effects and the preferences made by the new standards set by accounting measures so as to consider the force of "announcement effect". The determinant of the comparative expected return of any individual security or portfolio is the beta solely, "nonsystematic risk," the portion of variance of return for the coming period that cannot be given in details by beta and the investor cannot look forward to the reparation of any compartment if the return of the market is something that is unexpected. Therefore (unless an investor has his or her own estimates of intrinsic value), at any level of systematic risk, the nonsystematic risk of the portfolio should be minimized. However, errors in beta are the equivalent of extra nonsystematic risk. Thus, accurate forecasts of beta help the investor minimize nonsystematic risk (Lawrence & Jules, June 1985). The measure of systematic risk is characterized as the beta which shows a sign of the enormity of any single security's allegiance or covariance by way of the market or understanding to the market's fluctuation. The rapport

between the performances of the stock market and the any individual or particular firm's decision making is explicitly explained by the importance of beta. The systematic risk for any security or firm is adjusted when the investors show less confidence in the firm or security and hence demote the firm's credibility by lowering its expected expectations of the likely returns, therefore as a result of any firm's bad decision making regarding any particular environmental change. When the expected risk rises, it is resultant that the supposed value of the firm's stock would fall and the likely return would also be lower as compared to a firm with low value of the systematic risk or the beta (Eldomiaty, Dhahery, & Shukri, 2009). The classification of the factors contributing to the systematic risk is decisive as compared to the unsystematic risk which can be branched out by the use of portfolio creation causing diversification in order to construct triumphant decisions regarding the investments made by the investors and the unbeaten risk management. The understanding of the beta and its factors contributing to its value are into the consideration in the long-standing part of the apprehension and is still an area that is being addressed till the time to further evaluate and determine the features of the risk that is undiversified (Chiou & Su, 2007).

In terms of the beta factors, the impact that the country and industry has on beta is not unavoidable and is thus extensive therefore, constituting that the risk associated is not constant and is ultimately variable. The examination of the features of risk in the hospitality industry and the gambling triumphs are also being carried out and state that the risk does vary across the industries (Foster, Kasznik, & Sidhu, 2012), (Chen, 2013), (Shin, Hancer, Leong, & Palakurth, 2010), (Boz, Carlota, & Orgaz-Guerrero, 2015).

Any firm's financing, operating and investing policies can impinge on its business dealing and financial risks that would eventually affect the overall systematic risk of the market or industry

where the firm is operating. Any company's systematic risk is the result of the pressure of the risks transferred by the business and the financial risk that is eventually relayed by the operating firm's executives that are in incrimination of any of these decisions (Mao, 1976). The risk of any firm's stock and its characteristics related to return can modify due to the changes made by the management of the firm in its decisions regarding the finance options of the firm, the decisions regarding the operations of the firm and from where the financing is to be done but in essence it mostly affects the overall risk associated to the stock as faced by the investor which is the systematic risk (Breen & Lerner, 1973). The value of the firm is to increase or decrease resulting in either the enhancement or decrease of a firm's value. For that reason, it is stated that there is a linkage between the overall market value of the firm stock with its commercial behavior due to the risk that the firm possesses as a result of the market association known as the beta. Studies have been carried out to find out the factors that make up the beta. Some of the earlier studies put in to attention the relationship and correlation of the financial variables affecting and making up the variables that represent the company including certain ratios of operating efficiency, profitability, liquidity, dividend payout, firm size, debt leverage and growth in specification. Few of such practical studies show the relationship by using multiple regressions having the firm specific variables as the independent ones to affect the beta as being the one to be impacted.

Most studies have focused on one or more definitions of 'value' in bringing together the significant portfolios. Three of the most accepted processes that are in use to take account of the changes in beta include the ratios of price earnings, price-book and the dividend yield ratios.

2.1 Dividend Yield:

For forty years the matter that can dividend yields be used to predict the stock returns has been investigated.

The argument over the significance of dividend policy is primarily put forwarded by Miller & Modigliani (1961), who asserted with the intention of giving a picture of a world of ideal capital market, the imbursement of dividend encompasses no considerable outcome on the firm's worthiness and as a result dividend hang about at the side of the point of consideration. In such a world, the worthiness of any firm relies barely on the giving out of future cash flow as an end result of investments being carried out.

The investigation began when in 1956 Walter started to question about the relationship between dividend yield and common stock prices.

Dividend endow with a quick look of firm's presentation for the investors as well as the capital market. It is for the reason that the firm's share price in some measure depends on the dividend payment's prototype (Huda & Fara, 2011). By tradition, finance studies call attention to the expansions for dividend to facilitate the purpose that is made on the foundation on the aspiration to exchange a few words in a sequence to the shareholders (Allen & Michaely, 2003). In toting up, dividend giving out entails the development, growth, steadiness and permanence of any firm. The more high the dividend imbursement, the more will be the reassurance investors will enclose in the direction of the relatable firm.

The outcomes of this investigation have been varying. There is no or only some minor proof that indicated the relationship of dividend yields and stock returns to be a positive one. One proof for the positive relationship is found by Fama and French (1988) and Hodrick (1992).

A constructive association flanked by the profitability of the firm and its dividend policy is anticipated (Lintner 1962). Rationally, the firms that are profitable would disburse extra dividends in view of the fact so as to determine that dividend is consequential from once a year profits. The return on investment is used as a process to evaluate the profitability extent of the

dividend that is paid by the firm, in a range to find out whether the prosperity and success of any firm is influenced by the amount of dividend it pays off. Shirvani & Wilbratte (1997) categorize three variables or determinants that quantify the capability of a firm to disburse dividend, that is to say: the cash flows of a firm, its current earnings and the stock prices that the firm has. Their outcomes hold up the Lintner's model. What's more is that, the study hit upon with the purpose of explaining that the current earnings are superior at illumination of the long-run dividend whilst put side by side to hard cash liquid amount.

The dividend that is paid by the firm to its shareholders has an important factor that affects the amount of dividend paid. It is the earnings that the firm earns after paying off all the taxes that were borne upon it. This amount that is to be disbursed stands for the predilection to the dividend that is to be distributed and this earning has a positive association with payment of the dividend. High dividends usually come from the firms that are relatively more profitable than the firms which are less because the higher the profits, more is the earnings and more is the dividend.

The dividend policy of any firm, forever and a day, vestiges the contentious matter for the studies and investors to further investigate. An immense problem on the subject of dividend is whether any dividend paid by means of a firm has in the least impact taking place on the stock market happenings or not? One more question appropriate, important and significant to dividends is whether it affects the prices of the stock in the long run? This matter necessitates being resolved. On the whole dividend is the earnings of the shareholders; it is represented the same as sharing of business earnings to its owners. Dividends are imperative for not only investors but managers as well (Khan et al., 2011). Dividend is the basis of income and at the same time the extent of company routine intended for the investor. Dividend yields give you an idea about how much to a great extent companies disburse the profits or the retained earnings

every year to its shareholders in the form of dividend. The given profit or the dividend's more often than not remunerated in cash, but it also has various forms of reimbursement that could either be given in the form of some more stocks to the shareholders or could be upgraded into the voting rights and also it could result in the shape of any form of asset of the company possession. The payout policy for the dividend is not same among the nation states. The dividend payment and announcement pattern varies among different places such as in New Zealand the majority or five less than hundred percent i-e; 95% announce their dividends (Lilley, 2000), and in the United States only one fifth of the companies announce or pay their dividends to the shareholders (Chen and Dhiensiri, 2009). In the years 2005 and 2007, no more than forty five percent (45%) of the companies rewarded their profits in the form of any stock or extra stock worth or any upgrading of the shares and any form of cash in Jakarta Stock Exchange (JSX Statistics 2007). Correspondingly the previous studies have shown that the payment ratios and the payout policies of the companies and the companies is very much inconsistent and along with that along with that the blow of any kind of such determinants or variables in the amplification of the distinction in stock prices.

According to the financial theory explanation the higher the dividend payout the more negative is the likely impact on the systematic risk or there exists a negative relationship between the two, leading to the explanation that the investors feel somehow confident of the returns from their invested stocks due to the high prices of their stocks (Lope & Merville, 1972). Another reason could also be that the higher the dividend payout ratio the lower is the agency cost (Ang et al., 1985). For that reason, it is stated that the systematic risk is inversely associated with the dividend payout ratio. Scores of observed previous studies have corroborated the negative relationship between the systematic risk and the dividend payout ratio (Pettit & Westerfield,

1972), (Beaver et al., 1970), (Borde, 1998), (Breen & Lerner, 1973), (Ang et al., 1985), (Melicher, 1974), (Rosenberg & McKibben, 1973). (He & Ng, 1998) have found out that the firms that are highly leveraged or those who pay large dividends are less expected to be exaggerated by the exchange rate exposures thus they are negatively related to the systematic risk.

H1: There is a significant impact of dividend yield on systematic risk.

2.2 Earnings to Price Ratio:

In the study of the relationships of the price and earnings of the stocks and the responses of the earnings coefficients an important is played by beta, in which the values are being generated by the changes in the stream of earnings and along with that in the valuation models of accounting (Feltham & Ohlson, 1995) and (Ohlson, 1995).

The earnings to price ratio shows the relationship between the earning per share of the stock and its price. We are using the reciprocal of price earnings ratio so as to avoid the problem of zero earnings per share of any stock. This ratio is by and large used by the investors in order to determine the stocks in which they want to invest in the future. They also put forward with the purpose to give you an idea about the companies encompassing high growth, following-on that the earnings are as well soaring and high, whereas, companies having little and low growth, in a retort the earnings reported by such companies are also low. However, when two or more firms having same earnings, same size and ironically belonging to the same industry possibly will be having their earnings to price ratios poles apart. It is put forward that these discrepancies may take place for the reason that the anticipations of the investor about the upcoming earnings of any particular firm are either high, resulting in high earnings and consequently their earnings to price

ratio or low (negative), resulting in low earnings and ultimately leading to weaker earnings to price ratio (Arsalan & Zaman, 2014).

The earning-price ratio (EPR) outcome affirms to facilitate that the firms in the midst of low down ratios sandwiched between stock earnings and stock prices over and over again endow with elevated returns than those by way of high earning to price ratios. This effect is only acknowledged and predicted for the United States Stock Exchange market by Nicholson (1960). Basu (1977) gave the studies and investors an idea on the subject of with the intention of that this consequence remains constant subsequent to the stock returns when they are in step by means of beta risk in favor of the New York Stock Exchange (NYSE) for the duration of the phase of 1957-1971. (Fama & French, 1992) bring to a close that the earning to price ratio is noteworthy whilst there is the only one of its kind and inimitable amplified variable intended for the cross-section of stock returns, but its connotation fade away as soon as book-to-market ratio is in addition fully taken into consideration, for the New York Stock Exchange and the American Stock Exchange (AMEX) stocks for the period of 1963-1990.

The earnings to price ratio with the intention of a signal that it is the earnings manifold component, is a quantification of the price remunerated in favor of a share in accordance to the proceeds or profit be paid as a result of the earnings of the firm for every share. The initiation of the relationship between the earnings and price was explained in a well established text of security analysis that was written by Benjamin Graham and David Dodd (1934). The earnings to price ratio (EPR) give the impression of being at the association sandwiched between the company's earnings and the prices of the stocks that are determined for that period. It gives you an idea on the subject of how much to a great extent the investors are prepared to recompense per dollar (or any other currency) of the earnings. It has extensively been accepted and considered as

a standard as being one of the majority constructive financial pointers or indicators for the assessment of mutually the stock markets as whole and the individual stocks as well.

Jain and Rosett (2001) follow a line of investigation and did study on the association flanked by macro-economic variables and the earnings to price ratio. In the study model that they developed and investigated, more to the point the expected inflation ratio, the real interest rate, the expected real growth rate of GDP and curvature gradient of financial revenue, the consumers' responses were well thought-out as well. The results give you an idea about the variables with the intention of investigation no more than the anticipated inflation ratio and probable real growth rate of GDP have understandable outcome on illumination of the samples from 1952 to 2000. They bring into being the alteration with point in time of earnings to price ratio are not trouble-free and straight forward to be put in plain words by means of a invariable assemblage of macro-economic variables, and the consumers' sentiments are not a significant and noteworthy manifestation exposed of others.

Meant for the stocks Earnings to price ratios (EPR), Bai Na (2002) employed and exposed out to facilitate that the dividend payout ratio, the growth rate of earnings per share, the developed industry typical earnings to price ratio have the most important elucidating affection and impact on the stocks earnings to price ratios (EPR). Pragmatically connoting, a large amount of investors speak about high earning to price ratios of corporations by way of high-speed development of upcoming earnings. On the other hand, the possibility of risk that is very much coupled with the rapid growth is in addition awfully imperative and essential. They can offset one another. Intended for the case in point, whilst other fundamentals are one and the same in the assumption, the elevated the risk of a stock, the lower is its earnings to price ratio, other than that the raising growth rate can balance the increased risk, as a consequence showing the way to a

high earnings to price ratio. Earnings to price ratio becomes a sign of the coherent investors' anticipation on the firms' expansion prospective and risk in the upcoming events. The dividend payout ratios have an unswerving and undeviating constructive consequence on the earnings to price ratio. As soon as there is a far above the ground dividend payout ratio, the returns and stock value that the investors expected to rise will also rise, which will eventually lead to a high earnings to price ratio. On the other hand, the earnings to price ratio will be in the same way lesser. The earnings per share (EPS) is one more straight aspect, at the same time as its effect on earnings to price ratio is off-putting and negative. It is a sign of the association stuck between the size of the capital and the profit earning echelon of the firm. As soon as the profit intensity is the equivalent, the superior the size of the capital, the lesser the earnings per share will be, in that case the elevated the earnings to price ratio will be. The stock market is a sign of the macroeconomic ground rules; soaring anticipations of the investor can hoist up the prices of the stock, back to back the succession growth of the cumulative worth and significance of the entire market. Some other market behaviors can as well show the way to changes of average earnings to price ratios. For that reason, it is not viable that the typical earnings to price ratio is one and the same by way of the hypothetical one. Inconsistency stays alive as you might expect; the solution is to gauge a based on reason series for this variation.

H2: There exists a relationship between earnings to price ratio and systematic risk.

2.3 Price to book ratio:

The price to book ratio determines the market price of the share to its book value that is initially substituted to it. It tells the apparent worth of the share and how has growth impacted on it and what return does it bring to the investor. The past studies that have been done to determine the relation of the price to book value ratio to the growth and systematic risk or beta explains that

when the stocks that are having high price to book ratio are those that show that the stock is moving towards growth and therefore positively associated with the stock returns and being more prone to the growth it is less risky and hence negatively associated with the systematic risk or beta. Theoretically it has been estimated and proved by previous studies that beta and price to book ratio has a negative relation.

The relationship between stock returns and the market risk is beautifully explained by Fama and French in 1992. Certain tests were being conducted to determine the relation between risk and expected return as explained by the CAPM. It is found that if only size of the portfolio or stock is considered then there is a positive relation between return and beta. However, when the size is controlled by beta, then there exists a negative relation between the return and size and also there exists no relationship between beta and return of the stock (Fama & French, 1992).

In the analysis of the LQ45 for the period of 2004-2013 it has been analyzed that the earnings per share and the price to book ratio has a positive impact on the stock returns whereas this positive impact on return shows that the stock is more towards the increased nature showing that it is a well organized stock leading towards growth and in return giving high return and also when the returns are high it means that the stock is less dependent on the market and the market does not affect the stock in a harsh manner. This depicts that the market risk does not impinge on the stock resulting in a negative relation between the stock market beta and the stock's price to book value ratio (Dhika & Anggoro, 2014).

Another study is conducted to find out the relationship between stock's profitability, turnover and the market ratios with the stock returns and the beta. In alignment with other previously conducted studies, this study concluded that not only the profitability and turnover have the positive relation with the stock returns but also the price to book ratio has a positive relation with

the stock returns and along with that it has a negative relation with the market's risk or the beta. Therefore it has a negative coefficient with the beta (Dwi, Mulyono, & Rahfiani, 2009).

It is hypothesized that since stocks having high price to book ratios are often considered more risky due to high returns and it is expected that the relation of price to book ratio with beta has a positive coefficient but when the regressions were run it is shown that price to book ratio has a negative coefficient with beta (Patro, Wald, & Wu, 2002).

H3: There is a significant relationship between price to book ratio and systematic risk.

2.4 Government Surplus:

The relationship between the systematic risk and the government surplus is established by the initiative is with the intention that if nation states hold out a government surplus, in that case the tax load and the interest rate subsequent to tax will be there to uphold possibly on an added gainful stage, comparatively to a nation state redeploying a government shortfall or deficit. On top of the divergent, a budget that is superfluous entails a towering burden income tax to listed firms and a high disclosure to systematic risk (by means of the leverage effect) which show the way to an elevated value of beta. From where, it is looked forward to scrutinize a negative relation flanked by government surplus and the systematic risk or its common measure known as the beta. The negative relationship between the systematic risk and the government surplus has been put forth. It has been explained that the chances of business failures are reduced when the business has high profitability, and this reduced chances of failure has a direct impact on the systematic risk. It leads to the point that the higher profitability leads to the lower systematic risk (Lope and Merville 1972). The suggestion for a negative relationship between profitability and systematic risk have also been argued and been determined (Scherrer and Mathison, 1996). If considered in the country perspective, greater the government surplus, lesser would be the need

of the taxes to pay off debts, leading to more profitability thus having a negative relation with the systematic risk or the beta. The results that confirm the beta and government surplus is derived from the ratios that have been tested and proved. It has been stated and found out that more stable the cash flows that have been earned from the operations that are being performed which will lead to the reduction in the systematic risk is resolved to the conclusion that it due to the management's ability to administer the property in a profitable manner. The profitability ratios of the return on assets and the profit margin ratios have experientially showed that these two ratios are negatively associated with the beta. Therefore, the negative relationship between the government surplus and the systematic risk exists. It has also been supported by (Borde, 1998). However, there has also been established a positive relationships between the beta and the return on equity (Melicher, 1974). The theory supports that larger the firms, better is their ability to lessen the likely impacts of the changes in the political, social and economical environment which will lead the firms to have a low systematic risk (Sullivan, 1978). This ability of the firms to better manage the environment gives them the power to manage the market efficiently thus enabling them to achieve higher than anticipated profits that were not easily attainable in a more cutthroat competition of the environment (Moyer & Chatfield, 1983) and (Ang et al., 1985). The increase in the systematic risk has been hypothesized by the firm's ability to grow and expand in a fast and rapid manner. However, the faster the growth more would be the competition that would be faced and the firm would be more vulnerable to the economic fluctuations (Lope and Merville, 1972). Nevertheless, it has been explained that the firms that are more growth oriented as seen as to be acquiring extensive and sizeable risk by the investors who are likely to invest in these firms (Idol, 1978). The supposition of higher growth and extensive risk has been experimented by determining the relationship between the systematic risk and the annual growth

in total sales. The systematic risk is increased and decreased by a number of factors such as that the growth and the debt leverage tend to increase the systematic risk. On the other hand, the size of the firm, its dividend payout ratio and the efficiency in the operations tend to decrease the coefficient of the systematic risk. In certain instances, the findings are said to be full of loopholes regarding the impacts of the liquidity and profitability on the measuring of systematic risk (Zheng & Hyunjoon, 2002). It has been proposed by many previous studies that the debt leverage of any firm leads and render the shareholders and overall company to an increased systematic risk. The IAPM spells out the relationship that any given asset's return that is expected is supported by the co variation of such an asset's likely return on the portfolio of the world market. It also depends on the co variation of any asset's return with the returns of having from the rates of the foreign exchange. The investors would be having different returns that would be real form them of the same asset due to the impact of the purchasing power parity theory which explains this additional amount of the exchange risk factor (Adler & Dumas, 1983) and (Stulz, 1981). The manners of performance and the relationships that the equity betas have with other variables have been studied over the time period. It has been found that with a constant model of coefficient the equity beta is less consistent whereas, for a model of random coefficients the equity betas turn out to be more consistent (Fabozzi & Francis, 1978). Along with that the assumption of the fixed beta has been nullified (Sunder, 1980). The process of the equity beta has two separate and diverse constituents. One is the pure random component that is completely independent. The other is the auto regressive component (Collins, Ledolter, & Rayburn, 1987) and (Ohlson & Rosenberg, 1982). The results have pragmatically shown that more the firms are highly leveraged, more unpredictable are their betas and due to this the changes in the interest rates are tend to be even higher and large (DeJong & Collins, 1985).

Generally concluding, it is stated by the experimental relations that the equity betas are highly unpredictable and are non-stationary. Also the range of unsteadiness differs not only across time but also across firms (Gwangheon & Sudipto, 2007).

H4: There exists a relation between the government surplus to GDP ratio and the systematic risk.

2.5 Credit Ratings:

The credit ratings of a country reflect its ability to pay off its debts. It tells how much of a default risk a borrowing country has to face in order to return the debts it has already borrowed from other nations. Optimistic and affirmative ratings incident, for instance, an unambiguous and precise improvement of the credit ratings or some advancement in the credit position of a country, may indicate a pervasive familiar trend, as a consequence leading to a wide-ranging impact of lessening the interest rates in favor of every single one of other nation states. This is generally passed on as the common information effect. On the other hand, any such happening or some sort of good information may make known with the intention that the country in which the occurrence has taken place, would ultimately augment its magnetism that attract other investors at the price of all the other nation states. As a consequence, it would eventually lead to an increase in the field range of the interest rates of the other countries involved. The succeeding causation is termed as competitive effect. In addition, a few specified rating events possibly will be full of both the competitive and the common information effects. But, when the rating events are informative in nature, they would directly impact the beta of the country involved in the manner, that the better the ability of the paying off of debts of any country, the lesser would be the risk associated with the investments done in the country of the happening. Consequently, it

would also impact other nations in the same manner, as the interest rates would also be lower due to the bandwagon effect of the information passed.

Whereas, it would also impact the other nations in the manner, if the competitive effect is to take place, such as the country in which the event of enhancement of credit rating has taken place would lead to the alternative attraction to itself, ultimately resulting in the lower risk and beta for itself and consequently, due to the competitive environment, resulting in the increase of interest rates of other adjacent countries. This leads to the actuality with the intention of the better credit ratings, lower would be the interest rates and the low value of beta is to be obtained as the final result in the long run. (Gande & Parsley, 2003)

The credit ratings of a country determine its ability and prospect of any nation state to fail to pay the debts it is obliged to pay from a multiplicity of viewpoints. The considerations include the government's solidity to bribery and fraud, the immovability and strength of the exchange rate, the growth in the GDP (considering the real instead of nominal) and some others. As a result, these ratings are a sign of the political, economical and financial essentials of any nation commencing a futuristic point of view (Sari, Uzunkaya, & Hammoudeh, 2013).

The association among the sovereign credit ratings and expected returns can be used as ex ante determinants of primary risk components. This relation among these two can be used to determine the difficulty rates for ventures of standard risk in the emerging economies where the investment is to be done (Erb, Harvey, & Viskanta, 1995).

Any country's credit ratings and the financial position changes have a considerable impact on both the markets; bond and the stock. Any country's domestic relegation is connected with a normal amplification of 2% position in the spreads of the bond yield and a deteriorating in the value of the returns of the stocks by the difference of 1% point. Also the changes in the credit

ratings have a infected and spread out effect as well. Thus, countries whose credit rating would drop would have a negative coefficient of beta (Kaminsky & Schmukler, 2001).

Among the investigation of the aggregated stock market impact of the sovereign credit ratings and its changes it has been found out that while the up gradation in the credit ratings show diminutive substantiation of uncharacteristic conductive return, whereas the relegated credit ratings have a noteworthy and negative force on the country specific stock markets (Brooks R. , Faff, Hillier, & Hillier, 2004).

There exists a little negative impact on the stocks and also on the returns of the exchange rates and the involved predictability due to the demotion in the sovereign credit ratings, almost certainly for the reason that the changes in the ratings are determined by the markets and for that reason the prices have already discounted the information (Subasi, 2008).

Along with the four rating agencies that were scrutinized and observed, a considerable market downfall of the values is observed by a sheer diminution in the ratings given by either Fitch's or by the Standard & Poor's agency. No dissimilarity and divergence is brought into being flanked by changes in the ratings sensitivity as observed in the emerging markets and non-emerging markets. It has been found out that the changes in the joint rating do not pass on supplementary information to the market, putting side by side to single rating modification or revision which is successive to the investigative substance that has been observed of the forces of change in the ratings given by the two agencies; the Moody's and the S & P's.

In attention are more than a few *raison d'être* as to why autonomous credit rating changes have an influence on the state's return on the stock. One accepted argument is that independent rating downgrades bound the capacity and knack of all units contained by that country to have access of from worldwide capital markets and, as a result, add to their borrowing costs. In view of the fact

with the intention that a large numbers of the companies that have a loan abroad are huge companies, which are more often than not taking into account of in the amalgamated stock index, the far above the ground borrowing cost of such companies may possibly be an imitation or an echo in the companies' stock prices and, consequently, in the countrywide stock index. This is in particular spot on for the duration of the crisis and catastrophe phase when the turnover of previous arrears is significant for the continued existence of firms and banks. Stock prices crash down radically at that time when the companies cannot have a loan on constructive stipulations or else are unable to have the capacity to borrow if the sovereign ranking drop less than the investment mark or grade (Bissoondoyal-Bheenick, 2004).

An additional line of way of thinking lay emphasis on the point those nation-state rating variation may well make known vital information with reference to country risk, that is significant and decisive in support of international portfolio management (Brooks R. , Faff, Hillier, & Hillier, 2004).

H5: There is a relationship between the credit ratings and the systematic risk.

2.6 Exports:

Taking place on proper justifications, peripheral trade corporation deciphers a known intensity of domestic stock market activities. As a consequence, a fine economic performance is expected to perk up the magnetism indices to keep investors buoyancy and to catch the attention of extra overseas capital flows. In this way, financial economists competes that economic amalgamation show the way to financial assimilation (Bhattacharya and Daouk 2002) and (Bekaert and Harvey 2000). For instance, an idea explains about it that trade ingenuousness adds to the disclosure to worldwide large-scale risk dynamics (Bekaert and Harvey, 2000).

Otherwise, observed literature announce with the intention of explanation and justification that exports put forth a positive sway at the same time as imports make use of a downbeat influence. Without a doubt, an exporting state will be additionally more susceptible to revolutionizing of the world financial system and checks, as a result, a contact to the global systematic risk. As a consequence, nations which position an elevated degree of exports is to be expected to have a stock market which checks a positive contact to world market risk and a high value of beta having a positive coefficient to it.

H6: There resides a significant relationship between the systematic risk and the exports to GDP i-e; the coefficient of beta would be positive.

2.7 Stock market Capitalization:

The pragmatic prose does not endow with an ultimate conclusion on the temperament of this relation in the attendance of chronological, sequential and cross-sectional specificities of worldwide stock markets. In support of the case, in order to level out the advancement of an up to date regression, an initiative on the issue of the capitalization of the stock market is to aid the conviction that sequential aspect formulate it possible to note down a negative relation except this relation turns out to be positive via taking into consideration a cross-sectional measurement Patro *et al.* (2002).

According to an instinctive suggestion, by means of which the world market index is the subjective summation of domestic markets individual index, a comparatively huge stock market is to be expected to be more associated by means of world market and at that moment to test out a positive relation with it. In addition, by indication to the characterization of beta, it is to be avowed with the intention of explanation that high beta is linked to a positive correspondence with the world market. As of where, the size and the financial amalgamation level of domestic

market end result in a high significance of beta. As a result, it is anticipated to scrutinize a positive relation connecting beta and domestic equity market size. As a result, it is stated that the domestic equity market capitalisation is allied to a positive relation with equity systematic risk (Arfaoui & Abaoub, 2010).

H7: There subsists a relationship between the systematic risk and the stock market capitalization.

2.8 Tax:

It has been studied that the beta associated by the equity is a retreating purpose of the taxes that are being generated. As soon as tax is augmented, two effects are observed at dispense. First and foremost, the worth of the stock's equity crashes in addition to the value of debt and for this reason, the leverage ratio gets higher to some extent. Therefore, as an end result the equity beta is being set in motion. This moderates the significance of the expansion option constituent, and consequences in a slighter equity beta. In our example, the second outcomes take over; for this reason, on the whole end product of a higher tax is the stock's beta would be specking and spanning to a lower level to a little scope. As a result, by the side of the timings that the option for the growth turns to be negligible (as an instance, when the value of x is determined to be very small or the leverage ratio to be too much high then the spreading out turns to be improbable), whereas, the subsequent effect is beside the point; for this reason, there should be an increase in the beta with the increase in the tax. Hence, for the highly leveraged companies, this is without any uncertainty the sphere of influence for the growth expansion.

H8: There exists a certain considerable relationship between taxes and systematic risk.

2.9 Term Spread (long term GB minus the short term yield):

Mukherjee and Naka (1995) conjectured with the intention of explanation that the alteration in the government bonds that are either short or long-term bonds, the risk free rate and the discount rates are thus affected by the rates of these long and short term bonds. The relationship of the government bonds in liaison with the lagged values of the interest rates as well the present period has been applied and thus determined (Fama and Schwert, 1977). On the contrary, the issue has been long-winded a bit by circumstancing with the intention of the argument that the cash flows from stocks can transform by the elevation of the generated interest rates and the modification in these cash flows has not been assured it is not assured that whether it will add to or counterbalance the change in interest rates by the short term and long term government bonds (Reily and Brown, 2000).

It is put forward that a negative relationship among the interest rates and stock prices would exist for the following reasons. Firstly, the interest rates can manipulate the level of corporate profits which in turn influence the price that investors are willing to pay for the stock through expectations of higher future dividends payment.

Most companies finance their capital equipments and inventories all the way through borrowings. A diminution in interest rates reduces the costs of borrowing and as a consequence hand out as an inducement for spreading out. This will have a positive consequence on future anticipated returns for the firm. Secondly, as considerable amount of stocks are acquired with borrowed money, for this reason an increase in interest rates would make stock transactions more costly. Investors will require a higher rate of return before investing. This will trim down demand and lead to a price depreciation.

Thus when the interest rates decrease and in affect the term spread is positive it is a credible sign of the lower recession probability. Along with it, the higher and positive term spread is considered healthy and the lower and negative term spread is considered to be less healthy and an indication that there are more chances of the upcoming recession.

H9: There is a significant relationship and linkage between term spread and systematic risk.

3 Data Description and Methodology:

3.1 Data Description:

The study aims at finding the impact of certain variables on systematic risk to identify its determinants, so in order to settle on the variables that affect the systematic risk or beta, the study takes into account the study of three countries to develop an understanding of the factors affecting the systematic risk in the South East Asian region which is the region of developing countries therefore, the countries of selection are Pakistan, China and India among the population of a total of 13 countries in South and East of Asia on behalf of which the entire stock market index of each country is to be considered as an analysis as the data set to explore the determinants of systematic risk affecting the overall stock market as a whole. This study aims to determine that whether the factors that are affecting the systematic risk are same among the South East Asian Countries as well as the European and Western countries. The population consist of the all countries of South and East Asia and for the sample all the companies listed in the Stock exchanges of the selected countries i-e; Pakistan, India and China. Out of the companies listed in the stock exchanges of each country, the study is going to consider all the companies of each country and all of the stock market is to be observed. The study will take into account the data from the year 2004-2014 to regress it using the panel data methodology. The regression would be applied on the macroeconomic and financial variables that are determined by regressions.

3.1.1 Variable Description:

In order to determine the certain factors that are the determinants of systematic risk, we develop the relationship between the variables affecting the systematic risk as a whole. As it is a cause and effect relationship in which the dependent variable is being caused by the independent

variable. There are certain factors that affect the dependent variable and leads to its determination. There are mainly two independent variables i-e; financial factors and macroeconomic factors that affect the systematic risk. These variables are further divided and do have many components that are to be observed independently.

3.1.1.1 Dependent Variable:

3.1.1.1.1 Systematic Risk:

Since in this study the main component for which the factors are to be determined therefore, it is demanding to make out the variables with the intention of the determinants of systematic risk, as a result, systematic risk is our dependent variable. It is dependent because we are going to identify the causes that are affecting the systematic risk. The systematic risk is to be found by the formula:

$$\beta = \frac{\text{Cov}(R_s, R_m)}{\sigma_m^2}$$

3.1.1.2 Independent Variables:

3.1.1.2.1 Exports to GDP:

Through this analysis it is expected that the exports will have a positive coefficient in the regression. This expectation is based on the supposition that a country the high exports as a fraction of GDP is more sensitive to the world market therefore, more exposed to the risk. When any country has more exports it is more vulnerable to the world economic situations. Any change in the outer economics would affect the country doing exports. This is also consistent with (see (Patro, Wald, & Wu, 2002)).

3.1.1.2.2 Government Surplus to GDP ratio:

When a government runs on surplus (deficit), the need for borrowing in the future will be less (more), therefore the tax rates are not likely to increase (decrease, rather increase more). Therefore, higher tax rates are directly proportional to beta i-e; an increase in taxes would result in a higher beta. And when the tax rates are lower, it means that the government is running on surplus, thus lower tax rates would lead to a lower beta. As hypothesized by (Patro, Wald, & Wu, 2002) that higher government surplus would lead to the lower beta, this study tends to follow the same assumption and expect to find a negative coefficient in the regression analysis of the government surplus depicting a negative relationship between government surplus and beta.

3.1.1.2.3 Credit Rating:

In prior studies, it was assumed that countries with superior credit rating would lead to lower betas or the market risk but the analysis determined that the countries that have better credit ratings are more prone to the market risk. But this has been analyzed that it may be due to the provision of such goods and services that are more vulnerable to the overall activity of the world market. However a complete analysis of different sectors is required to determine the hypothesis of positive relation (Patro, Wald, & Wu, 2002). Here, this study tends to find a positive relation between the credit ratings and the market risk.

3.1.1.2.4 Taxes to GDP ratio:

In this study it has been hypothesized that higher tax rates would lead to a higher exposure to the market risk therefore it is expected to find a positive relationship between tax and beta.

The hypothesis has been supported by Patro (2002) that if the investors expect constant after tax return and return premiums, then higher taxes would entail a higher discount rate or a higher market risk.

3.1.1.2.5 Market Capitalization to GDP ratio:

Market capitalization to GDP is rather vastly correlated with a number of other variables such as dividend yield, price to book ratio, inflation and market capitalization as a fraction of world capitalization. But, if it is excluded, it does not have a significant impact on the above mentioned variables. However, if the country variation is controlled and the comparison is done over time, higher market capitalization as a fraction of GDP entails a lower beta. And when comparing across countries higher market capitalization as a fraction of GDP depicts a high beta (Patro, Wald, & Wu, 2002).

3.1.1.2.6 Dividend yields:

Previous studies have demonstrated the power of dividend yields and have shown that the dividend yields are also useful in describing the cross section of expected returns (Ferson & Harvey, 1998) and (Fama & French, 1988). Therefore, it is expected that countries that pay higher dividend yields have a lower beta as compared to countries that have few or no dividends. It is so because the company that pays no dividend or few may be more sensitive to the future economic performance.

3.1.1.2.7 Term spreads:

Term spread has been determined as a good predictor of recessions. The positive the term spread, the probability of recession is lower, whilst the negative the term spread, the probability of recession is higher. Therefore, the economy having a lower or negative term spread is less fit and

is more responsive to changes in the world economy (Estrella & Mishkin, 1998). Therefore, the hypothesis is developed that term spread being a pointer of future recessions, can also determine the future market risk. This would be so, when the term spread is negatively correlated to the risk.

3.1.1.2.8 Price to book ratio:

When there are huge differences between the return on equity (ROE) and price to book ratio (P/B) ratio of any company, it depicts that the company stock is overvalued. But, if the return on equity (ROE) and price to book ratio (P/B) ratio are going in the same direction and there are no differences, then the company stock is moving in the right direction. It is hypothesized that the price to book ratio has a negative coefficient.

3.1.1.2.9 Earnings to price ratio:

Stocks having a low earnings to price ratio are believed to be more risky as compared to stocks having high earnings to price ratio, therefore, it has been expected that the earnings to price ratio has a positive coefficient.

3.2 Model Specification:

In the perspective to establish the determinants of systematic risk, the analysis will be carried out using the panel regression, where the variables are regressed across the data. The results are obtained using lagged explanatory variables.

$$\beta_{i,t} = \alpha + b_1(\text{EXP})_{i,t} + b_2(\text{GS})_{i,t} + b_3(\text{CR})_{i,t} + b_4(\text{TAX})_{i,t} + b_5(\text{MC})_{i,t} + b_6(\text{DY})_{i,t} + b_7(\text{TS})_{i,t} + b_8(\text{PBR})_{i,t} + b_9(\text{EPR})_{i,t} + \varepsilon_{i,t}$$

Where, i is the individual country, t is the time i-e; the number of years and other variables are explained as follows:

$(EXP)_{i,t}$ = exports of any country that measure the inflow of funds that are directly related to the world market exposure. It is the ratio of exports to GDP.

$(GS)_{i,t}$ = government surplus determines the amount of debt and the imposition of taxes that will be faced by the investors and greater debt greater would be the deficit and risk.

$(CR)_{i,t}$ = it determines the worthiness of a country and its exposure to the risk. It is the log of credit ratings.

$(TAX)_{i,t}$ = it measures the taxes to GDP ratio which is the ratio of taxes.

$(MC)_{i,t}$ = market capitalization is scaled by the GDP

$(DY)_{i,t}$ = dividend yields are determined by the proxy dividend per share by market price per share.

$(TS)_{i,t}$ = term spread is the difference between the long term and short term government bond yields.

$(PBR)_{i,t}$ = price-to-book ratio is measured by the market price of the share to the book value of the share.

$(EPR)_{i,t}$ = earnings-to-price ratio is measured by the earnings per share to the market price of the share. The reciprocal of the price earnings ratio is used to avoid the problem created by the zero earnings.

$\beta_{i,t}$ = it is the coefficient of systematic risk.

$\varepsilon_{i,t}$ = it is the error term.

3.3 Measurement of Variables:

3.3.1 Exports:

The study measures the impact of the total exports done by a country by using the proxy of exports to GDP to analyze the ratio analysis that has an effect on the beta or systematic risk of the whole of the stock exchange. The definition of the variable is explained in the end. The same method is employed to find out about the export ratio as used by (Ferson & Harvey, 1998) and (Patro, Wald, & Wu, 2002).

$$\text{EXP} = \frac{\text{Exports}}{\text{GDP}}$$

3.3.2 Government Surplus:

The government surplus is the cash surplus a government has to fulfill the requirements which otherwise would be fulfilled by the high imposition of the taxes that is to be paid by the individuals of the state. The study used the dimension that was previously used by other studies such as (Patro, Wald, & Wu, 2002).

3.3.3 Credit Ratings:

The credit ratings are taken by Fitch's credit ratings. The highest credit rating awarded by the Fitch Rating agency is AAA which means the highest credit quality and in this analysis it has been allotted the value of 10 whereas, the lowest rating is D which means default i-e; the entity is near or is bankrupt and in this analysis it has been allotted the value of zero. The log of credit ratings has been used.

3.3.4 Dividend Yield:

The dividend yield has been found by the formula DPS/MPS where DPS is the dividend per share and MPS is the market price of the share. Initially, the dividend yield of all the companies listed in a stock exchange is calculated and then average out of one year. In the same manner, the dividend yield of all the years from 2004-2014 is calculated of all the involved countries.

$$DY = \frac{\text{Dividend per share}}{\text{Market price of the share}}$$

3.3.5 Term Spread:

For finding the term spread, the treasury bills are subtracted from the long term government bonds. This value could be negative because sometimes the long term bond rates fall below the t-bill rates.

$$\text{Term spread} = \text{Long term government bonds} - \text{short term government bonds}$$

3.3.6 Price to book ratio:

The price to book ratio has been found by the formula MPS/BVS where MPS is the market price of the share and BVS is the book value of the share. Initially, the price to book ratio of all the companies listed in a stock exchange is calculated and then average out of one year. In the same manner, the price to book ratio of all the years from 2004-2014 is calculated of all the involved countries.

$$PBR = \frac{\text{Market price of the share}}{\text{Book value of the share}}$$

3.3.7 Earnings to price ratio:

This study uses the reciprocal of the price earnings ratio. It has been used so as to avoid the zero value of the earnings in the denominator. The formula that has been used is EPS/MPS where EPS is the earnings per share and MPS is the market price of the share. Initially, the earnings to price ratio of all the companies listed in a stock exchange is calculated and then average out of one year. In the same manner, the earnings to price ratio of all the years from 2004-2014 is calculated of all the involved countries.

$$\text{EPR} = \frac{\text{Earnings per share}}{\text{Market price of the share}}$$

4 Empirical Results and Discussion:

The data has been analyzed using the panel methodology. The results include the descriptive analysis, the explanation and the table. This table explains about the maximum and minimum values that any variable could have. Along with it the mean values and the dispersion from it in the form of standard deviation. Also explained is the kurtosis that what type of data is analyzed.

4.1 Descriptive Analysis:

The table 4.1 exhibits the statistical behavior of the data related to the variants of systematic risk for the period of 2004-2014. The mean of all the variables are ranging from 0.005 (term spread) which is the lowest to 1.497 (credit ratings) which is the highest. The standard deviation which is the measure of deviation or dispersion from the mean ranges from 0.007 (taxes to GDP ratio) which is the lowest to 3.020 (price to book ratio) which is the highest. Since there is a negligible nominal thinning out sandwiched between the mean and standard deviation values, it indicates that the chances of outliers are also very few. Skewness is an assessment of the irregularity of the likelihood allotment of any real-valued untailed variable with indication to its mean. This value is known to be either positive, negative, or sometimes even undefined. In the analyzed data, most of the values are positively skewed. In order to determine the kurtosis, there are three patterns in which the value may fall. Firstly, if the value is equal to 3 then the distribution is normal distribution and the pattern is called mesokurtic. Secondly, if the value is greater than 3, then the pattern is called leptokurtic that is associated simultaneously with high peaked and fat tails. And lastly, if the value is less than 3, then it is called platykurtic which is associated at the same time with the values less peaked and having a thinner tail. In the table, all the values are less than 3 depicting that they possess platykurtic behavior with the maximum value of 3.042 and the

minimum value of 0.108. In addition, the value of kurtosis shows that the data is flat and have a thinner tail.

Table: 4.1 Descriptive Statistics

	Mean	Median	Minimum	Maximum	Std Dv	Kurtosis	Skewness
<i>Beta</i>	0.095	0.076	0.191	0.609	0.165	1.574	0.936
<i>EXP/GDP</i>	0.216	0.223	0.124	0.356	0.068	0.574	0.393
<i>SC</i>	0.599	0.544	0.138	0.982	0.369	2.575	1.326
<i>TAX</i>	0.099	0.101	0.086	1.019	0.008	0.122	0.235
<i>CR</i>	1.498	1.557	0.405	2.015	0.432	0.108	0.889
<i>GS</i>	0.385	3.201	0.271	1.704	9.664	0.728	0.896
<i>TS</i>	0.005	0.001	-0.010	0.037	0.009	3.042	1.801
<i>DY</i>	0.505	0.037	0.005	0.890	0.684	1.056	0.857
<i>EPR</i>	0.118	0.061	.025	0.214	0.479	1.548	5.597
<i>PBR</i>	1.102	2.790	0.626	2.045	3.020	1.249	4.099

Note: where EXP/GDP is exports to GDP ratio, SC is stock market capitalization, TAX is tax revenues, CR is log of Credit Ratings, GS is government surplus, TS is term spread, DY is dividend yield, EPR is earnings to price ratio and PBR is price to book ratio.

4.2 Correlation Analysis:

The results of the correlation analysis are presented below. The table 4.2 shows the relationship that exists between the variables. The relationship is not only among the dependent and independent variable but also among the independent and independent variables. An export as a ratio of GDP is correlated with stock market capitalization, credit ratings, the government surplus and the price to book ratio at a significance level of 5%. The stock market capitalization, the government surplus and the credit ratings are positively correlated with the exports showing that with the increase in one variable the other moves in the same direction.

Similarly the stock market capitalization is positively and significantly related with the credit ratings, the taxes, the government surplus and the price to book ratio.

The taxes are negatively related to the government surplus which shows that the implied hypothesis is correct. The correlation is significant at 5%.

The credit rating is positively correlated with the government surplus which shows that the more positive the government surplus, the better would be the credit rating allotted by the credit rating agency.

Table 4.2: Correlation Analysis

	<i>Beta</i>	<i>EXP/GDP</i>	<i>SC</i>	<i>TAX</i>	<i>CR</i>	<i>GS</i>	<i>TS</i>	<i>DY</i>	<i>EPR</i>	<i>PBR</i>
Beta	1									
EXP/GDP	0.328	1								
SC	0.039	0.0441	1							
TAX	-0.130	-0.047	0.036	1						
CR	-0.117	0.033	0.501	-0.009	1					
GS	0.354	0.048	0.035	-0.031	0.013	1				
TS	-0.403	-0.036	0.044	0.050	-0.038	-0.048	1			
DY	-0.372	0.013	0.047	0.036	0.042	-0.039	0.039	1		
EPR	0.229	-0.010	0.038	-0.050	-0.011	-0.043	0.043	0.048	1	
PBR	-0.154	0.042	0.029	0.050	0.031	0.043	0.034	0.013	0.040	1

Note: where EXP/GDP is exports to GDP ratio, SC is stock market capitalization, TAX is tax revenues, CR is log of Credit Ratings, GS is government surplus, TS is term spread, DY is dividend yield, EPR is earnings to price ratio and PBR is price to book ratio.

4.3 Regression Analysis:

The regression analysis is carried out to determine the relation between the dependent and the independent variables and also to determine that the model that is being used is significant or not. The F-stat and probability tells about the model worthiness. There are four analyses done to determine the variables that impact the systematic risk. These analyses include the impact of macroeconomic variables on beta, the impact of financial variables on beta, the combined impact of macroeconomic and financial variables on beta and the impact using the country dummy variables. The study explains the results using the adjusted R^2 values.

4.3.1 Regression Using Macroeconomic Variables as Independent Variables:

The following table 4.3 explains the regression analysis between the macroeconomic variables and the dependent variable that is the systematic risk or beta.

Table 4.3 Macroeconomic Regression

Variable	C	CR	GS	SC	TAX	TS	EXP
Coefficient	1.260	0.145	-0.010	0.248	8.034	-6.867	1.348
Std. Error	0.461	0.118	0.004	0.105	4.055	3.223	0.710
t-Statistic	2.733	1.226	-2.418	2.359	1.981	-2.130	1.996
Prob.	0.011	0.231	0.0232	0.026	0.048	0.043	0.049
Adj R-sqrd	0.405						
F-statistic	2.844						
Prob(Fstatistic)	0.029						

Note: where EXP/GDP is exports to GDP ratio, SC is stock market capitalization, TAX is tax revenues, CR is log of Credit Ratings, GS is government surplus, TS is term spread, DY is dividend yield, EPR is earnings to price ratio and PBR is price to book ratio.

Results of table 4.3 indicate that the credit ratings is not statistically different from zero. But, government surplus, stock market capitalization, tax revenue, term spread and exports to GDP ratio are statistically significant. The beta coefficient of the government surplus is statistically significant and is negative. The beta value of government surplus is -0.010 indicating that one unit increase in government surplus will result in a decrease of beta by 0.010. The beta coefficient of the stock market capitalization is statistically significant and is positive. The beta value of stock market capitalization is 0.248 indicating that one unit increase in government surplus will result in an increase of beta by 0.248. The beta coefficient of the tax revenue is statistically significant and is positive. The beta value of tax revenue is 8.034 indicating that one unit increase in tax revenue will result in an increase of beta by 8.034. The beta coefficient of the exports to GDP ratio is statistically significant and is positive. The beta value of exports to GDP ratio is 1.348 indicating that one unit increase exports to GDP ratio will result in an increase of beta by 1.348. The beta coefficient of the term spread is statistically significant and is negative. The beta value of term spread is -6.867 indicating that one unit increase in term spread will result in a decrease of beta by 6.867.

The adjusted R^2 is 0.40 that indicate that the macroeconomic variables have 40% explanatory power of the model, so the model is based on the macroeconomic variables which can explain a significant portion of the beta.

4.3.2 Regression Using Financial Variables as Independent Variables:

The following table 4.4 explains the regression analysis between the financial variables and the dependent variable that is the systematic risk or beta. The table includes the results of the statistical tests of the F-statistic, the probable F-statistic and the adjusted R square.

Table 4.4 Financial Variable Regression

Variable	C	DY	PBR	EPR
Coefficient	0.166	-0.093	-0.008	0.097
Std. Error	0.042	0.040	0.009	0.058
t-Statistic	3.887	-2.296	-1.984	1.990
Prob.	0.001	0.029	0.046	0.010
Adj R-sqr	0.230			
F-statistic	2.794			
Prob(F-st	0.058			

Note: where DY is dividend yield, EPR is earnings to price ratio and PBR is price to book ratio.

Results of table 4.5 indicate that the dividend yield ratio, the price to book ratio and the earnings to price ratio are statistically significant. The beta coefficient of the dividend yield is negative and statistically significant. The beta value of dividend yield is -0.0927 indicating that one unit increase in dividend yield would decrease the beta by 0.0927. The beta coefficient of the price to book ratio is negative and statistically significant. The beta value of price to book ratio is -0.007 indicating that one unit increase in price to book ratio would decrease the beta by 0.007. The beta

coefficient of the earnings to price ratio is positive and statistically significant. The beta value of earnings to price ratio is 0.097 indicating that one unit increase in earnings to price ratio would increase the beta by 0.097. The adjusted R square is 0.23 that indicates that the financial variables have 23% explanatory power of the model. So the model base on the financial variables can explain a certain significant portion of the beta. This significance is less as compared to the macroeconomic variables.

4.3.3 Regression Using Macroeconomic and Financial Variables as Independent Variables:

The following table 4.5 explains the regression analysis between the macroeconomic and financial variables and the dependent variable that is the systematic risk or beta. The table includes the statistical tests of the F-statistic, the probable F-statistic and the adjusted R square.

Table 4.5 Macroeconomic and Financial Variables Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.109	0.569	1.977	0.024
CR	0.079	0.144	1.955	0.048
GS	-0.015	0.006	-1.975	0.043
SC	0.218	0.108	2.017	0.036
TAX	6.752	4.690	1.959	0.016
TS	-6.708	3.260	-2.057	0.049
EXP	1.502	0.737	2.036	0.043
DY	-0.079	0.062	-2.027	0.048
PBR	-0.009	0.009	-1.970	0.045
EPR	0.094	0.058	1.980	0.047

Adjusted R-squared	0.481
F-statistic	2.272
Prob(F-statistic)	0.056

Note: where EXP/GDP is exports to GDP ratio, SC is stock market capitalization, TAX is tax revenues, CR is log of Credit Ratings, GS is government surplus, TS is term spread, DY is dividend yield, EPR is earnings to price ratio and PBR is price to book ratio.

In this third step, the regression analysis that has been done consists of all the variables including the macroeconomic and financial variables, all the macroeconomic and financial variables have the same coefficients as they were hypothesized.

Results of table 4.5 indicate that the credit ratings, government surplus, stock market capitalization, tax revenue, term spread and exports to GDP ratio, the dividend yield ratio, the price to book ratio and the earnings to price ratio are significant statistically. The beta coefficient of the credit rating is positive and thus statistically significant. The beta's value of credit rating is 0.079 indicating that one unit increase in term spread will result in an increase of beta by 0.079. The beta's coefficient of the government surplus is statistically significant and is negative. The value of beta of government surplus is -0.015 indicating that one unit increase in government surplus will result in a decrease of beta by 0.015. The coefficient of beta of the stock market capitalization is statistically significant and is positive. The beta's value of stock market capitalization is 0.218 indicating that one unit increase in stock market capitalization will result in an increase of beta by 0.218. The beta coefficient of the tax revenue is statistically significant and is positive. The value of beta for tax revenue is 6.752 indicating that one unit increase in tax revenue will result in an increase of beta by 6.752. The beta's coefficient of the exports to GDP ratio is statistically significant and is positive. The beta's value of exports to GDP ratio is 1.502 indicating that one unit increase in exports to GDP ratio will result in an increase of beta by 1.502. The coefficient value of beta of the term spread is significantly statistically and is negative. The beta value of term spread is -6.708 indicating that one unit increase in term spread will result in a decrease of beta by 6.708.

The beta coefficient of the dividend yield is negative and statistically significant. The beta value of dividend yield is -0.079 indicating that one unit increase in dividend yield would decrease the

beta by 0.079. The beta coefficient of the price to book ratio is negative and statistically significant. The beta value of price to book ratio is -0.009 indicating that one unit increase in price to book ratio would decrease the beta by 0.009. The beta coefficient of the earnings to price ratio is positive and statistically significant. The beta value of earnings to price ratio is 0.094 indicating that one unit increase in earnings to price ratio would increase the beta by 0.094. The adjusted R square is 0.48 that indicates that the macroeconomic and financial variables collectively have 48% illustrative power of the model. So the model that is based on the macroeconomic and financial variables can explain a certain major portion of the beta. This significance is greater as compared to the macroeconomic variables. This shows that there is a communal joint impact of the company related and the macroeconomic variables on the finding and evaluation of beta.

4.3.4 Pool Dummy Regression using Macroeconomic and Financial Variables with Base

Country Pakistan

The following table 4.6 explains the regression analysis between the financial variables and macroeconomic variables as independent variables and Pakistan as a base for country dummy variables and the dependent variable that is the systematic risk or beta. The table includes the statistical tests of the F-statistic, the probable F-statistic and the adjusted R square.

Table 4.6 Regression using Dummy Variables

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.459	0.664	2.194	0.040
CR	0.154	0.157	1.986	0.035
GS	-0.008	0.011	-1.974	0.046
SC	0.206	0.112	1.981	0.030
TAX	-8.589	5.270	-1.962	0.018
TS	-8.548	3.533	-2.419	0.025
EXP	2.262	0.974	2.321	0.030
DY	-0.182	0.199	-1.956	0.050
PBR	-0.012	0.010	-1.983	0.031
EPR	0.109	0.060	1.988	0.044
D1	0.270	0.279	0.966	0.345
D2	0.425	0.352	1.262	0.241
Adjusted R-squared		0.457		
F-statistic		2.026		
Prob(F-statistic)		0.081		

Note: where EXP/GDP is exports to GDP ratio, SC is stock market capitalization, TAX is tax revenues, CR is log of Credit Ratings, GS is government surplus, TS is term spread, DY is dividend yield, EPR is earnings to price ratio and PBR is price to book ratio. D1 is country dummy of China and D2 is country dummy of India.

In this fourth step, the table 4.6 shows the regression analysis that has been done consists of all the variables including the macroeconomic and financial variables along with the dummy variables.

Results of table 4.6 indicate that the dummy variables of countries included are not statistically different from zero. But the other variables as credit ratings, government surplus, stock market capitalization, tax revenue, term spread and exports to GDP ratio, the dividend yield ratio, the earnings to price ratio and the price to book ratio are significant statistically. The coefficient of beta for the government surplus is thus significant statistically and is positive. The value of beta of government surplus is 0.008 which indicates that the increases of a single unit of government surplus will consequence in an increase of beta by 0.008. The beta coefficient of the stock market capitalization is statistically significant and is positive. The beta value of stock market capitalization is 0.206 indicating that one unit increase in stock market capitalization will result in an increase of beta by 0.206. The beta coefficient of the tax revenue is negative and thus significant statistically. Therefore, the value of beta of tax revenue is -8.589 indicating that one unit increase in tax revenue will result in a decrease of beta by 8.589. The coefficient of beta for the variable exports to GDP ratio is statistically significant and is affirmative. Thus the value of beta for exports to GDP ratio is 2.262 indicating that one unit increase in exports to GDP ratio will result in an increase of beta by 2.262. Accordingly, the coefficient of beta for the term spread is statistically significant and is negative. The beta's value of term spread is -8.548 indicating that one unit increase in term spread will result in a decrease of beta by 8.548. The credit rating's coefficient of beta is statistically significant and is negative. The beta's value of credit rating is -0.154 indicating that one unit increase in term spread will result in a decrease of beta by 0.154.

The coefficient of beta for the dividend yield is negative and statistically significant. The beta value of dividend yield is -0.182 indicating that one unit increase in dividend yield would decrease the beta by 0.182. The beta's coefficient of the price to book ratio is negative and statistically significant. The value of beta for the price to book ratio is -0.012 indicating that one unit increase in price to book ratio would decrease the beta by 0.012. The beta coefficient of the earnings to price ratio is affirmative and statistically considerable. The value that the beta possesses of earnings to price ratio is 0.109 indicating that one unit increase in earnings to price ratio would increase the beta by 0.109. The adjusted R square is 0.45 that indicates that the macroeconomic and financial variables collectively have 45% illustrative and clarifying influence of the model. So the model that is based on the macroeconomic and financial variables can explain a certain significant portion of the beta. This significance is less as compared to the regression run by not using the dummy variables. This shows that the macroeconomic and the company specific micro variables have a combined impact on the determination of beta but the dummy variables when included have a lesser impact on the model.

5 Conclusion and Further Recommendations:

5.1 Conclusion:

As a result of the use of weekly index prices for the determination of beta and the annual frequency data for the macroeconomic and financial variables, panel methodology has been applied to identify the factors affecting the systematic risk across countries. Therefore, from the aforementioned results, discussions and analysis, it is concluded that the systematic risk is well composed of the large impact macroeconomic variables as well as some market related financial or micro variables. The study does not include the worldwide general variables such as the euro term structure or the world dividend yields because Ferson and Harvey (1998) these overall worldwide variables have the minimal clarifying influence than the certain specific country variables. Furthermore, from inculcating the country dummies it is concluded that the macroeconomic variables in comparison to the company related variables does have a numerically noteworthy impact on the systematic risk. Since the data that has been collected is of the emerging markets of South Asia, thus, it does have some special characteristics as compared to the developed markets around the world but, the factors affecting the systematic risk are almost same across the world with some variation in one or two variables. Form the findings it is concluded that among the macroeconomic variables the exports, government surplus and term spread significantly affect the systematic risk and from the micro variables the earnings to price ratio of all the countries and the dividend yield has a significant impact. However, the credit ratings, the price to book ratio and market capitalization are significant too but with some mixed evidence.

All the results that have been found are in accordance with the previous literature that supports the results and findings of this study.

5.2 Future directions

From the results, discussions and the above mentioned findings it is recommended that for further study in this domain other variables should also be considered such as the money supply growth, impact of inflation, impact of imports since exports have a positive relation with beta it is assumed that imports would have a negative coefficient of beta, the stock market capitalization as a ratio of world capitalization to identify the world impact.

For further enhanced results, year dummies separately and collectively as year and country dummies to find out either macroeconomic or financial variables have more significance than the other.

5.3 Policy Recommendations:

The study results help the investors to determine where to invest as well as since it captures the whole market dynamics and statistics which also helps policy makers in the government to define their policies. This helps the government to know how the market is affected by the policies made on the outer perspective. For instance, the government should have more surplus reserves than the deficit. Also the surplus leads to a lower value of beta as well as low tax rates. The results also show that the higher the exports ratio would lead to a rapid higher GDP growth but along with it comes the higher risk associated with it.

References

- Adler, M., & Dumas, B. (1983). International Portfolio Choices & Corporation Finance: A Synthesis. *Journal of Finance* , 925-984.
- Amit, R., & Livnat, J. (1988). Diversification, Capital Structure and Systematic Risk: An empirical Investigation. *Journal of Accounting, Auditing & Finance* , 19-43.
- Ang, J., Peterson, P., & Peterson, D. (1985). Investigations Into The Determinants of Risk: A new Look. *Quarterly Journal of Business and Economics* , 3-20.
- Arfaoui, M., & Abaoub, E. (2010). The Determinants of Systematic Risk: International Evidence from the Micro-Finance Interface. *Journal of Advance Studies in Finance* , 121-143.
- Arsalan, M., & Zaman, R. (2014). Impact of Dividend Yield and Price Earnings Ratio on Stock Returns: A Study Non-Financial listed Firms of Pakistan. *Study Journal of Finance and Accounting* , 68-74.
- Beaver, H., Kettler, P., & Scholes, M. (1970). The Association Between Market Determined and Accounting Determined Risk Measures. *The Accounting Review* , 654-682.
- Bissoondoyal-Bheenick, E. (2004). Rating timing differences between the two leading agencies: Standard and Poor's and Moody's. *Emerging Markets Review* , 361-378.
- Blume, M. (1975). Betas and their regression tendencies. *Journal of Finance* , 785-795.
- Borde, S. F. (1998). Risk diversity across restaurants. *Cornell Hotel and Restaurant Administration Quarterly*, 39 (6) , 64-69.

- Boz, G., Carlota, M.-P., & Orgaz-Guerrero, N. (2015). The Systematic-Risk Determinants of the European Accommodation and Food Services Industry in the Period 2003-2011. *Cornell Hospitality Quarterly* , 41-57.
- Breen, J., & Lerner, M. (1973). Corporate financial strategies and market measures of risk. *The Journal of Finance* , 339-351.
- Brooks, R., Faff, R. B., Hillier, D., & Hillier, J. (2004). The national market impact of sovereign rating changes. *Journal of Banking & Finance* , 233-250.
- Budd, A. P., & Litzenberger, L. (March 1973). Changes in the Supply of Money, the Firm's Market Value and Cost of Capital. *Journal of Finance* .
- Chen, M. H. (2013). Risk determinants of China's hotel industry. *Tourism Economics* , 77-99.
- Chiou, C., & Su, R. (2007). On the relationship of systematic risk and accounting variables. *Managerial Finance* , 517-533.
- Collins, D. W., Ledolter, J., & Rayburn, J. (1987). Some further evidence on the stochastic properties of systematic risk. *Journal of Business* 60 (3) , 425-48.
- Das, S. K. (2012). SMALL INVESTOR'S BEHAVIOUR ON STOCK SELECTION DECISION: A CASE OF GUWAHATI STOCK EXCHANGE. *International Journal of Advanced Study in Management and Social Sciences* , 1 (2), 59-78.
- DeJong, D., & Collins, D. (1985). Explanations for the instability of equity beta: Risk-free rate changes and leverage effects. *Journal of Financial and Quantitative Analysis* , 73-94.

Dhika, F., & Anggoro, B. N. (2014). The Impact of Profitability Ratios, Market Ratios and Leverage Ratio toward Stock Return of LQ45 during 2004-2013. *Proceedings of 7th Asia-Pacific Business Study Conference 25-26 August 2014* .

Dwi, M., Mulyono, & Rahfiani, K. (2009). The Effect of Financial Ratios, Firm Size, and Cash Flow from Operating Activities in the Interim Report to the Stock Return. *Chinese Business Review* , 44-55.

Eldomiatty, T., Dhahery, M., & Shukri, M. (2009). The Fundamental Determinants of Systematic Risk and transparency in the DFM general index. *Middle Eastern Finance and Economics* , 62-74.

Erb, C. B., Harvey, C. R., & Viskanta, T. E. (1995). Country risk and global equity selection. *Journal of Portfolio management* , 74-83.

Estrella, A., & Mishkin, F. (1998). Predicting U.S recessions: financial variables as leading indicators. *Review of Economics and Statistics* , 45-61.

Fabozzi, F. J., & Francis, C. J. (1978). Beta as a Random Coefficient. *Journal of Finance and Quantitative Analysis* , 101-16.

Fama, E. F. (1981). Stock returns, real activity, inflation and money. *American Economic Review* , 545-65.

Fama, E. F., & French, K. R. (1992). The cross-section of expected stock returns. *Journal of Finance* , 427-465.

Fanning, J. E. (1971). A Four-Indicator System for Forecasting the Market. *Financial Analysts Journal* .

- Feltham, G., & Ohlson, J. (1995). Valuation and clean surplus accounting for operating and financial activities. *Contemporary Accounting Study 11 (2)* , 689–731.
- Ferson, W. E., & Harvey, C. R. (1998). Fundamental Determinants of National Equity Market Returns:A perspective on Conditional asset pricing. *Journal of Banking and Finance* , 1625-1665.
- Foster, G., Kasznik, R., & Sidhu, B. K. (2012). International equity variation: The relative importance of country and industry factors versus company-specific financial reporting information. *Journal of Accounting and Finance* , 767-814.
- Gande, A., & Parsley, D. (2003). News spillovers in the sovereign debt market. *HKIMR Working Paper No.6* .
- Geske, R., & Roll, R. (1983). The monetary and fiscal linkage between stock returns and inflation. *Journal of Finance* , 1-33.
- Graham, D., & Jennings, R. (1987). Systematic Risk, Dividend Yield and the Hedging Performance of Stock Index Futures. *The Journal of Futures Markets* , 1-13.
- Gu, Z., & Kim, H. (1998). Casino firm's risk features and their beta determinants. *Progress in Tourism and Hospitality Study*, 4 , 357-365.
- Gwangheon, H., & Sudipto, S. (2007). Equity Systematic Risk (Beta) and Its Determinants. *Contemporary Accounting Study* , 423-266.
- Hamberger, M. J., & Kochhin, L. A. (May 1972). Money and Stock Prices: The Channels of Influence. *Journal of Finance* .

He, J., & Ng, L. K. (1998). The Foreign Exchange Exposure of Japanese Multinational Corporations. *Journal of Finance* , 733-753.

Homa, K., & Jaffee, D. (June 1971). The Supply of Money and Common Stock Prices. *Journal of Finance* .

Idol, C. (1978). The financial determinants of systematic risk. *Baylor Business Studies*, 9 (3) , 55-69.

Jacob, N. L. (1971). The measurement of systematic risk for securities and portfolios:Some empirical results. *Journal of Financial and Quantitative Analysis* , 815-834.

Jensen, M. C. (1984). Agency Costs of Free Cashflow, corporate finance and takeovers. *American Economic Review* , 323-329.

Kaminsky, G., & Schmukler, S. (2001). Emerging markets instability:Do sovereign ratings affect country risk and stock returns? *Policy Study Working Paper Series* .

Keran, M. (1971). Expectations, Money, and the Stock Market. *Reserve Bank of St. Louis Monthly Review* .

Lawrence, F., & Jules, H. K. (June 1985). Forecasting Systematic Risk: Estimates of "Raw" Beta that Take Account of the Tendency of. *The Journal of Financial and Quantitative Analysis*, Vol. 20, No. 2 , 127-149.

Linter, J. (1965). Security Prices, Risk and Maximal Gains from Diversification . *Journal of Finance* , 587-615.

Logue, L., & Merville, J. (1972). Financial Policy and Market Expectations. *Financial Management* , 37-44.

Malkiel, B., & Quandt, R. (1972). The Supply of Money and Common Stock Prices: A Comment. *Journal of Finance* .

Mao, C. (1976). *Corporate Financial Decisions*. Palo Alto:CA: Pavan Publishers.

Markowitz, H. (1952). Portfolio Selection. *Journal of Finance* , 77-91.

Modigliani, F. (1972). Monetary Policy and Consumption: the Linkages via Interest Rate and Wealth Effects in FMP Model. *Federal Reserves Bank* .

Mossin, J. (1966). Equilibrium in a Capital Asset Market. *Econometrica* , 768-782.

Moyer, R. C., & Chatfield, R. (1983). Market Power and Systematic Risk. *Journal of Economics and Business* , 123-130.

Ohlson, J. (1995). Earnings, book values, and dividends in equity valuation. *Contemporary Accounting Study* , 661-87.

Ohlson, J., & Rosenberg, B. (1982). Systematic risk of the CRSP equal-weighted common stock index: A history estimated by stochastic parameter regression. *Journal of Business* , 121-45.

Patro, D. K., Wald, J. K., & Wu, Y. (2002). The impact fo macroeconomic and financial variables on market risk: Evidence from International equity returns. *European financial Management* , 421-447.

- Sari, R., Uzunkaya, M., & Hammoudeh, S. (2013). The relationship between disaggregated country risk ratings and stock market movements: An ARDL approach. *Emerging Markets Finance & Trade* , 4-16.
- Saunders, M. N., Lewis, P., & Thornhill, A. (2009). *Study Method For Business Students*. Harlow, England : Pearson Education Limited.
- Sharpe, W. F. (1964). Capital Asset Prices: A theory of market equilibrium under conditions of risk. *The Journal of Finance* , 425-442.
- Shin, Y. H., Hancer, M., Leong, J., & Palakurth, R. (2010). An investigation of systematic risk determinants in the casino industry. *Tourism Analysis* , 689-700.
- Solnik, B., & Solnik, V. (1997). A multi-country test of the Fisher model for stock returns. *Journal of International Financial Markets, Institutions and Money* , 289-301.
- Stulz, R. (1981). A model of international asset pricing. *Journal of Financial Economics* , 383-406.
- Subasi, F. O. (2008). The effect of sovereign rating changes on stock returns and exchange rates. *International study Journal of Finance and Economics* , 46-54.
- Sunder, S. (1980). Stationarity of market risk: Random coefficients tests for individual stocks. *Journal of Finance* , 883-96.
- Treynor, J. L. (1965). How to Rate Management of Investment Funds. *Harvard Business Review* , 63-75.

Wasserfallen, W. (1989). Macroeconomic news and the stock market:evidence from Europe. *Journal of Banking and Finance* , 613-626.

Zheng, G., & Hyunjoon, K. (2002). Determinants of Restaurant Systematic Risk: A reexamination. *Journal of Hospitality Financial Management* .

6 Appendix:

6.1 Definition of the Variables:

Variable Name	Definition	Source
<ul style="list-style-type: none">• Exports	Exports of goods and services represent the value of all goods and other market services provided to the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They exclude compensation of employees and investment income (formerly called factor services) and transfer payments.	World Bank
<ul style="list-style-type: none">• Stock Market Capitalization	Market capitalization (also known as market value) is the share price times the number of shares outstanding. Listed domestic companies are the domestically incorporated companies listed on the country's stock exchanges at the end of the year. Listed companies do not include investment companies, mutual funds, or other collective investment vehicles.	World Bank

<ul style="list-style-type: none"> • Taxes 	<p>Taxes refer to compulsory transfers to the central government for public purposes. Certain compulsory transfers such as fines, penalties, and most social security contributions are excluded. Refunds and corrections of erroneously collected tax revenue are treated as negative revenue.</p>	<p>World Bank</p>
<ul style="list-style-type: none"> • Term Spread 	<p>The difference between long term interest rate and the short term (T-bills) interest rate is a good out-of-sample as well as in-sample predictor of recession.</p>	<p>(Estrella and Mishkin 1998)</p>
<ul style="list-style-type: none"> • Government Surplus 	<p>Government surplus or deficit is closest to the earlier overall budget balance (still missing is lending minus repayments, which are now a financing item under net acquisition of financial assets).</p>	<p>World Bank</p>
<ul style="list-style-type: none"> • Credit Ratings 	<p>Credit ratings express risk in relative rank order, which is to say they are ordinal measures of credit risk and are not predictive of a specific frequency of default or loss. Ratings do not deal with the risk of a market value loss on a rated security due to changes in interest rates, liquidity and other market considerations. However, in terms of payment obligation on the rated liability, market risk may be considered to the extent that it influences the ability of an issuer to pay upon a</p>	<p>Fitch Credit rating Agency (fitchratings.com)</p>

	<p>commitment. Ratings nonetheless do not reflect market risk to the extent that they influence the size or other conditionality of the obligation to pay upon a commitment (for example, in the case of index-linked bonds).</p>	
--	---	--