MACROECONOMIC DEVELOPMENT AND DEBT/EQUITY CHOICE OF THE FIRMS: A SECTOR WISE ANALYSIS OF KSE LISTED FIRMS

Sharif Ullah Jan, Muhammad Owais and Zunnoorain Khan

ABSTRACT

The purpose of this study is to analyze the effect of macro-economic factors on debt equity choices of the firms listed on KSE and to segregate the results on the basis of sectors. All non-financial firms listed at KSE for the period of 10years (i.e. from 2000 to 2009) were considered and the panel data using SUR model was analyzed. Specific variables of the firm showed significance with various capital structure ratios. However, macro-economic variables showed a mixed relation with the debt/equity choices of various sectors. E.g. the Bank-size is directly related with financial leverage for KSE-All index. Market size is negatively associated with financial leverage for Tobacco sector. Inflation rate proved a negative relationship with external financial ratio and financial leverage for KSE-100 index, transport & communication, and miscellaneous sectors. GDP per capita proved to be negatively related with financial leverage and positively related with external financing ratio for KSE-100. Finally, the Discount rate proved to be directly related with financial leverage and external financing ratios for KSE-100, Paper & Board, Tobacco and Chemical sectors. All these relationships exhibit the importance of macroeconomic factors in relation with the capital structure determination of firms and open new horizons of research in this area ultimately helping the practitioners and academicians.

Key Words: Capital Structure, Seemingly Unrelated Regression Model, Macro factors, SBP Discount rate, Market Development, Banking Industry Development, GDP per Capita

INTRODUCTION

Capital structure of a firm refers to the specific mix of debt and equity. Business firms always try to achieve an optimal capital structure 'the ideal ratio of debt and equity which exposes the firm to a minimum risk and cost and brings maximum utility and value'. So, the capital structure decision is one of the crucial aspects of 'financial policy' of a firm which contributes to the wealth maximization of shareholders. For the last two decades several studies have attempted to determine the optimum capital structure and the factors that influence its mix but the puzzle has yet to be resolved. In this regard, various capital structure theories are also introduced but none of them proved to be a "master piece". Moreover, these theories are developed in the industrialized countries and more applicable over there and the deficiency is clearly visible in the case of emerging and developing countries. Particularly, in the case of Pakistan we hardly find sample work, except some contribution made by Pakistani researchers like Shah and Hijazi (2004), Shah and Khan (2006), Hijazi and Tariq (2006), and Jasir Ilyas (2007),

etc. Similarly a few studies are also conducted by foreign researchers but they took Pakistani firms along with a cluster of other developing countries to name some of them are Mahmud (2003), Booth et, al. (2001 and 2008), and Agarwal and Mohtadi (2004), etc. As most of the studies so far has explored the relationship between micro factors and took the macro factors only as control variables, this study will take it in the opposite direction (Bokpin, 2009). Therefore, the major aim of this study is not only to address this deficiency but at the same time to explore the effects of macro economic factors on the determination of capital structure by Pakistani firms. Hence, bank size, market size, inflation rate, GDP per capita, and interest rates of SBP along with firm specific factors were taken as 'control variables'. For our sample, we have taken the non-financial firms of Karachi stock exchange and segregate the results on sector bases for the period of 10 years i.e. from 2000 to 2009.

LITERATURE REVIEW

Miller and Modigliani (1958) presented their famous capital structure theory, "the theory of irrelevance" which is based on some assumptions under perfect capital market conditions, and established that the value of the firm is irrelevant of capital structure decisions of firms (Miller and Modigliani, 1958). But the later work by several researchers proved the importance and effects of capital structure on firm's value (Hovakimian et al., 2004; Miller and Modigliani, 1963). For instance, the Trade-off Theory says capital structure encounters a tradeoff between the advantages and costs associated with the equity and debt financing. This theory works around 'targeted' capital structure. Hackbarth et al. (2006) suggested a model in which cash flows of the firm are dependent on "idiosyncratic (individual) shock" and "aggregate (combined) shock" and these are the state of an economy, i.e. boom and recession respectively. They postulate that firms should decide the 'optimum' leverage level by neutralizing the benefits from tax shield and the costs from bankruptcy, however, both of these depends on the macro-economic conditions of the country (Hackbarth et al, 2006). Another theory is the "Pecking Order" theory of capital structure. A significant work has done by Myers & Majluf (1984) and postulated that companies will give preference to be financed with retained earnings as there is no cost associated with retained earnings and will gradually go for the debt and equity financing respectively (Mayers and Majluf, 1984). Researchers have also focused to relate the above mentioned theories to the macro-economic conditions of the country. Following details will give a snap shot of some significant contributions by researchers in this regard and the theoretical frame work for this study.

Hackbarth et al. (2006) inferred that not only the speed but also the size of capital structure is resolved by the macro conditions of the country and these conditions should be considered along with firm specific factors. Similarly, Myers and Majluf (1984) attributed the increase or decrease in equity issuance volume under particular economic conditions. They explained that in the boom periods of economic cycle, markets based

on equity perform well. Thus, the chances of bankruptcy are reduced corporations have large tax shields and have more 'free' cash flows which means debt becomes more attractive. Now, in the recession all of this exhibits the opposite side of picture (Myers and Majluf, 1984). Bopkin (2009) took the GDP per capita as the proxy for economic conditions and proved that it is inversely related with the financial leverage, debt ratio, and short term debt ratio and positively related with external financial ratio. Thus, the first hypothesis of this study will be:

H1: GDP per capita is inversely related with Financial Leverage, Debt ratio and Short Term Debt ratio, and positively related to External Financing ratio.

Bebczuk (2000) highlighted the importance of credit markets and argued that changes in the overall economy dictate firms in their capital structure decisions. In this regard he particularly exposed the role of inflation rate and the uncertainty related to it. Korajczyk & Levy (2000) also concluded that firms determine their decision regarding the mix of securities based on firm-specific and macroeconomic factors; they further explained that in times of recession the high levered management tries to reduce debt from their capital and firms issue more equity when equity markets are enjoying high ups (Korajczyk and Levy, 2000). Similarly, Rajan and Zigles (1995), Booth et al., (2001) and Gajurel (2006) also concluded that in inflationary states of economy firms don't prefer debt as they become more expensive. Based on these inferences the second hypothesis of the study will be:

H2: Inflation rate is expected to have a negative relation with Financial Leverage, Debt ratio, and Short Term debt ratio and has a positive relation with External Financing ratio.

Drobetz et al. (2007) while exploring the impact of macro-economic factors on adjustment of targeted leverage level found that a favorite condition of the overall economy pushes the firms more towards adjustment of a target leverage level than in an unfavorable macroeconomic condition. So, it could be concluded from their inferences that at times when the rate of interest and risk is at minimum level firms will more likely to adjust their target capital structure. The same thing is also exhibited by Graham and Harvey (2001), who found a negative relation among interest rate and long as well as short term debt. Therefore, the third hypothesis of the study will be:

H3: Discount rate is inversely related with all debt ratios except External Financing ratios where it is expected to be positively related.

Loof (2004) in his study on "dynamics of capital structure adjustment" also adopted the same stance and argued about two models, i.e. equity or market dominant (also called

arm's length) and debt or bank dominant (also called relation based). The first one is prevailing mostly in US and UK while the former is more observed in Sweden and Scandinavia countries, etc. He further sum-up that most of the firms are not blessed with the targeted capital structure and firms fall in equity or market dominated system tends to more to their target capital structure compare to firms fall in debt or bank system. Another study took Bank size as bank capital over total assets and proved a positive association between debt financing and banking sector development (Kunt and Maksimovic, 1996). Hence, the fourth hypothesis:

H4: *A direct relation is expected between the bank size and all debt ratios except short term debt ratio and external financing ratio.*

Several other researchers concluded that there is a significant relationship between stock market and the decision of capital structure and they all gave their own evidences like Kunt and Maksimovic (1996), Booth et al. (2001), Agarwal and Mohtadi (2004), and Bokpin (2009) who found a negative relation between long term debt and stock market development. Thus, the final hypothesis will be:

H5: *A negative relation is anticipated between Market size and financial leverage ratio and a direct relation is expected with external financing and short term debt ratio.*

DATA & METHODOLOGY
Variables of the Study:
Dependent Variables (Leverage Ratios): From the above literature we found the following dependent variables.

Short-Term Debt Ratio (STDR): defined as Short Term Debt divided by Shareholders' Equity. Analysis of the financial statements of Pakistani firms revealed that they are mostly financed with short/medium term loans. According to Shah and Hijazi (2004) and Booth et al., (2001) banks are also reluctant to extend long term loans and ask for high interest rates and collaterals.

Financial Leverage (FL): Agarwal & Mohtadi (2004) concluded a very high and significant negative relation between financial leverage (calculated as long term debt to equity) and equity market size.

Debt Ratio (DR): the total debt over total assets constitutes this ratio and tells that how much assets are sponsored by how much debt. This ratio is particularly important for the firm's long term creditors.

External Financing Ratio (EFR): Companies functioning in Pakistan are not only relying on above mentioned sources of funds rather they opt for some other external sources as well. Thus, external financing ratio (calculated as external financing over total financing) covers those funds, firm acquired from outside sources.

Independent Variables

Macroeconomic Variables: These variables are mostly sketched from World Bank's official website.

- GDP per Capita (GPC): Gross domestic product per capita income in US$
- Inflation Rate (IR): Annual percentage rate at the year ended
- Discount Rate (DR): A mean value taken for the year—discount rate quarterly announced by SBP
- Bank Size (BS): Bank capital to asset ratio
- Market Size (MS): Market capitalization to percentage of GDP

Firm Specific Variables (Control Variables): Firm specific variables are introduced as control variables to mitigate the stochastic term. Thus, all important variables used so far by several studies in the context of capital structure determinations:

- Return on Equity (ROE): Calculated as net profit divided by equity
- Return on Assets (ROA): Calculated as net profit divided by assets
- Risk: Calculated as EBIT (current) – EBIT (previous) / EBIT (previous)
- Dividend Payout Ratio
- Asset Tangibility ratio: Calculated as fixed assets to total assets ratio

Nature and Sources of Data:

Panel data has been employed for this study as it combines the characteristics of both time series or cross sectional data. However, there are some problems associated with the panel data e.g. autocorrelation, hetersokedasticity and multicollinearity etc. Thus, a special form of regression called SUR (Seemingly Unrelated Regression) model to mitigate the effects of multicollinearity and indogeniety is employed here. Data for firm specific variables are adopted from the "Balance Sheet Analysis of joint stock companies listed at KSE (1999-2004 and 2005-2009)" only for non-financial firms' data for the sample period. In this way, we left with 12 sectors, i.e. 326 companies for the period of 10 years. Data for macroeconomic variables is taken from the World Bank's official website.

Estimation and Empirical Model:

To realize the effects of macroeconomic factors on all sort of capital structure ratios (possibly), we have the equation:

$$Yit = \ + \ Macroit + \ Xit + \mu it$$

The Yit which is the dependent variable and the subscript notations 'i' and 't' symbolize the firm and time-intervals respectively, here come our all four capital structure ratios. Similarly, ' ' stands for the constant term, 'μ' for stochastic term, ' ' for macro and ' ' for micro factors.

ANALYSIS, FINDINGS, AND INTERPRETATION

Correlation Analysis:

To check the proficiency of SUR in regard to mitigate the multicollinearity, the multicollinearity before running the SUR model in Gretl was checked. This is natural in present case to find the multicollinearity as to deal with the Macro economic variables.

Table 1: Multicollinearity Check

	Mkt._Size	Bank Size	INF_Rate	GDP_Capita	Disc._Rate
Mkt._Size	1.0000	0.5963	0.0667	0.3917	-0.3835
Bank Size	0.5963	1.0000	0.7507	0.9660	0.3821
INF_Rate	0.0667	0.7507	1.0000	0.8700	0.6945
GDP_Capita	0.3917	0.9660	0.8700	1.0000	0.5373
Disc._Rate	0.3835	0.3821	0.6945	0.5373	1.0000

In the above correlation matrix Bank size had a correlation with GDP_capita and Inflation rate equal to 0.966 and 0.751 respectively (which are considered to be highly correlated).

SUR model have an internal mechanism to handle the problem of Multicollinearity and Autocorrelation. For that purpose, we run the regression in Gretl and loaded data from Excel spread sheet. For in-depth analysis we have given the regression results separately for each sector (only selected sectors).

Table 2: SUR Analysis for KSE-100 – 51:10 (T = 510)

Independ. Variables	Dependent Variables							
	Financial Leverage		Debt Ratio		External Financing		Short Term Debt Ratio	
	Co-Eff.	T-ratio	Co-Eff.	T-ratio	Co-Eff.	T-ratio	Co-Eff.	T-ratio
Const	9.13363	2.349 **	0.6389	4.461 ***	1.1868	0.387	-1.9136	-0.352
DivPay_Policy	-1.1635	-0.8058	-0.1401	-2.63 ***	2.8692	2.520	4.6964	2.326
Asset_Tangibilit	-0.1078	-0.2938	0.1918	14.2***	0.14145	0.4895	-0.227	-0.4427
ROE	-3.8011	-95.6***	-0.0003	-0.1827	-0.0103	-0.3299	-3.869	-69.65
ROA	2.3569	1.803 *	-0.512	-10.6 ***	-1.6873	-1.637	2.911	1.593
Risk	0.04174	5.58 ***	-4.50e-8	-0.1633	-0.001	-0.1984	0.047	4.496
Mkt_Size	-9.6539	-1.396	-0.037	-0.1433	-2.973	-0.5452	8.592	0.8885
Bank_Size	2.479	1.831 *	0.0001	0.0031	0.6231	0.5835	-1.6588	-0.876
INF_Rate	22.057	1.391	0.0100	0.017	3.859	0.3085	-14.965	-0.6747
GDP_Capita	-0.036	-2.13 **	0.0001	0.1902	-0.007	-0.5729	0.01697	0.7214
Disc_Rate	-6.546	-0.2838	-0.4125	-0.4854	4.311	0.237	23.8305	0.7388
R-Square	0.7379		0.0989		0.0030		0.598	

Table 3: SUR Analysis for Cement Sector – 14:10 (T = 140)

Independ. Variables	Dependent Variables							
	Financial Leverage		Debt Ratio		External Financing		Short Term Debt Ratio	
	Co-Eff.	T-ratio	Co-Eff.	T-ratio	Co-Eff.	T-ratio	Co-Eff.	T-ratio
Const	-12.655	-1.095	0.7446	5.182 ***	-12.79	-1.54	-18.13	-0.94
DivPay_Policy	0.138	0.0443	0.1894	4.871 ***	7.004	3.122 ***	5.165	0.989
Asset_Tangibilit	4.459	1.338	-0.235	-5.67 ***	0.641	0.268	2.671	0.48
ROE	0.918	0.976	0.0247	2.113 **	-0.09	-0.134	-1.088	-0.69
ROA	-12.001	-1.703 *	-0.978	-11.7 ***	5.18	1.025	-21.94	-1.866 *
Risk	-0.0372	-0.243	-0.0798	-0.71	-0.01	-0.100	-0.074	-0.29
Mkt_Size	22.387	1.108	0.0798	0.32	3.67	0.253	38.68	1.147
Bank_Size	-2.832	-0.718	-0.0178	-0.36	-2.032	-0.718	-4.8	-0.729
INF_Rate	-34.7	-0.748	-0.0318	-0.055	-62.9	-1.89 *	-54.32	-0.702
GDP_Capita	0.0226	0.461	4.05e-07	0.066	0.04	1.155	0.036	0.45
Disc_Rate	152.46	2.271 **	0.564	0.67	19.15	0.397	262.73	2.34 **
R-Square	0.0301		0.226		0.0388		0.030	

Table 4: SUR Analysis for Chemical Sector – 26:10 (T = 260)

Independ. Variables	Dependent Variables							
	Financial Leverage		Debt Ratio		External Financing		Short Term Debt Ratio	
	Co-Eff.	T-ratio	Co-Eff.	T-ratio	Co-Eff.	T-ratio	Co-Eff.	T-ratio
Const	-3.178	-1.081	1.557	3.44 ***	-7.22	-0.512	8.1	1.7 *
DivPay_ Policy	3.519	0.9631	0.393	0.659	9.37	0.5356	-2.4	-0.414
Asset_Tangibilit	5.87	5.09 ***	-0.583	-3.10 ***	3.78	0.6858	-2.4	-1.3
ROE	-1.87	-23.4***	0.0069	0.529	0.04	0.1063	-4.6	-35.68 ***
ROA	3.34	1.96 *	-2.195	-7.88 ***	-2.73	-0.334	5.3	1.925 *
Risk	-0.050	-1.37	-0.0017	-0.298	0.033	0.1909	0.0086	0.147
Mkt_Size	-0.0229	-0.0045	0.336	0.411	9.6	0.3999	-7.079	-0.875
Bank_Size	0.010	0.01	0.0067	0.041	-1.73	-0.3618	0.91	0.5638
INF_Rate	3.926	0.33	1.610	0.836	-35.68	-0.6312	5.44	0.2859
GDP_Capita	-0.001	-0.12	-0.001	-0.344	0.0266	0.4434	-0.011	-0.5521
Disc_Rate	3.997	0.24	-1.919	-0.705	-10.40	-0.1303	-24.52	-0.9116
R-Square	0.814		0.4081		0.0169		0.908	

Table 5: SUR Analysis for Engineering Sector – 32:10 (T = 320)

Independ. Variables	Dependent Variables							
	Financial Leverage		Debt Ratio		External Financing		Short Term Debt Ratio	
	Co-Eff.	T-ratio	Co-Eff.	T-ratio	Co-Eff.	T-ratio	Co-Eff.	T-ratio
Const	-31.501	-1.521	0.4968	3.144 ***	-7.158	-0.367	-51.34	-1.48
DivPay_Policy	-1.369	-0.215	-0.182	-3.75 ***	14.52	2.425 **	-3.06	-0.289
Asset_Tangibili	10.31	1.84 *	0.203	4.751 ***	3.21	0.609	16.303	1.74 *
ROE	33.06	6.15 ***	0.200	4.887 ***	5.807	1.148	51.39	5.74 ***
ROA	-92.06	-5.7 ***	-1.0729	-8.85 ***	-1.63	-0.109	-146.7	-5.54 ***
Risk	-0.074	-0.22	-0.002	-1.016	0.108	0.347	-0.16	-0.29
Mkt_Size	41.98	1.149	0.077	0.276	1.494	0.0434	68.54	1.127
Bank_Size	-7.31	-1.02	-0.027	-0.514	-0.672	-0.100	-12.17	-1.026
INF_Rate	-121.16	-1.449	-0.326	-0.511	-36.18	-0.459	-202.117	-1.452
GDP_Capita	0.081	0.925	0.0004	0.606	0.014	0.17	0.13	0.935
Disc_Rate	276.38	2.249 **	-0.157	-0.168	17.46	0.15	455.39	2.226 **
R-Square	0.17		0.374		0.031		0.157	

Table 6: SUR Analysis for Paper and Board Sector – 9:10 (T = 90)

Independ. Variables	Dependent Variables							
	Financial Leverage		Debt Ratio		External Financing		Short Term Debt Ratio	
	Co-Eff.	T-ratio	Co-Eff.	T-ratio	Co-Eff.	T-ratio	Co-Eff.	T-ratio
Const	-1.0019	-0.407	1.3244	5.62 ***	-0.944	-0.3424	3.09691	0.5814
DivPay_Policy	6.758	3.331	0.367	1.888 *	0.915	0.4020	14.5599	3.309 ***
Asset_Tangibili	2.98	3.17 ***	0.0270	0.2996	2.467	2.338 **	0.508467	0.2495
ROE	-3.407	-12.4***	0.0275	1.051	0.3347	1.090	-8.0844	-13.64 ***
ROA	1.722	1.23 ***	-1.659	-12.4 ***	0.5402	0.3459	3.13227	1.039
Risk	0.006	0.387	-0.002	-1.37	-0.0025	-0.1288	0.0217	0.5614
Mkt_Size	5.642	1.299	-0.0207	-0.049	6.3232	1.296	10.6936	1.135
Bank_Size	-0.92	-1.087	0.049	0.606	-0.3222	-0.3385	-1.75644	-0.9556
INF_Rate	1.200	0.1211	1.218	1.282	5.2094	0.4682	19.5605	0.9104
GDP_Capita	0.0086	0.826	-0.001	-1.039	-7.1e-9	-0.00604	0.01608	0.7053
Disc_Rate	-1.329	-0.092	-2.644	-1.919 *	8.303	0.515	-36.384	-1.169
R-Square	0.366		0.413		0.03627		0.383291	

Table 7: SUR Analysis for Sugar Sector – 33:10 (T = 330)

Independ. Variables	Dependent Variables							
	Financial Leverage		Debt Ratio		External Financing		Short Term Debt Ratio	
	Co-Eff.	T-ratio	Co-Eff.	T-ratio	Co-Eff.	T-ratio	Co-Eff.	T-ratio
Const	-0.7923	-0.557	1.059	1.383	-2.849	-0.549	-7.9986	-0.756
DivPay_Policy	-0.7506	-0.5755	-0.7487	-1.065	-2.3428	-0.4925	-1.5447	-0.159
Asset_Tangibili	1.088	2.315 **	-0.1661	-0.655	-0.6135	-0.3577	12.75	3.648
ROE	-0.5426	-6.8 ***	0.00593	0.138	-0.0293	-0.1014	-28.55	-48.41
ROA	2.2204	2.218 **	-2.0559	-3.81 ***	-3.1728	-0.8692	42.90	5.765
Risk	-0.0599	-1.194	0.0428	1.580	-0.0913	-0.4984	0.5624	1.506
Mkt_Size	-0.8661	-0.353	0.3714	0.2804	4.594	0.5129	4.042	0.2213
Bank_Size	0.007	0.0144	-0.139	-0.527	-1.3506	-0.7567	-1.0529	-0.289
INF_Rate	-0.639	-0.114	0.5291	0.1749	-14.082	-0.6881	-26.1157	-0.626
GDP_Capita	0.0012	0.2073	0.0016	0.509	0.0165	0.752	-0.0020	-0.0448
Disc_Rate	-2.989	-0.362	-3.921	-0.881	13.712	0.4556	115.094	1.876 *
R-Square	0.3848		0.2316		0.04599		0.9652	

Table 8: SUR Analysis for Tobacco Sector – 3:10 (T = 30)

Independ. Variables	Dependent Variables							
	Financial Leverage		Debt Ratio		External Financing		Short Term Debt Ratio	
	Co-Eff.	T-ratio	Co-Eff.	T-ratio	Co-Eff.	T-ratio	Co-Eff.	T-ratio
Const	13.74	1.149	0.498	0.928	-13.438	-0.92	32.5436	1.639
DivPay_Policy	-1.439	-0.0735	-1.234	-1.406	0.372	0.015	17.1016	0.5262
Asset_Tangibili	-2.1518	-0.463	1.2089	5.807 ***	6.59	1.165	-2.8416	-0.3685
ROE	-0.454	-2.62***	0.0036	0.469	-0.116	-0.55	-4.7148	-16.49 ***
ROA	7.966	1.143	-0.794	-2.54 **	4.121	0.48	12.2191	1.056
Risk	-0.0008	-0.077	-0.00013	-0.287	-0.0034	-0.2692	-0.0027	-0.1555
Mkt_Size	-13.137	-0.62	-0.6649	-0.7051	-9.946	-0.3881	-39.79	-1.139
Bank_Size	2.014	0.489	0.1308	0.7088	1.923	0.3833	4.7957	0.7012
INF_Rate	2.598	0.0537	2.059	0.9504	-58.05	-0.986	30.6020	0.3814
GDP_Capita	-0.0332	-0.648	-0.00096	-0.4188	-0.008	-0.1287	-0.0650	-0.7645
Disc_Rate	-16.24	-0.230	-5.596	-1.770 *	78.72	0.9161	-137.61	-1.175
R-Square	0.047616		0.1813		0.0188		0.4628	

Table 9: SUR Analysis for Transport & Communi. Sector – 5:10 (T = 50)

Independ. Variables	Dependent Variables							
	Financial Leverage		Debt Ratio		External Financing		Short Term Debt Ratio	
	Co-Eff.	T-ratio	Co-Eff.	T-ratio	Co-Eff.	T-ratio	Co-Eff.	T-ratio
Const	0.3526	1.530	0.5469	0.1200	-8.909	-1.16	-1.258	-0.6849
DivPay_Policy	-0.6463	-3.20***	12.35	3.097 ***	-3.101	-0.4614	-3.7118	-2.308 **
Asset_Tangibilit	0.136	1.135	3.01336	1.269	3.760	0.9394	5.38052	5.618 ***
ROE	0.4173	3.97 ***	-10.8135	-5.20 ***	2.137	0.6108	4.499	5.375 ***
ROA	-0.0585	-1.091	3.3342	3.144 ***	-2.943	-1.647	-1.054	-2.466 **
Risk	0.05022	3.65 ***	-1.02009	-3.75 ***	0.0192	0.04207	0.385	3.517 ***
Mkt_Size	-1.2245	-2.88***	12.4035	1.480	5.6855	0.4027	-2.800	-0.8289
Bank_Size	0.124	1.571	-0.9016	-0.5779	-0.09528	-0.03624	-0.47	-0.7537
INF_Rate	1.2249	1.451	-6.897	-0.4134	-43.886	-1.561	0.9352	0.1391
GDP_Capita	-0.0011	-1.189	0.0032	0.1754	0.0108	0.3432	0.00495	0.6574
Disc_Rate	-3.8987	-2.76 **	36.16	1.298	40.41	0.8612	-8.84063	-0.7873
R-Square	0.432		0.6311		0.271466		0.8324	

Table 10: SUR Analysis for Miscellaneous Sector – 46:10 (T = 460)

Independ. Variables	Dependent Variables							
	Financial Leverage		Debt Ratio		External Financing		Short Term Debt Ratio	
	Co-Eff.	T-ratio	Co-Eff.	T-ratio	Co-Eff.	T-ratio	Co-Eff.	T-ratio
Const	17.517	2.671 **	0.4949	1.152	59.9764	1.222	-1.209	-0.0368
DivPay_Policy	-4.7738	-0.514	-0.1885	-0.3099	112.019	1.612	14.078	0.3178
Asset_Tangibilit	-1.704	-0.6588	0.0995	0.5878	-0.7468	-0.0385	-2.654	-0.215
ROE	-4.826	-509***	-0.0003	-0.4908	0.0903	1.276	-3.3711	-74.67 ***
ROA	9.769	2.048 **	-1.597	-5.11 ***	-109.16	-3.059 ***	-24.62	-1.082
Risk	0.0289	0.9563	-0.003	-1.602	0.0092	0.041	0.01518	-0.1053
Mkt_Size	-8.697	-0.809	0.2007	0.2852	-61.30	-0.762	23.0986	0.4505
Bank_Size	2.545	1.13	-0.132	-0.8916	17.73	1.052	3.048	0.2836
INF_Rate	70.549	2.92 ***	0.326	0.2068	362.41	2.008 *	-62.42	-0.5426
GDP_Capita	-0.0468	-1.68	0.0019	1.051	-0.2416	-1.161	-0.0304	-0.2293
Disc_Rate	-53.79	-1.526	-2.533	-1.097	-235.94	-0.8948	64.96	0.364
R-Square	0.999		0.6605		0.3192		0.9932	

Table 11: Expected and Observed Relationships with various

Independ. Variables	Dependent Variables							
	Financial Leverage		Debt Ratio		External Financing		Short Term Debt Ratio	
	Co-Eff.	T-ratio	Co-Eff.	T-ratio	Co-Eff.	T-ratio	Co-Eff.	T-ratio
Const	0.8643	0.9724	0.4798	1.094	2.804	0.7681	-5.2769	-1.283
DivPay_Policy	0.4484	1.812 *	-0.0674	-0.552	4.8929	4.814 ***	5.4284	4.74 ***
Asset_Tangibili	0.4631	2.031 **	0.4448	3.955 ***	0.01251	0.01337	-3.993	-3.785 ***
ROE	-0.3861	- 7.43***	-0.0050	-0.1959	-0.0781	-0.3666	-5.6295	-23.43 ***
ROA	-0.0334	-0.140	-0.3520	-2.98 ***	-2.2305	-2.272 **	2.566	2.32 **
Risk	0.00248	0.4241	-0.0051	-1.787 *	-0.0132	-0.5522	0.01089	0.4025
Mkt_Size	-0.4904	-0.313	-0.1597	-0.2066	-4.379	-0.6805	15.097	2.082 **
Bank_Size	0.2716	0.8824	0.069	0.4545	1.5329	1.213	-3.297	-2.315 **
INF_Rate	8.6187	2.394 **	0.552	0.3109	10.6052	0.717	-22.66	-1.36
GDP_Capita	-0.0046	-1.211	-0.0006	-0.3546	-0.0199	-1.267	0.039	2.217 **
Disc_Rate	-1.4667	-0.281	0.00147	0.00057	3.7240	0.1737	24.214	1.003
R-Square	0.1381		0.0718		0.05623		0.55718	

Table 12: Capital Structure Ratios

Sectors	Dependant Variables	Financial Leverage					Debt Ratio					External Financing Ratio					Short Term Debt Ratio				
	Independent Variables	GPC	IR	DR	BS	MS	GPC	IR	DR	BS	MS	GPC	IR	DR	BS	MS	GPC	IR	DR	BS	MS
	Expected Relation	-ve	-ve	-ve	+ve	-ve	-ve	-ve	-ve	+ve	-ve	+ve	+ve	+ve	-ve	+ve	-ve	-ve	-ve	-ve	+ve
KSE All	Observed Relation	-ve	+ve	-ve	+ve	-ve	+ve	+ve	-ve	+ve	-ve	-ve	+ve	+ve	+ve	-ve	+ve	-ve	+ve	-ve	+ve
KSE 100 Index	Observed Relation	+ve	-ve	+ve	-ve	+ve	+ve	-ve	+ve	-ve	+ve	+ve	-ve	+ve	-ve	+ve	+ve	-ve	+ve	-ve	+ve
Cement	Observed Relation	-ve	+ve	+ve	+ve	-ve	-ve	+ve	-ve	+ve	+ve	+ve	-ve	-ve	-ve	+ve	-ve	+ve	-ve	+ve	-ve
Chemical	Observed Relation	+ve	-ve	+ve	-ve	+ve	+ve	-ve	-ve	-ve	+ve	+ve	-ve	+ve	-ve	+ve	+ve	-ve	+ve	-ve	+ve
Engineer.	Observed Relation	+ve	+ve	-ve	-ve	+ve	-ve	+ve	-ve	+ve	-ve	-ve	+ve	+ve	-ve	+ve	+ve	+ve	-ve	-ve	+ve
Paper & Board	Observed Rela	+ve	-ve	-ve	+ve	-ve	+ve	+ve	-ve	-ve	+ve	+ve	-ve	+ve	-ve	+ve	-ve	-ve	+ve	-ve	+ve

(...contd)

Sugar	**Observed Relation**	-ve	+ve	-ve	+ve	-ve	-ve	+ve	-ve	+ve	-ve	-ve	-ve	+ve	+ve	-ve	-ve	+ve	-ve	+ve	-ve
Tobacco	**Observed Relation**	-ve	+ve	-ve	+ve	-ve	+ve	-ve	+ve	-ve	+ve	+ve	-ve	+ve	-ve	+ve	+ve	+ve	-ve	-ve	-ve
Transp. & Comm.	**Observed Relation**	-ve	+ve	-ve	+ve	-ve	+ve	+ve	-ve	-ve	+ve	-ve	+ve	-ve	+ve	-ve	-ve	-ve	+ve	+ve	+ve
Miscellan.	**Observed Relation**	-ve	+ve	-ve	+ve	-ve	-ve	+ve	+ve	+ve	-ve	-ve	+ve	-ve	+ve	-ve	+ve	-ve	-ve	-ve	+ve

Interpretations of the SUR Results:

It is evident from the above results that all the company specific variables showed highly significance when regressed through SUR and hence, validated the previous literature. As for the macro factors are concerned the following results are established:

GDP per Capita was used as an indication for the overall financial betterment of people of the country and showed an indirect (and statistically significant) relation with financial leverage and direct relation with short term debt ratio for 'KSE all companies' and 'miscellaneous' sectors respectively. So, we accept the following hypothesis for the mentioned sectors.

H1: GDP per capita is inversely related with financial leverage, debt ratio and short term debt ratio, and positively related to external financing ratio.

Inflation Rate showed a positive (and statistically significant) relationship with financial leverage and external financing ratio and a negative relation with short term debt ratio for both 'transport and communication' and 'miscellaneous' sectors. The following hypothesis is accepted partially.

H2: Inflation rate is expected to have a negative relation with financial leverage, debt ratio, and short term debt ratio and has a positive relation with external financing ratio.

Discount Rate is the most significant variable which is positively related with financial leverage and short term debt ratio for 'KSE 100 index' and 'chemical' sectors and negatively related with financial leverage for 'tobacco' sector. Again, the following hypothesis is accepted partially.

H3: *Discount rate is inversely related with all debt ratios except external financing ratios where it is expected to be positively related.*

Bank Size proved to be positively related with financial leverage for 'KSE all sector' which means as banking industry gets development the borrowing capacity also increases and so their tendency as well. Hence, we can safely accept the following hypothesis.

H4: *A direct relation is expected between bank size and all debt ratios except short term debt ratio and external financing ratio.*

Market Size unfortunately, market size didn't prove its significance with any of the variables. So, we reject the following hypothesis.

H5: *A negative relation is anticipated between Market size and financial leverage ratio and a direct relation is expected with external financing and short term debt ratio.*

CONCLUSION

The major hunch behind this study was that there could be a relationship between capital structure of firms and the macroeconomic development of the country (Frank and Goyal, 2003). Five important macroeconomic variables (Market size, Bank size, Inflation rate, Discount rate, and GDP per capita) were taken to investigate this relationship. A panel data was used of companies listed at KSE and observed the effects on individual sectors. The segregated results using SUR Model exhibited different preferences for each sector. Though, the company specific variables showed highly significant results when regressed through SUR but our emphasis remained upon the macroeconomic variables. Discount rate is proved to be the most significant macroeconomic variable followed by GDP per capita, Inflation rate and Bank size. In most of the cases these results were at par with the pre-specified hypotheses. Thus, the interest rates announced by the SBP are most crucial and investors as well as the management of these companies closely observe them. Similarly, the economic state of the people and of the country also influences the debt/equity decision of the management. High inflation rates force people to invest in the stock exchanges rather to put them into banks. And finally, the banking industry development also allow banks to extend loans to a greater number of firms.

RECOMMENDATIONS

As, it has been evident from the literature that very little attention has been given so far to the relationship between capital structure and the macroeconomic indicators of a country. Therefore, it is suggested to the researchers interested in this field to focus on this area. Though, we got some clues that there is a relationship between the capital structure and government economic policies, however, the period of our study is not normal (some of the years are evidence of economic boom and some of the recession), so, it is suggested to select a normal time period for such a study. Similarly, there are other techniques available for simultaneous equations e.g. 2SLS and 3SLS etc. which could be applied in future research as well.

REFERENCES

Agarwal, S. & Mohtadi, H. (2004). Financial markets and the Finance choice of firms in developing countries. Global Journal of Finance, Vol. 15(1), pp. 57-70.

Bebczuk, R. (2000). Corporate saving and financing decisions in Argentina, paper presented at the Quintas Jornadas de Economia Monetaria e Intenation, Universidad Nacionald de La Plata, La Plata, available at: www.depeco.econo.unlp.edu.ar/jemi/2000/trabajo9.pdf

Bokpin, G.A. (2009). Macroeconomic development and capital structure decisions of firms: evidence from emerging market economies. Studies in Economics and Finance, Vol. 26 (2), pp. 129-142.

Booth, L., Aivazian, V., Demiguc-Kunt, A. & Maksimovic, V. (2001). Capital Structure in developing countries. Journal of Finance, Vol.56

Drobetz, W., Pensa, P. & Wanzenried, G. (2007). Firm characteristics, economic conditions and capital structure adjustment. WWZ working paper, Center of Business and Economics (WWZ), University of Basel, Basel.

Gajurel, D. N. (2006). Macroeconomic Influence on corporate capital structure.

Graham, J. & Harvey, C. (2001). The theory and practice of corporate finance: evidence from the field. Journal of Financial Economics, Vol. 60(2-3), pp. 187-243.

Hackbarth, D., Miao, J. & Morellec, E. (2006). Capital structure, credit risk and macroeconomic conditions. Journal of Financial Economics, Vol.82(3), pp.519-50.

Hovakimian, A., Hovakimian, G. & Tehranian, H. (2004). Determinants of target Capital structure: the case of dual debt and equity issues. Journal of Financial Economics, Vol. 71(3), pp. 517-40.

Ilyas, J. (2008). The determinants of capital structure: Analysis of non-Financial firms listed in Karachi stock exchange in Pakistan", www.qurtuba.edu.pk/jms/default…/2…/08_jasir_ilyas.pdf.

Kunt, D. A. & Maksimovic, V. (1996). Stock Market Development and Corporate Finance Decisions. Finance and Development, pp.47-49.

Loof, H. (2004). Dynamic optimal capital structure and technical change. Structural Change and Economic Dynamics, Vol. 15(14), pp. 449-68.

Mahmud, M. (2003). The relationship between economic growth and capital structure of listed companies: evidence of Japan, Malaysia, and Pakistan. The Pakistan Development Review, Vol.42(4) Part II, pp. 727-750.

Modigliani, F. & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. American Economic Review, Vol. 48(3), pp. 261-97.

Modigliani, F. & Miller, M. H. (1963). Corporate income taxes and the cost of capital: a correction. American Economic Review, Vol. 53(3), pp. 443-53.

Myers, S. & Majluf, N. (1984). Corporate Financial decisions when firms have information investors do not have. Journal of Financial Economics, Vol.13(4), pp. 187-221.

Rajan, R.G. & Zingales, L. (1995). What do we know about capital structure: some evidence from international data. Journal of Finance, Vol.50(5), pp. 1421-60.

Shah, A. & Hijazi S. (2004). The Determinants of Capital Structure in Pakistani Listed Non-Financial Firms. presented at 20th AGM & Conference of Pak Society of Development Economics (Jan. 11, 2004).

Shah, A. & Khan S. (2007). Determinants of Capital structure: evidence from Pakistani panel data International Review of Business Research Papers, Vol.3(4), pp 265-282.

Zellner & Arnold (1962). An efficient method of estimating seemingly unrelated regression equations and tests for aggregation bias. Journal of the American Statistical Association, Vol. 57: 348–368

Shareef Ullah: Lecturer (Finance), City University of Science & Information Technology, Peshawar. Ph.D (Research Scholar) Iqra National University, Peshawar. More than 2 years experience in teaching and research. Published one research papers. E-mail: sharifjn@gmail.com

Mohammad Ovais: Assistant Professor (Marketing), Iqra National University, Peshawar. Ph.D (Research Scholar) Institute of Management Sciences Peshawar. More than 8 years experience in teaching and research. Published two research papers. E-mail: umerkhelovais@gmail.com

Zunnoorain Khan: Lecturer. City University Peshawar. MS Management Sciences (HR), Three years teaching experience in Preston University, Area of Interest, organizational development. E-mail: zunnoorainkhan@yahoo.com