BOOTH REVISITED: IDENTIFYING THE DETERMINANTS OF CAPITAL STRUCTURE IN THE SUGAR SECTOR

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Abstract

The study assesses whether selected exogenous variables: tax rate, size, asset tangibility, volatility and profitability, affect capital structure in a significant manner in the sugar industry. It suggests that decision on capital structuring is found to be weakly affected by the variables chosen in our study. This is also consistent with the results of Booth et al (2001) where modern financial theory is found to be weakly portable across a group of developed and developing countries. It is recommended that more empirical work is done in order to understand the impact of capital structure choices.

I. Introduction

Capital structure refers to the way a corporation finances itself through some combination of equity sales, equity options, bonds, and loans. Optimal capital structure refers to the particular combination that minimizes the cost of capital while maximizing the stock price. Is there an optimal capital structure, one that allows a corporation to get the most bang for its bucks? If so, what is that structure and on what factors does it depend? We derive our knowledge of capital structures from developed economies that have institutional similarities. The purpose of this paper is to analyze the capital structure choices made by various companies.

The paper is organized as follows Section II reviews the literature on determinants of capital structure; section III discusses the methodology and the data. Section IV presents the results and conclusions are provided in section V.

II. An elective review of the literature

Modigliani & Miller (1958) forms the basis for modern thinking on capital structure. The basic theorem states that, in the absence of taxes, bankruptcy costs, and asymmetric information, and in an efficient market, the value of a firm is unaffected by how that firm is financed. It does not matter if the firm's capital is raised by issuing stock or selling debt. It does not matter what the firm's dividend policy is.

Several studies on determination of capital structure focus on those forces that move firms away from their target ratios and give the impression that a firm's history is a more important determinant of capital structure than are firm characteristics that proxy for the costs and benefits of debt versus equity financing.

Capital structure theory suggests that firms determine what is often referred to as a target debt-equity ratio, which is based on various tradeoffs between the costs and benefits of debt versus equity. In a recent survey of CFOs, Graham and Harvey (2001) report that 37% of their respondents have a flexible capital structure target, 34% have a somewhat tight target or range and 10% have a strict target. Consistent with the idea that targets may be flexible, capital structure theory provides arguments based on information asymmetries, market inefficiencies, and transaction costs that explain why firms' cash flows, investment expenditures and stock price histories can lead them to deviate from the targets suggested by the traditional tradeoff theories.

Other factors suggested by authors as determinants of capital structure are past profitability, financial deficits, past stock returns and market timing.

Past profitability: Titman and Wessels (1988) and others find that firms with higher past profits tend to have lower debt ratios. This evidence, which has been attributed to the Donaldson (1961) and Myers (1984) studies of pecking order of financing preferences, is consistent with tax, transaction costs, and adverse selection arguments that imply that internally generated equity is less costly than equity capital that is raised externally.

Financial deficits: Shyam-Sunder and Myers (1999) find that firms with higher financial deficits, i.e., firms that raise more external capital, tend to increase their leverage. This evidence is consistent with Myers and Majluf's (1984) adverse selection model.

Market timing: Baker and Wurgler (2002) examine the tendency of managers to "time the equity markets" by interacting the market-to-book ratio with the amount of capital that a firm raises (i.e., its financial deficit). Their evidence suggests that firms tend to reduce their leverage ratios when they raise substantial amounts of capital when the equity market is perceived to be more favorable, (i.e., when market-to-book ratios are higher). There seems to be a consensus in the literature that suggests that these variables affect capital structures, at least temporarily.

To examine changes in capital structure over somewhat longer time periods (5 and 10 year changes) Shyam-Sunder and Myers (1999) and Frank and Goyal (2003) look at changes in leverage over one year. We will include one year changes in capital structuring.

A study by Miao (2005) provides a competitive equilibrium model of capital structure and industry dynamics. In the model, firms make financing, investment, entry, and exit decisions subject to idiosyncratic technology shocks. The capital structure choice reflects the tradeoff between the tax benefits of debt and associated bankruptcy and agency costs. The interaction between financing and production decisions influences the stationary distribution of firms and their survival probabilities. The analysis demonstrates that the "equilibrium" output price has an important feedback effect. This effect has a number of testable implications. For example it implies that high growth industries have relatively lower leverage and turnover rates.

Malmendier and Tate (2005) argue that managerial overconfidence can account for corporate investment distortions. Overconfident managers overestimate the returns to their investment projects and view external funds as unduly costly. Thus, they overinvest when they have abundant internal funds, but curtail investment when they require external financing. They test the overconfidence hypothesis, using panel data on personal portfolio and corporate investment decisions of Forbes 500 CEOs in (given year). They classify CEOs as overconfident if they persistently fail to reduce their personal exposure to company-specific risk. Their finding was that investment of overconfident CEOs is significantly more responsive to cash flow, particularly in equity-dependent firms.

Several authors have studied the conditions under which the different policies for CEO compensation are preferred by shareholders. Fang (2005) discusses the relation between investment bank reputation and the price and quality of bond underwriting services. After controlling for endogeneity in issuer–underwriter matching, the author found that reputable banks obtain lower yields and charge higher fees, but issuers' net proceeds are higher. These relations are pronounced in the junk-bond category, in which reputable banks' underwriting criteria are most stringent. These findings suggest that banks' underwriting decisions reflect reputation concerns, and are thus informative of issue quality. They also suggest that economic rents are earned on reputation, and thereby provide continued incentives for underwriters to maintain reputation. This can enhance the growth rate of capitalization.

In a related work, Hodder and Senbet (1990) concluded that differences in international tax rate alone are incapable of dictating a particular capital structure for an individual firm. On the empirical side, gearing ratios cannot be expected to be the same in different tax jurisdictions. Textbooks see for example Gitman (2000:505) and Brealy and Myers (1991), contain figures that show relatively higher level of debt for firms that are based in Europe and Asia. Rajan and Zingales (1995) reported that aggregate level permanent debt capital ratio in the G7 countries had been fairly similar over the 1984-1991 period. Ceteris paribus the Rajan and Zimgales (op cit) report, economists attribute the difference to extent of financial intermediation, differences in institutional structures

governing bankruptcy policy, debt renegotiation and differences in the market for corporate control. The literature on international accounting adds accounting method differences as an additional explanation.

We follow Booth et al (2001) who assessed whether capital strucutre theory is portable across countries with different institutional structures. They analyse capital structure choices of firms in ten countries, and provide evidence that these decisions are affected by the same variables in both developing and developed countries. However the authors found that there are persistent differences across countries indicating that country specific factors are at work. Also Booth's findings suggest that although some of the insights from modern finance theory are portable across countries, others are not.

III. Data and Methodology

III.1. Data

There are presently 71-sugar mills operating in Pakistan. 38 are located in Punjab, 28 in Sindh and 5 in NWFP. Details are given in Table 1. 33 sugar manufacturing corporations are listed on Karachi stock exchange. Nine of these sugar companies are theoritically bankrupt as they have negative equity. They are, therefore, not included in the main body of this analysis. However they have been separately analyzed in Appendix –1.

Table 1:
Sugar mills listed on KSE 2007

1	**1992**	Sindh	Al - Abbas Sugar Mills Limited
2	**1979**	Sindh	Al - Noor Sugar Mills Limited
3	**1987**	Sindh	Dewan Sugar Mills Limited
4	**1984**	Sindh	Faran Sugar Mills Limited
5	**1963**	Sindh	Habib Sugar Mills Ltd. **
6	**1982**	Sindh	Habib Arkady Limited **
7	**1968**	Sindh	Mehran Sugar Mills Limited
8	**1964**	Sindh	Mirpurkhas Sugar Mills Limited
9	**1989**	Sindh	Sanghar Sugar Mills Limited
10	**1984**	Sindh	Shahmurad Sugar Mills Limited
11	**1987**	Sindh	Sind Abadgars Sugar Mills Limi
12	**1967**	Punjab	Adam Sugar
13	**1965**	Punjab	Crescent Sugar Mills & Distill
14	**1994**	Punjab	Haseeb Waqas Sugar Mills Limit
15	**1967**	Punjab	Husein Sugar Mills & Distiller
16	**1973**	Punjab	Kohinoor Sugar Mills Limited
17	**1966**	Punjab	Noon Sugar Mills Limited
18	**1967**	Punjab	Shahtaj Sugar Mills Limited
19	**1970**	Punjab	Shakerganj Sugar Mills Limited

20	**1992**	Punjab	Tandianwala Sugar Mills Limite
21	**1967**	Punjab	Thal Industrial Corporation Li
22	**1991**	N.W.F.P	Chashma Sugar Mills Limited
23	**1961**	N.W.F.P	Frontier Sugar Mills & Distill
24	**1955**	N.W.F.P	Premier Sugar
25	***1990**	Sindh	Al - Asif Sugar Mills Limited
26	***1991**	Sindh	Ansari Sugar Mills Limited
27	***1965**	Sindh	Bawany Sugar Mills Limited
28	***1993**	Sindh	Khairpur Sugar
29	***1994**	Sindh	Mirza Sugar Mills Limited
30	***1987**	Sindh	Pangrio Sugar Mills Limited
31	***1990**	Sindh	Sakrand Sugar Mills Limited
32	***1984**	Punjab	Baba Farid Sugar Mills Limited
33	***1971**	Punjab	United Sugar Mills Limited

The data for the study has been taken from the annual reports of sugar mills for the period 2000-2005. The data set is being extended to cover the period 1981-2005 to enable us to incorporate macro variables as explanatory factors. Regression analysis has been performed on the data converted in log form.

The list of abbreviations used in results is provided below.

TR = Tax rate
ROA = Return on Assets
S = Size of the firm
AT = Asset tangibility
TDR = Total Debt Ratio
MBR = Market-to-book ratio
LBDR = Long-term book-debt ratio
LMDR = Long-term market-debt ratio

III.2. Methodology

Following Booth et al (2001) we estimate the following models under random and fixed effect conditions using pooled regression techniques. These single equation models were estimated to determine capital structure determinants for the sugar sector during 2000-2005.

TDR = f (TR, ROA, AT, MBR, S)
LBDR = f (TR, ROA, AT, MBR, S)
LMDR = f (TR, ROA, AT, MBR, S)

Explanation of Variables:

Determinants of capital structure have been identified as tax rate, size, asset tangibility, volatility and profitability. Business risk has been identified as a capital structure determinant by Booth 2001 but due to unavailability of data we have been unable to incorporate it in our analysis. Variables used in this analysis are discussed below.

Tax rate: For individual firms, defining tax is difficult. Thus we calculated the average tax rate from data on both earnings before and earnings after tax.

Profitability: The ratio of earnings before tax to total assets is used to calculate profitability. Past profitability of the firm is an important determinant of its capital structure.

Size: Natural logarithm of sales is used as indicator of size. Size is expected to be associated with cost of financial distress. Small firms tend to be liquidated more easily.

Asset tangibility: The ratio of fixed to total assets is used to estimate assets tangibility. The rationale underlying this factor is that tangible assets are easy to collateralize and thus they reduce the agency costs of debt.

Market-to-book ratio: The market value of equity divided by the book value of the equity. Firms with high market-to-book ratios have higher cost of financial distress.

Total-debt ratio: Total liabilities divided by total liabilities plus net worth is equal to total-debt ratio. It is used to estimate the debt-equity choice of the company.

Long-term book-debt ratio: Total liabilities minus current liabilities divided by Total liabilities minus current liabilities plus net worth is long-term book-debt ratio.

Long-term market-debt ratio: Total liabilities minus current liabilities divided by Total liabilities minus current liabilities plus net worth at market value is long-term market-debt ratio. Through this long term debt financing has been focused, based on the market position of the firm.

All equations are estimated for the sugar sector by fixed and random effects pooled regression models. The presence of cross-section and period specific effects may be handled using fixed or random effects methods. We can specify models containing effects in one or both dimensions, for example, a fixed effect in the cross-section dimension and a random effect in the period dimension, or a fixed effect in the cross-section and a random effect in the period dimension.

The fixed effects portions of specifications are handled using orthogonal projections. In the simple one-way fixed effect specifications and the balanced two-way fixed specification, these projections involve the familiar approach of removing cross-section or period specific means from the dependent variable and exogenous variables.

The random effects specifications assume that the corresponding effects are realizations of independent random variables with mean zero and finite variance. Most

importantly, the random effects specification assumes that the effect is uncorrelated with the distinguishing residuals.

Companies in our sample follow different financial accounting practices. Because of these accounting differences, it is not always easy to compare financial statements across companies. These accounting differences could have had an impact on our results, especially on the book-debt ratios.

We (like Booth et al 2001) choose variables to explain capital structure differences on the basis of Pecking Order Hypothesis (POH), which says that financial market imperfections are a core hurdle in explaining capital structure. If external financing is necessary the same argument implies that firms should issue debt before considering external equity informational asymmetries. This provides a justification for a financing hierarchies approach.

Table 2 provides the averages of the three debt ratios for the companies included in the study. The total debt ratio varies from a low of 30.3% in Brazil and 73.4% in Korea according to Booth's (2001) investigation. The average total debt ratio for Pakistan sugar mills during 2000 – 2005 is 56.7 percent ranging between 22 percent (for NWFP) to 70 percent (for Punjab) with in the sample it ranges between 8.1% (Premier Sugar) and 86.1% (Mirpurkhas Sugar). This large inter provincial variability is mainly due to the age of the companies as we observe that on average the higher the age, the lower the total debt ratio.

Table 2:

Average Debt Ratios 2001-2005

Year of listing	Province	Sugar mills	total debt ratio	long-term book dept ratio	long-term market dept ratio
1992	S	Al - Abbas Sugar Mills Limited	51.9	18.1	12.2
1979	S	Al - Noor Sugar Mills Limited	73.7	49.5	45.5
1987	S	Dewan Sugar Mills Limited	83.6	56.3	51.3
1984	S	Faran Sugar Mills Limited	84.4	67.4	76.3
1963	S	Habib Sugar Mills Ltd. **	48.5	17.3	13.6
1982	S	Habib Arkady Limited **	26.5	0.8	0.6
1968	S	Mehran Sugar Mills Limited	76.3	56.4	48.3
1984	S	Mirpurkhas Sugar Mills Limited	86.1	91.7	24.2
1989	S	Sanghar Sugar Mills Limited	77.3	61.8	74.7
1984	S	Shahmurad Sugar Mills Limited	81.1	55.5	64.1
1987	S	Sind Abadgars Sugar Mills Limi	84.3	57.1	69.7
		Average (Sindh)	70.3	48.3	43.7
1967	P	Adam Sugar	70.1	40.9	39.3
1965	P	Crescent Sugar Mills & Distill	55.7	14.4	10.5
1994	P	Haseeb Waqas Sugar Mills Limit	46.4	17.0	19.1

1967	P	Husein Sugar Mills & Distiller	43.0	3.1	1.9
1973	P	Kohinoor Sugar Mills Limited	47.4	23.7	20.9
1966	P	Noon Sugar Mills Limited	17.9	2.0	1.2
1967	P	Shahtaj Sugar Mills Limited	46.7	17.8	12.2
1970	P	Shakerganj Sugar Mills Limited	73.3	47.6	37.5
1992	P	Tandianwala Sugar Mills Limite	57.1	24.2	21.0
1967	P	Thal Industrial Corporation Li	83.5	46.6	8.7
		Average (Punjab)	54.1	23.7	17.2
1991	N	Chashma Sugar Mills Limited	48.7	16.2	11.9
1961	N	Frontier Sugar Mills & Distill	11.7	6.6	3.9
1955	N	Premier Sugar	8.1	0.0	0.0
		Average (NWFP)	22.8	7.6	5.3
		overall avearage (Pakistan)	56.7	33.2	28.1

The difference between total debt ratios and long-term debt ratios were much more pronounced in Booth's study between developing and developed countries. We note a similar tendency on an inter-provincial basis. The highest debt ratios are thus in the most developed provinces of Pakistan and the lowest in least developed provinces However average long-term debt ratio is 48.3% for Sindh; 23.7% for Punjab and only 7.6% for NWFP, the average long-term debt ratios are 43.7% for Sindh; 17.2% for Punjab and 5.3% for NWFP.

Table 3 shows that on average tax rate has been nearly 16%. The extreme values have been omitted in calculation of averages. The real difference due to location is negligible.

Table 3:

TAX RATES

	2001	2002	2003	2004	2005		
average							
s Al - Abbas Sugar Mills Ltd.	31.41		105.74	18.89	-10.47		
10.02 31.12							
s Al - Noor Sugar Mills Ltd.	-35.87		4.10	49.41	-123.14	-8.77	
-22.86							
s Dewan Sugar Mills Ltd.	9313.24		-5.74	-78.50	-108.76	81.36	
1840.32							
s Faran Sugar Mills Ltd.	25.58		-2.28	63.77	0.90	16.06	20.81
s Habib Sugar Mills Ltd.	26.33		124.88	24.41	19.57	21.70	43.38
s Habib Arkady Limited	14.28		17.49	-10.98	8.52	23.05	10.47
s Mehran Sugar Mills Ltd.	20.78		-4.32	-330.31	59.14		
260.04		1.07					

s	Mirpurkhas Sugar Mills Ltd.	16.16		10.43	8.30	-0.03	-2.02	6.57		
s	Sanghar Sugar Mills Ltd.	369.30		0.63	33.74	77.72	-177.02	60.87		
s	Shahmurad Sugar Mills Ltd.	-87.08		-2.87	-6.78	4171.90	10.14	817.06		
s	Sind Abadgars Sugar Mills Ltd	11.15		38.16	-2.99	35.12	-4.33	15.42		
Average (Sind)		12.72	42.65	21.54	-9.93	7.96	14.99			
p	Adam Sugar	-5.41		18.24	73.10	7.71	7.58	20.24		
p	Crescent Sugar Mills & Distill	59.05		42.91	-35.26	34.31	15.27	23.26		
p	Haseeb Waqas Sugar Mills Ltd	-4.50		9.81	282.24	-29.50	47.75	61.16		
p	Husein Sugar Mills & Distiller	-2.78		-0.02	37.25	30.13	34.93	19.90		
p	Kohinoor Sugar Mills Ltd	34.53		9.09	-13.43	12.51	36.21	15.78		
p	Noon Sugar Mills Ltd	22.26		17.30	19.28	9.11	14.42	16.47		
p	Shahtaj Sugar Mills Ltd	49.43		44.01	41.89	36.76	35.50	41.52		
p	Shakerganj Sugar Mills Ltd	46.43		11.25	17.06	25.97	-15.41	17.06		
p	Tandianwala Sugar Mills Ltd	-6.45		3.54	-18.20	11.65	46.83	7.47		
p	Thal Industrial Corporation Ltd	0.44		36.30	-3.32	5.60	22.84	12.37		
Average (Punjab)		21.95	20.29	13.15	19.31	22.02	19.34			
n	Chashma Sugar Mills Ltd	-20.65		16.68	-1.65	36.45	41.72	14.51		
n	Frontier Sugar Mills & Distill	0.74		-8.21	83.68	-92.89	-19.30	-7.20		
n	Premier Sugar	-4.77	7.71	-158.41	-33.86	3.33	-37.20			
Average (NWFP)			-9.96	4.23	41.02	-28.22	11.21	3.66		
Overall average (Pakistan)							14.81	27.20	19.	

Average return on assets a measure of performance is shown in table 4.

Table 4

AVERAGE RETURN ON ASSETS 2001-2005

	2001	2002	2003	2004	2005	average

s	Al - Abbas Sugar Mills Limited	8.34	-0.75	5.65	11.71	4.19	5.83	
s	Al - Noor Sugar Mills Limited	-1.18	-7.39	-4.78	0.76	4.56	-1.60	
s	Dewan Sugar Mills Limited	0.02	-8.33	-2.78	1.68	0.87	-1.71	
s	Faran Sugar Mills Limited	5.90	-10.27	-7.94	7.74	4.12	-0.09	
s	Habib Sugar Mills Ltd. **	8.56	0.71		3.91	9.88	10.27	6.67
s	Habib Arkady Limited **	21.09	22.71		7.30	3.29	5.27	11.93
s	Mehran Sugar Mills Limited	3.88	-16.25	-0.30	3.19	0.57	-1.78	
s	Mirpurkhas Sugar Mills Ltd	-5.60	-25.15	-9.17	-3.14	10.84	-6.44	
s	Sanghar Sugar Mills Limited	-0.28	-17.22	-11.69	2.84	-2.99	-5.87	
s	Shahmurad Sugar Mills Ltd	-0.68	-12.70	-5.88	-0.02	-1.91	-4.24	
s	Sind Abadgars Sugar Mills Ltd	-4.86	-8.28	-7.10	2.85	-12.44	-5.97	
Average (Sind)		3.20	-7.54	-2.98	3.71	2.12	-0.30	
p	Adam Sugar	-9.36	8.73	1.10	7.03	2.56	2.01	
p	Crescent Sugar Mills & Distill	2.30	12.07	-1.84	-4.90	5.45	2.62	
p	Haseeb Waqas Sugar Mills Ltd	-5.83	4.69	-0.83	1.48	10.62	2.03	
p	Husein Sugar Mills & Distiller	-19.32	48.07	10.04	17.08	26.03	16.38	
p	Kohinoor Sugar Mills Ltd	-7.61	6.08	-3.30	3.63	9.22	1.60	
p	Noon Sugar Mills Ltd	6.25	18.55	13.76	14.66	11.63	12.97	
p	Shahtaj Sugar Mills Limited	3.02	32.38	27.44	19.99	32.54	23.07	
p	Shakerganj Sugar Mills Ltd	1.36	6.87	6.00	3.39	1.78	3.88	
p	Tandianwala Sugar Mills Ltd	-8.57	24.53	-2.24	2.96	3.25	3.99	
p	Thal Industrial Corporation Ltd	-21.10	2.74	-12.42	11.89	20.37	0.30	
Average (Punjab)		-5.89	16.47	3.77	7.72	12.34	6.88	
n	Chashma Sugar Mills Limited	-6.50	19.77	-4.20	3.33	9.56	4.39	
n	Frontier Sugar Mills & Distill	-7.86	-3.10	1.17	2.34	9.18	0.35	
n	Premier Sugar	-0.85	-1.00	-0.87	-1.59	12.05	1.55	
Average (NWFP)		-5.07	5.22	-1.30	1.36	10.27	2.10	
Overall average (Pakistan)		-1.62	4.06	0.04	5.09	7.40	2.99	

It will be observed that the average for Sindh is negative. It is 6.88% for Punjab and 2.1% for NWFP. These figures do not show the real picture because of a possibility of manipulation of financial data and use of unethical and corrupt practices.

In 2006 an additional profit of nearly Rs.60bn was earned on stocks of sugar in hand by the industry, when prices of sugar shot up from Rs.25/kg to Rs.40/kg. The industry is mainly owned by those who matter in the ruling power hierarchy. Only 6 – corporations paid dividend every year during 2000 – 2005. 13- corporations did not pay any dividend during the period under study. Seven corporations paid dividend only in one year during this period. The market stock price of only six firms on average exceeded the par- value during 2000 – 2005.

Table 5 presents the averages of the assets tangibility ratio. Size is shown in Table 6. Both tables suggest that there is a dissimilarity amongst the provinces. The assets tangibility and size ratios are lower for older firms and are higher for younger firms mainly because of inflation effect.

Table 5:

AVERAGE ASSETS TANGIBILITY RATIO

	2001	2002	2003	2004	2005	average
s Al - Abbas Sugar Mills Limited	52.65	53.24	58.81	51.76	52.94	53.88
s Al - Noor Sugar Mills Limited	53.79	52.42	71.16	71.04	68.32	63.34
s Dewan Sugar Mills Limited	35.07	33.20	45.70	59.95	49.17	44.62
s Faran Sugar Mills Limited	71.97	41.88	69.36	65.74	60.14	61.82
s Habib Sugar Mills Ltd. **	44.37	41.96	46.25	50.39	53.55	47.30
s Habib Arkady Limited **	41.11	43.98	58.90	50.91	53.07	49.59
s Mehran Sugar Mills Limited	61.19	68.39	61.79	53.93	61.45	61.35
s Mirpurkhas Sugar Mills Limited	43.73	54.99	67.32	60.81	61.29	57.63
s Sanghar Sugar Mills Limited	83.01	87.55	87.31	81.93	83.81	84.72
s Shahmurad Sugar Mills Limited	43.32	45.48	55.06	67.85	61.34	54.61
s Sind Abadgars Sugar Mills Ltd	43.24	43.40	37.61	48.69	56.84	45.96
Average (Sind)	52.13	51.50	59.93	60.27	60.17	56.80
p Adam Sugar	44.63	39.40	54.04	47.30	61.33	49.34
p Crescent Sugar Mills & Distill	56.20	61.40	61.42	40.53	44.01	52.71
p Haseeb Waqas Sugar Mills Ltd	65.90	63.59	61.18	67.43	82.18	68.05
p Husein Sugar Mills & Distiller	37.95	55.04	36.79	44.74	53.54	45.61
p Kohinoor Sugar Mills Limited	58.16	77.67	73.91	74.64	75.29	71.93
p Noon Sugar Mills Limited	53.57	64.13	60.05	57.22	65.45	60.08
p Shahtaj Sugar Mills Limited	52.87	51.57	47.28	51.86	50.15	50.75
p Shakerganj Sugar Mills Ltd	63.48	58.52	40.16	48.78	49.18	52.02
p Tandianwala Sugar Mills Ltd	100.00	83.91	64.73	57.88	69.33	75.17
p Thal Industrial Corporation Ltd	100.00	79.27	73.15	70.57	68.73	78.34

	Average (Punjab)	63.28	63.45	57.27	56.09	61.92	60.40
n	Chashma Sugar Mills Limited	52.39	61.81	37.89	70.67	72.58	59.07
n	Frontier Sugar Mills & Distill	25.95	25.74	23.17	23.93	20.26	23.81
n	Premier Sugar	45.69	53.39	51.17	54.05	48.61	50.58

Average (N

Table 6:
AVERAGE S1ZE

		2001	2002	2003	2004	2005	average
s	Al - Abbas Sugar Mills Ltd	7.48	7.15	7.09	7.18	7.45	7.27
s	Al - Noor Sugar Mills Ltd	7.20	6.96	7.16	7.33	7.44	7.22
s	Dewan Sugar Mills Ltd	7.47	6.68	7.34	6.61	7.81	7.18
s	Faran Sugar Mills Ltd	7.41	6.34	7.24	6.90	7.06	6.99
s	Habib Sugar Mills Ltd. **	7.72	7.34	7.33	7.72	7.94	7.61
s	Habib Arkady Limited **	6.26	6.31	5.83	6.02	5.82	6.05
s	Mehran Sugar Mills Ltd	6.99	6.53	6.64	6.50	7.01	6.73
s	Mirpurkhas Sugar Mills Ltd	6.22	6.25	6.45	6.21	6.65	6.35
s	Sanghar Sugar Mills Ltd	6.82	5.85	6.37	6.52	6.34	6.38
s	Shahmurad Sugar Mills Ltd	7.16	6.69	6.90	6.72	6.97	6.89
s	Sind Abadgars Sugar Mills Ltd	6.60	6.26	6.40	6.67	6.25	6.44
Average (Sind)		7.03	6.58	6.80	6.76	6.98	6.83
p	Adam Sugar	6.24	6.82	6.55	6.37	5.85	6.37
p	Crescent Sugar Mills & Distill	7.22	7.28	7.08	7.48	7.64	7.34
p	Haseeb Waqas Sugar Mills Ltd	6.83	7.38	7.23	7.41	7.22	7.21
p	Husein Sugar Mills & Distiller	6.35	7.09	6.56	6.97	7.05	6.80
p	Kohinoor Sugar Mills Limited	6.36	6.81	6.66	6.70	6.75	6.66
p	Noon Sugar Mills Limited	6.51	6.94	6.85	6.99	6.98	6.86
p	Shahtaj Sugar Mills Limited	7.13	7.43	7.38	7.36	7.42	7.34
p	Shakerganj Sugar Mills Ltd	7.69	7.87	7.66	8.16	8.51	7.98
p	Tandianwala Sugar Mills Ltd	7.04	7.23	6.74	6.96	7.68	7.13
p	Thal Industrial Corporation Ltd	6.05	6.57	6.63	7.14	7.23	6.72
Average (Punjab)		6.74	7.14	6.93	7.15	7.23	7.04
n	Chashma Sugar Mills Ltd	6.57	7.16	6.36	7.28	7.13	6.90
n	Frontier Sugar Mills & Distill	4.51	4.85	5.08	5.92	5.18	5.11
n	Premier Sugar	5.23	6.11	5.92	6.69	6.67	6.13
Average (NWFP)		5.44	6.04	5.79	6.63	6.33	6.04
Overall average (Pakistan)		6.71	6.75	6.73	6.91	7.00	6.82

Appendix - 1 shows averages of investigations of various variables for theoretically bankrupt corporations. It is observed that the same group owns most of them. These groups are highly influential in political bureaucratic and power circles. This is evidenced from the names of directors of these corporations presented in appendix 2.

Booth et el (2001 table II) had also presented information on macroeconomic variables. Chart 1 shows that stock market value per GDP and real GDP growth are highly scattered and not explaining each other sufficiently as the coefficient of correlation is only 0.24 with a negative sign. Data on other macro financial variable for the period 1981 – 2005 are provided in table 7. we will present a full analysis of the impact of these on capital structure of the sugar sector in a subsequent paper.

Chart 1

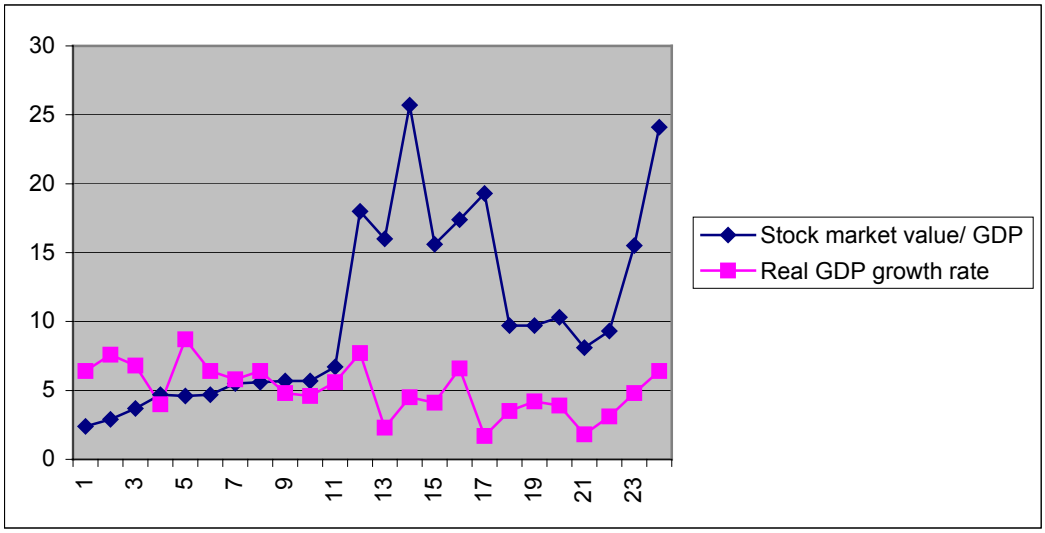

Table 7
Macro Financial Data

	Stock market value / GDP	Liquid liabilities / GDP	Real GDP growth rate	Cumulative inflation
1981	2.4	9.3	6.40	21.17
1982	2.9	8.7	7.60	23.68
1983	3.7	8.5	6.80	25.08
1984	4.7	8.3	4.00	26.68
1985	4.6	8.5	8.7	28.30
1986	4.7	8.5	6.4	29.89
1987	5.5	8.1	5.8	30.94
1988	5.6	8.1	6.4	32.39
1989	5.7	8.5	4.8	35.25
1990	5.7	9.5	4.6	38.01
1991	6.7	10.1	5.6	41.46
1992	18.0	9.8	7.7	46.34
1993	16.0	11.1	2.3	50.75
1994	25.7	11.2	4.5	55.81

1995	15.6	11.0	4.1	62.71
1996	17.4	12.8	6.6	70.46
1997	19.3	14.0	1.7	77.76
1998	9.7	15.3	3.5	86.61
1999	9.7	13.3	4.2	92.00
2000	10.3	11.4	3.9	95.82
2001	8.1	12.0	1.8	100.00
2002	9.3	10.3	3.1	103.15
2003	15.5	10.1	4.8	106.54
2004	24.1	10.6	6.4	109.65

IV. RESULTS

We begin by identifying the theoretically expected signs of the coefficients of the independent variables. Theoretically, the higher the difference between ROA and cost of capital the higher is the return on equity because of the leverage effects. Similarly the higher turnover of assets results in higher return on assets, which in turn results in higher return on equity. Thus the assets tangibility ratio i.e., ratio between fixed assets and total assets becomes important as capital structure determinant.

The real value of an asset is what the market is willing to pay. Thus, the market value of stock affects the chances of raising funds through debt and equity. The higher the market value of the stock of a company the greater its chances to raise debt equity. The Tax Rate effects the real cost of capital as interest being an expense qualifies for tax exemption. Therefore as the cost of debt decreases the use of debt results in higher return on equity.

Regression analysis results are shown in Tables 8 through 13 using both fixed and random effects.

Table 8:

Dependent Variable: TDR Method: Pooled

Total panel (balanced) observations: 120

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.343479	0.226806	1.514416	0.1327
TR	0.000149	0.001988	0.074783	0.9405
ROA	-1.09572	0.181355	-6.04187	0
AT	-0.55074	0.12704	-4.33514	0
MBR	-0.03528	0.004449	-7.931	0
S	10.25452	3.220949	3.183695	0.0019

R-squared	0.557999	Mean dependent var	0.574992	
Adjusted R-squared	0.538613	S.D. dependent var	0.292466	
S.E. of regression	0.198659	Sum squared resid	4.499064	
Log likelihood	26.74471	F-statistic	28.78362	Durbin-Watson

At 5% rejection region, t-values with * mark means they are significant.

From table 8 it is found that ROA, AT, MB and S are found to be significant determinants of TDR. TR was found to be insignificant. However only S and TR was found to have a correct theoretical sign. This was also the case in Booth's study. Coefficient of determination is relatively weak in this case as it was for Booth's sample. F-statistic results indicates dissimilarity in means of selected variables. The negative sign with respect to AT may be explained on the basis of artificially floated asset values. It is however very surprising that high MBR and ROA rations have negative signs. Profitable sugar firms in Pakistan display a preference for equity financing. The politically powerful seths declare no profits and borrow as much as they can.

Table 9:

Dependent Variable: TDR

Method: Pooled Least Squares / Fixed Effects

Sample(adjusted): 1 24

Included observations: 24 after adjusting endpoints

Number of cross-sections used: 5

Total panel (balanced) observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TR	0.00075	0.001999	0.375201	0.7082
ROA	-1.18883	0.18513	-6.4216	0
AT	-0.56779	0.126866	-4.4755	0
MB	-0.03654	0.004487	-8.14172	0
S	9.455093	3.230934	2.926427	0.0042

Fixed Effects

_01—C	0.331405
_02—C	0.415797
_03—C	0.408815
_04—C	0.445489
_05—C	0.468651

R-squared	0.580791	Mean dependent var	0.574992
Adjusted R-squared	0.546492	S.D. dependent var	0.292466
S.E. of regression	0.196956	Sum squared resid	4.267071
Log likelihood	29.92123	F-statistic	38.09973
Durbin-Watson stat	1.55215	Prob(F-statistic)	0

At 5% rejection region, t-values with * mark means they are significant.

Under the fixed effect case table 9 shows that only TR was found to be an insignificant determinants of TDR. Here too only TR and S are found to be with a correct theoretical sign. Coefficient of determination is again weak (like Booth 2001) in this case. Means of selected variables are different. Results of random and fixed effects (like Booth et el 2001) estimations confirm each other, which is encouraging.

Table 10:

Dependent Variable: LBDR
Method: Pooled Least Squares / Random Effects
Sample(adjusted): 1 24
Included observations: 24 after adjusting endpoints
Number of cross-sections used: 5
Total panel (balanced) observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.541213	0.482283	1.122191	0.2641
TR	-0.00143	0.004227	-0.33878	0.7354
ROA	-1.79702	0.385635	-4.65989	0
AT	-0.48371	0.27014	-1.79059	0.076
MB	-0.03072	0.00946	-3.24713	0.0015
S	4.145769	6.849053	0.605306	0.5462
R-squared	0.269248	Mean dependent var		0.38705
Adjusted R-squared	0.237198	S.D. dependent var		0.48367
S.E. of regression	0.422431	Sum squared resid		20.34303
Log likelihood	-63.7874	F-statistic		8.400747
Durbin-Watson stat	1.990766	Prob(F-statistic)		0.000001

At 5% rejection region, t-values with * mark means they are significant.

From table 10 it is found that ROA, AT, and MBR are significant determinants of LBDR. The rest of the independent variables were found to be insignificant. Only S is found to have a correct theoretical sign. Coefficient of determination is very weak in this case. F-stats results indicates dissimilarity in means of selected variables. Once again the message is that profitable firms with good market performance prefer equity financing. The politically powerful large sugar firms declare no profits and borrow as much as they can.

Table 11:

Dependent Variable: LBDR
Method: Pooled Least Squares / Fixed Effects
Sample(adjusted): 1 24
Included observations: 24 after adjusting endpoints
Number of cross-sections used: 5
Total panel (balanced) observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TR	-0.00117	0.004329	-0.2698	0.7878
ROA	-1.91792	0.400951	-4.78343	0
AT	-0.51633	0.274763	-1.87917	0.0629
MB	-0.03234	0.009719	-3.32758	0.0012
S	3.255819	6.997504	0.465283	0.6426
Fixed Effects				
_01—C	0.575767			
_02—C	0.647892			
_03—C	0.556001			
_04—C	0.663106			
_05—C	0.704042			

R-squared	0.281024	Mean dependent var	0.38705
Adjusted R-squared	0.222199	S.D. dependent var	0.48367
S.E. of regression	0.426563	Sum squared resid	20.0152
Log likelihood	-62.8126	F-statistic	10.74886
Durbin-Watson stat	2.022659	Prob(F-statistic)	0

At 5% rejection region, t-values with * mark means they are significant.

From table 11 it is found that AT and S are insignificant determinants of LBDR under fixed effect regression. The rest of the independent variables were found to be significant. Again S is the only variable found to have a correct theoretical sign to explain LBDR. Coefficient of determination is very weak in this case. F-stats results indicates dissimilarity in means of selected variables. Random and fixed effect estimations confirm each other and provide evidence for the relative robustness of our results.

Table 12:

Dependent Variable: LMDR
Method: Pooled Least Squares / Random Effects
Sample(adjusted): 1 24
Included observations: 24 after adjusting endpoints
Number of cross-sections used: 5
Total panel (balanced) observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.553787	0.482174	1.148521	0.2532
TR	-0.00083	0.004226	-0.19647	0.8446
ROA	-1.30362	0.385548	-3.38122	0.001
AT	-0.29257	0.270079	-1.08328	0.281
MB	-0.0302	0.009458	-3.19366	0.0018
S	1.467163	6.847511	0.214262	0.8307

R-squared	0.201191	Mean dependent var	0.343625
Adjusted R-squared	0.166155	S.D. dependent var	0.462503
S.E. of regression	0.422336	Sum squared resid	20.33387
Log likelihood	-63.7604	F-statistic	5.742476
Durbin-Watson stat	1.951705	Prob(F-statistic)	0.000092

At 5% rejection region, t-values with * mark means they are significant.

From table 12 it is found that only ROA and MB are significant determinants of LMDR. The rest of the independent variables were found to be insignificant. In this case S is found to be with a correct theoretical sign. Coefficient of determination is very weak in this case. F-stats results indicates dissimilarity in means of selected variables. The association between MBR and LMDR is obvious. But the negative relationship between LMDR on the one hand and ROA and MBR indicates once again political compulsions lenders are not primarily concerned with the profitability or the market performance of the borrower firm.

Table 13:

Dependent Variable: LMDR
Method: Pooled Least Squares / Fixed Effects
Sample(adjusted): 1 24
Included observations: 24 after adjusting endpoints
Number of cross-sections used: 5
Total panel (balanced) observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TR	-0.00075	0.004337	-0.17325	0.8628
ROA	-1.32329	0.40171	-3.29415	0.0013
AT	-0.31582	0.275283	-1.14726	0.2538
MB	-0.03191	0.009737	-3.27689	0.0014
S	0.36061	7.010748	0.051437	0.9591

Fixed Effects	
_01—C	0.622537
_02—C	0.57279
_03—C	0.662041
_04—C	0.690519
_05—C	0.696205

R-squared	0.21073	Mean dependent var	0.343625
Adjusted R-squared	0.146154	S.D. dependent var	0.462503
S.E. of regression	0.427371	Sum squared resid	20.09104
Log likelihood	-63.0396	F-statistic	7.342334
Durbin-Watson stat	1.971651	Prob(F-statistic)	0.000028

At 5% rejection region, t-values with * mark means they are significant.

From table 13 it is found that ROA and MB are significant determinants of LMDR. The rest of the independent variables were found to be insignificant. In this case too S is found to be with a correct theoretical sign. Coefficient of determination is very weak in this case. F-stats results indicates dissimilarity in means of selected variables. Once again there is close correspondence between the random and fixed effects estimations.

Table: 14 Summary of the Findings

Dependent Variable	Significant Variables	R^2
TDR	ROA, AT, MB and S	Weak
TDR (Fixed effect)	ROA, AT, MB and S	Weak
LBDR	ROA and MB	Weak
LBDR (Fixed effect)	ROA and MB	Weak
LMDR	ROA and MB	Weak
LMDR (Fixed effect)	ROA and MB	Weak

In this study we assessed whether capial structure theory explains borrowing by sugar sector of Pakistan. Our case suggests that decision on capital structuring is found to be weakly affected by the variables chosen in our study. This is also weakly consistent with the results of Booth et el (2001) where modern finance theory is found to be weakly portable across the group of developing and developed countires. It is interesting to find that Booth et el (2001) also found a negative association between most independent variables on the one hand and TDR, LBDR and LMDR on the other. (Table 15) provides a comparison of the results of Booth with our findings for the case of Pakistan.

Table 15 provides the comparison of the results of Booth with our findings for the case of Pakistan.

Table 15 provides the comparison of the results of Booth with our findings for the case of Pakistan.

TABLE 15

Dependant Variable: TDR	Expected Signs Booth / Kanwar		Actual signs	
			Booth's	Kanwar's
	TA	+	-	+
	ROA	+	-	-

AT	+	-	-
MBR	+	-	-
S	+	+	+

Dependant Variable: LBDR	Expected Signs Booth / Kanwar	Actual signs	
		Booth's	Kanwar's
TA	+	-	-
ROA	+	-	-
AT	+	+	-
MBR	+	-	-
S	+	+	+

Dependant Variable: LMDR	Expected Signs Booth / Kanwar	Actual signs	
		Booth's	Kanwar's
TA	+	-	-
ROA	+	-	-
AT	+	+	-
MBR	+	-	-
S	+	+	+

The only major difference between Booth's results and ours' is that Booth found a positive association between AT and LBDR and LMDR. This as we have explained by the artificial blowing up of fixed values by sugar seths in Pakistan to increase borrowing.

Booth's results indicated that there is a separate story to tell about the determinants of capital structure for each country. Our investigation and results indicate that for Pakistan's sugsare industry the real determinats of corporate capital structure are not the variables discussed in the finance literature but the influence in the power hierarchy and the extent to which those who matter can be corrupted.

As the appendix 1 shows several major corporations have negative net equity for a number of years and they are still being quoted on the stock exchange. No creditor including banks dare sue them for bankruptcy. SECP fails to take actions although results are filed with it periodically.

A consistent result in both Booth and our investigations is that the more profitable the firm, the lower the debt ratio. This finding is consistent with the Pecking order Hypothesis.
We agree with booth that much needs to be done in empirical research and in developing the theoretical model.

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APPENDIX –1

Theoretically Bankrupt Mills.

Tables 1

year of listing	Prov	total debt ratio	2001	2002	2003	2004	2005	Prov average
1990	S	Al - Asif Sugar Mills Ltd	181.06	215.46	239.80	251.98	183.13	214.29
1991	S	Ansari Sugar Mills Ltd	83.19	93.19	98.74	99.98	103.89	95.80
1965	S	Bawany Sugar Mills Ltd	23.96	194.73	236.90	254.53	255.89	193.20
1993	S	Khairpur Sugar	148.65	159.81	140.15	87.99	93.45	126.01
1994	S	Mirza Sugar Mills Ltd	166.46	195.74	226.60	259.41	267.14	223.07
1987	S	Pangrio Sugar Mills Ltd	168.35	218.13	244.87	278.37	274.69	236.88
1990	S	Sakrand Sugar Mills Ltd	95.29	104.86	114.02	122.58	126.14	112.58
	P	Baba Farid Sugar Mills Ld	96.22	94.35	93.87	103.05	101.10	97.72
	P	United Sugar Mills Ltd	234.56	213.92	190.32	196.64	174.25	201.94
		Average	133.08	165.58	176.14	183.84	175.52	166.83

Table 2

	long-term book-debt ratio	2001	2002	2003	2004	2005	average
s	Al - Asif Sugar Mills Limited	317.26	-73.57	-17.13	816.31	222.61	253.10
s	Ansari Sugar Mills Limited	76.14	88.98	97.83	99.96	108.67	94.32
s	Bawany Sugar Mills Limited	9.91	-7.66	-5.09	-46.66	-560.42	-121.98
s	Khairpur Sugar	460.16	-16458.22	174.52	82.48	88.52	-3130.51
s	Mirza Sugar Mills Limited	197.15	294.19	497.45	-751.89	-313.88	-15.39
s	Pangrio Sugar Mills Limited	-35.98	-15.30	-9.81	-6.28	-321.85	-77.84
s	Sakrand Sugar Mills Limited	94.49	107.53	122.71	140.06	157.10	124.38
p	Baba Farid Sugar Mills Limited	91.18	82.45	85.97	112.07	102.87	94.91
p	United Sugar Mills Limited	-2014.96	1745.90	4452.77	-493.60	-47.49	728.52
	Average	-89.41	-1581.74	599.91	-5.28	-62.65	-227.83

Table 3

	long-term market-debt ratio	2001	2002	2003	2004	2005	average
s	Al - Asif Sugar Mills Limited	824.42	-53.35	-14.35	5707.81	265.48	1346.00
s	Ansari Sugar Mills Limited	80.28	114.80	151.94	121.09	146.29	122.88
s	Bawany Sugar Mills Limited	10.38	-6.92	-4.64	-43.97	-519.89	-113.01
s	Khairpur Sugar	-101.64	-4537.85	240.63	91.46	102.27	-841.02
s	Mirza Sugar Mills Limited	302.37	610.87	2545.17	-372.68	-203.84	576.38
s	Pangrio Sugar Mills Limited	-23.07	-11.63	-8.25	-5.54	-221.01	-53.90

s	Sakrand Sugar Mills Limited	120.29	153.53	174.31	189.45	239.17	175.35
p	Baba Farid Sugar Mills Limited	119.51	162.41	148.36	94.71	98.34	124.67
p	United Sugar Mills Limited		-481.78	1778.85	3141.52	-619.91	60.89
		775.92					
	Average	94.53	198.81	708.30	573.60	-3.59	234.81

Table 4

	tax rate	**2001**	**2002**	**2003**	**2004**	**2005**	**average**
s	Al - Asif Sugar Mills Limited	-4.89	-0.77	-5.15	2.54	-3.21	-2.30
s	Ansari Sugar Mills Limited	18.45	-2.68	-7.99	-4.82	211.64	42.92
s	Bawany Sugar Mills Limited	-1.57	-0.96	10.67	78.86	0.20	17.44
s	Khairpur Sugar	0.00	0.00	1.34	-3.12	-5.47	-1.45
s	Mirza Sugar Mills Limited	89.80	-1.64	0.27	-1.35	-0.88	17.24
s	Pangrio Sugar Mills Limited	371.47	-2.35	-3.63	-3.98	-1.27	72.05
s	Sakrand Sugar Mills Limited	57.80	-2.66	-4.94	-6.24	-14.27	5.94
p	Baba Farid Sugar Mills Limited	-7.90	12.20	-254.05	-3.59	14.97	-47.67
p	United Sugar Mills Limited	0.00	-6752.91	65.55	308.86	56.08	-1264.48
	Average	58.13	-750.20	-21.99	40.80	28.64	-128.92

Table 5

	ROA	**2001**	**2002**	**2003**	**2004**	**2005**	**average**
s	Al - Asif Sugar Mills Limited	-8.99	-29.27	-7.80	12.46	-1.85	-7.09
s	Ansari Sugar Mills Limited	1.94	-9.96	-5.53	-8.13	-3.51	-5.04
s	Bawany Sugar Mills Limited	-21.29	-40.41	-14.89	-5.77	-8.07	-18.09

s	Khairpur Sugar	-14.74	-10.51	21.21	-8.61	5.25	-1.48
s	Mirza Sugar Mills Limited	0.78	-22.30	-20.42	-30.73	-24.53	-19.44
s	Pangrio Sugar Mills Limited	0.31	-27.25	-16.47	-23.78	-19.82	-17.40
s	Sakrand Sugar Mills Limited	0.68	-9.20	-8.28	-7.19	-2.22	-5.24
p	Baba Farid Sugar Mills Limited	-7.41	6.14	-0.33	-8.77	1.54	-1.77
p	United Sugar Mills Limited	-4.27	-1.24	7.47	0.08	64.37	13.28
	average	-5.89	-16.00	-5.00	-8.94	1.24	-6.92

Table 6

	Asset tangibility	**2001**	**2002**	**2003**	**2004**	**2005**	**average**
s	Al - Asif Sugar Mills Limited	77.51	77.82	75.66	83.57	72.56	77.42
s	Ansari Sugar Mills Limited	80.21	77.23	78.09	72.73	78.29	77.31
s	Bawany Sugar Mills Limited	50.90	62.03	64.56	61.37	67.72	61.32
s	Khairpur Sugar	91.98	90.54	88.59	91.57	87.12	89.96
s	Mirza Sugar Mills Limited	91.03	90.18	85.88	79.00	63.91	82.00
s	Pangrio Sugar Mills Limited	85.68	86.26	73.65	70.57	48.79	72.99
s	Sakrand Sugar Mills Limited	89.66	82.45	85.83	87.18	86.67	86.36
p	Baba Farid Sugar Mills Limited	52.88	50.75	58.29	32.89	32.19	45.40

p	United Sugar Mills Limited	81.05	66.83	65.95	66.84	65.34	69.20
	average	77.88	76.01	75.17	71.75	66.96	73.55

Table 7

	Size	**2001**	**2002**	**2003**	**2004**	**2005**	**average**
s	Al - Asif Sugar Mills Limited	6.21	5.35	6.01	5.63	4.18	5.47
s	Ansari Sugar Mills Limited	6.75	6.44	6.89	6.80	6.72	6.72
s	Bawany Sugar Mills Limited	6.36	6.05	6.38	6.33	4.90	6.00
s	Khairpur Sugar	6.04	6.48	6.48	6.27	6.33	6.32
s	Mirza Sugar Mills Limited	6.36	5.81	6.06	5.81	5.29	5.86
s	Pangrio Sugar Mills Limited	6.37	5.85	5.92	6.02	5.30	5.89
s	Sakrand Sugar Mills Limited	6.63	6.11	6.61	6.64	6.25	6.45
p	Baba Farid Sugar Mills Limited	6.52	7.18	6.61	6.12	6.42	6.57
p	United Sugar Mills Limited	-13.82	6.32	6.80	6.79	6.97	2.61
	average	4.16	6.18	6.42	6.27	5.82	5.77

Table 8

	market to book ratio	**2001**	**2002**	**2003**	**2004**	**2005**	**average**
s	Al - Asif Sugar Mills Limited	12.54	10.16	20.20	45.60	58.90	29.48
s	Ansari Sugar Mills Limited	82.21	32.88	5.75	62.02	51.78	46.93
s	Bawany Sugar Mills Limited	62.00	30.50	31.16	67.61	90.52	56.36
s	Khairpur Sugar	-187.03	96.40	45.00	58.50	53.00	13.17
s	Mirza Sugar Mills Limited	15.00	17.00	25.00	45.00	29.50	26.30
s	Pangrio Sugar Mills Limited	15.00	13.50	29.49	36.50	30.00	24.90
s	Sakrand Sugar Mills Limited	20.52	13.40	25.41	43.72	42.43	29.09
p	Baba Farid Sugar Mills Limited	52.30	26.26	24.99	132.14	115.60	70.26
p	United Sugar Mills Limited	-210.11	98.61	110.19	137.77	1061.74	239.64
	average	-15.29	37.64	35.24	69.87	170.39	59.57

Appendix - 2
Board of Directors of Theoretically Bankrupt Mills:

Al - Asif Sugar Mills Limited(SINDH)
YEAR OF LISTING:1990
Mr. Qazi Amjad Abid Abbasi
Mr. M. Arshad Mirza
Mr. Ali Akbar Junejo
Mr. Haji Sher Jamali
Mr. Shaikh Aftab Ahmed
Mr. Kemal Shoaib
Mr. Muhammad Abdul Samad
Mrs. Husna Amjad Kazi

Ansari Sugar Mills Limited(SINDH)
YEAR OF LISTING:1991
Mr.dinshaw hoshang anklesaria
Mr.ahmed khan Ansari
Mr. Abdul hafeez Ansari
Mrs. Nasreen ghani Ansari
Mr. Imran rasheed Ansari
Syed Anwar Raza Naqvi
Mr. S.M. Ahsan raza(nominee of N.I.T)
Mr. M. manzurul haq (nominee of N.D.F.C)

Bawany Sugar Mills Limited(SINDH)
YEAR OF LISTING:1965
Mr. M. Arshad Mirza
Mr. Qazi amjad abid abbasi
Mrs. Husna amjad kazi
Mr. Muhammad din
Mr.Muhammad ashiq
Mr. Sadiq awan
Mr.azeem awan
Mr. Syed zamir hassan
Mr. Ansar hussain

Khairpur Sugar(SINDH)
YEAR OF LISTING:1993
Mr. Muhammad mubeen jumani
Mr. Faisal mubeen jumani
Mr. Muhammad bux
Mrs. Qamar
Mr.ahmed ali
Mrs. Yameen
Mr. Syed raza abbas jafri(nominee of N.I.T)

Mirza Sugar Mills Limited(SINDH)
YEAR OF LISTING:1994
Dr. (Mrs.) fehmida Mirza
Mir. Ghulamullah talpur
Mr.arshad abid abbasi
Ms. Fareha abid kazi
Mir. Furqan ali talpur
Mirza saulat raza
Mr. Ali jawad jabir Ansari

Pangrio Sugar Mills Limited(SINDH)
YEAR OF LISTING:1987
Mr.aftab ahmad
begum akhtar abid
Ms. Naheed zafar Mirza
Mr. Abbas ally agha
Mr.mazhar ali Ansari
Mr. Abdullah kamran soomro
Mr.atif saeed
Mr. Akber ali Mirza
Mr. Muhammad asif (nominee of N.I.T)

Sakrand Sugar Mills Limited(SINDH)
YEAR OF LISTING:1990
Mr. S. Baqar Naqvi
Dr. jamshed hoshang anklesaria
Mr.waseem kerio
Mr.hamida bano
Miss zahida kerio
Miss shahida kerio

Mr. Raza ahmed longi(nominee of I.C.P)
Mr. Syed lutf ali shah(nominee of N.D.F.C)

Baba Farid Sugar Mills Limited(PUNJAB)
Mr. Ghulam muhammad A. Fecto
Mr. Muhammad ali fecto
Mr. Kaiser mahmood fecto
Mr. Yahya ahmed bawamy
Mr. Moin A. haroon
Mr.james r. Richards
Mr.fazlur rehman

United Sugar Mills Limited(PUNJAB),
Mr. Syed ahmed mahmud,
Mrs. Amina tareen
Mr.jahangir tareen,
Mrs. Sameera mahmud
Mr. Ijaz ahmed phulpoto,
Mr.muhammad nawaz

Source: Company Financial Statements.