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DO ACCRUALS, CASH AND DECOMPOSED LEVERAGE HAVE ANY INFORMATION ABOUT FUTURE PROFITABILITY? SOME EVIDENCE FROM INDIA

Dr.Lalita Mishra

Guest Faculty, Govt.MLB PG College of Excellence, Gwalior MP

Abstract

Forecasting future profitability has been a much researched area in corporate finance. Several studies have established that the balance sheet and income variables have differing predictive ability. Prominent among them are the accruals and present cash flows. This paper studies the ability of decomposed leverage and cash holdings by firms in predicting the future net earnings. Leverage has been classified as operating liability leverage arising out of day-to-day operations and financial leverage which arise due to the need of financing. The study finds that both operating and financial leverage has significant negative effect and the opening cash holding has a significant and positive effect on future profitability.

Introduction

One of the important objectives of a business organization is the maximization of shareholders' value. The value, in turn, depends on the current book value of equity and discounted future earnings. In the paper of Sloan (1996), it has been empirically found that investors weigh on future earnings more than anything else. This has instigated researches in the area of earnings forecasting based on its components. Although, earnings remain a central point of investigation for the investors and analysts, leverage and cash flows have also become important in the prediction of future cash flows and profitability. Considerable efforts have been made to understand the role of leverage, if any, on the profitability and value of a firm (Modigliani & Miller, 1958; Ross, 1977; Penman & Nissim, 2003). Leverage is known to increase the return to equity as long as the spread between return on assets and cost of capital is positive. Apart from this, cash flow information along with accruals assists in the prediction of future earnings and profitability. It is important to mention here that a firm's profitability can have various definitions like net earnings, return on assets, return on equity, return on operating assets etc.

In this paper, profitability is defined as return to common equity (ROCE), because in doing so, the return the shareholder's get for providing capital is better recognized. Studies have been carried out to establish a relationship between current cash flow information, accruals and future earnings. This paper makes an attempt to understand the role of corporate leverage and disaggregated cash flows and contributes in two ways. First, it adds to the existing literature on cash flow disaggregation and its impact on future profitability. While previous work have focused on cash flow and security returns (e.g. Clinch *et.al.*, 2002; Hirshleifer *et.al.*, 2009), future cash flows (Cheng & Holie, 2008), this paper focuses on cash flows and their impact on return to equity shareholders. Second, it blends the impact of disaggregated leverage and cash holdings on future profitability.

Leverage and its relation to Shareholder's Profitability

Leverage traditionally is defined as the liabilities to equity of a firm at a point of time. While liabilities like bank loan, debentures are part of financing activities, accounts payables, pension liabilities, deferred revenues are part of operating activities. Therefore, classifying leverage in their respective components provide better insight into the profitability of a firm. In their study, Penman & Nissim (2003) report that after controlling for leverage from both operating and financing activities, firms with higher operating leverage is associated with higher price-to-book ratio.

As mentioned above, a firm's profitability can be accessed from the return to equity shareholders (ROCE). Disaggregating this measure we get;

$$\text{ROCE} = \frac{\text{Net Operating Income} - \text{Net Interest Expense}}{\text{Common Equity}}$$

$$= \frac{\text{NOA}}{\text{Common Equity}} \text{X (RNOA)} - \frac{\text{NFD}}{\text{Common Equity}} \text{X WACC} \quad (1)$$

Where NOA = Net Operating Assets

RNOA = Return on Net Operating Assets

NFD = Net Financial Debt

WACC = weighted average cost of capital

Since $\frac{\text{NFD}}{\text{Common Equity}}$ is the financial leverage (FLEV) of a firm and following Penman & Nissim (2003), equation (1) becomes:

ROCE = RNOA + FLEV (RNOA-WACC) (2)

Therefore, we see that financial leverage will have a positive impact on return to common equity as long as the cost of financing from additional leverage is less than the return on assets. Apart from this, there are certain liabilities which arise in due course of business such as accounts payables, trade credit. If we classify them as operating liabilities then operating liabilities leverage (OLLEV) is:

$$\text{OLLEV} = \frac{\text{Operating Liabilities}}{\text{Common Equity}} \quad (3)$$

Therefore, total leverage (TLEV) is the sum of OLLEV and FLEV and equation (2) is modified as shown below:

ROCE = RNOA + TLEV (RNOA – WACC) (4)

In a perfect capital market it is the value of the firm that the shareholder is interested in and not on short term profitability. The paper of Modigliani & Miller (1958) contends that change in leverage, although can have an impact on return on equity, will have no influence on the value of the firm. According to the residual valuation model, the value of a firm as reflected in its share price is proportional to the economic earnings.
This can be represented by using the following equation:

$P_t = B_0 + (NI_t – ROCE_t \text{ x } B_{t-1})$ (5)

Where

P_t = Market Price of Share of the firm

$B_{0/t-1}$ = Book Value of Equity per share

NI_t = Net Income

$ROCE_t$ = Return on Common Equity

It is evident that as the ROCE increases due to increased leverage, it is offset by the reduction in economic earnings, thereby rendering the price (value) to remain constant. This is the irrelevance theorem of capital structure.

Cash Flow Disaggregation and Persistence of its Components

International Accounting Standards 7 (IAS 7) mandates the preparation and presentation of cash flow statements is a manner so that it is well discerned by the analysts, investors and other users of financial statements. Following works of Ball & Brown (1968), Sloan (1996), the relationship of earnings and stock returns has assumed great significance and therefore it is important for developing models for predicting future earnings (profitability). Studies that followed them focus on the predictive ability of cash flow components in predicting future earnings and stock returns (Clinch *et.al*, 2002; Krishnan and Largay, 2000; Barth *et.al*, 2001). The studies use the broad components of cash flows like account receivables, account payables, depreciation, inventory etc. for forecasting purposes. Further aggregate cash flows and accruals have different persistence in future. Empirical evidence suggests that aggregate cash flows have higher persistence than aggregate accruals (Dechow, 1994, Dechow *et.al.*, 1998, Barth *et.al.*, 2001). Lower persistence of accruals may be attributed to :

(i) Measurement problem in accounting system (Sloan, 1996)

(ii) Decrease in marginal return from investment (Fairfield *et.al.* 2003)

Operating cash flow is determined by operating expenses, operating income and non-operating expenses and income. Therefore, decomposing the operating cash flows into these respective components is likely to increase the forecasting ability about future cash flows and income. In a study by Arthur *et.al.*, (2010) using Australian data, they disaggregate cash flows into core and non-core components like core receipts, core payments, taxes paid, interest received and paid and find that disaggregated cash flows have higher predictive ability about future cash flows than the cash flow model. Their study is consistent with the findings of Cheng & Holie, 2008. Although prior studies argue that investors weigh earnings more than cash flows or accruals, there are certain instances which report that cash flows are incrementally useful in predicting stock returns (Bowen, et al., 1987; Ali, 1994; Dechow, 1994; Cheng et al. 1996). In another study by Subramanyam & Venkatachalam (2007), they report that current operating cash flows are more strongly associated with future earnings than do current cash flows.

On the other hand, Lev *et.al.* find that net income are better predictor than operating cash flows. Finger (1994) concludes that cash flow is marginally superior to earnings for predicting cash flows over a short horizon. In a

follow-up study on the time series and cross sectional prediction tests, Lorek & Willinger (1996) and further substantiated by Kim & Kross (2005), it is reported that current earnings predict future cash flows more accurately than do current cash flows. So the empirical evidence gives a mixed result as far as superiority of cash flow and earnings is concerned. Following Arthur *et.al* (2010), operating cash flow is being disaggregated into account receivables (AR), accounts payables (AP), Inventory (INV) and the adjustments are made are depreciation & amortization.

Model Specification

First, the following linear regression equation is used to test the predictive ability of cash flows about future earnings:

$$NI_{i,t} = \alpha_0 + \alpha_1 CFO_{i,t} + \alpha_3 ACC_{i,t} + \varepsilon_t \quad (6)$$

In the above equation, CFO is the operating cash flow at time t and ACC is the aggregate accruals. Decomposing equation (6) in its respective components, we can write:

$$NI_{i,t} = \beta_0 + \beta_1 \Delta AR_{i,t} + \beta_2 \Delta AP_{i,t} + \beta_3 \Delta INV_{i,t} + \beta_4 DEPN_{i,t} + \beta_5 CFO_{i,t} + \varepsilon_t \quad (7)$$

$DEPN_{i,t}$ is the depreciation and amortization of a firm i at time t.

Prior period cash balance is also a determinant of future profitability because a positive cash balance can be used to either invest in a project whose return is more than the firm's cost of capital. In order to assess the impact of opening cash position of the earnings of next period, equation (7) is re-written as follows:

$$NI_{i,t} = x_0 + x_1 \Delta AR_{i,t} + x_2 \Delta AP_{i,t} + x_3 \Delta INV_{i,t} + x_4 DEPN_{i,t} + x_5 CASH_{i,t-1} + x_6 CFO_{i,t} + \varepsilon_t \quad (8)$$

If $x_6 > x_j$ (for j=1 to 4), then a higher persistence of cash flow is indicated, following Fairfield *et.al*, 2003.

As mentioned earlier that return to stockholder's equity is affected by return on assets, operating & financial leverage and the spread between cost of capital & return on assets. The return to common equity ($ROCE_{i,t}$) is written as:

$$ROCE_{i,t} = \chi_0 + \chi_1 ROA_{i,t} + \chi_2 TLEV_{i,t} * SPREAD \quad (9)$$

SPREAD is the difference between the cost of equity and the return on assets (ROA). Thus, ROCE will increase as long as the firm generates a positive abnormal earnings. The importance of the above relationship lies in the fact that it is not enough for the firm to earn higher earnings for the shareholders but also they must beat the expectation of the market which is reflected in the cost of equity. It is for these reasons that the market price of the stocks of a firm take a plunge despite reporting a growth in their earnings.

Further disaggregating equation (9), we may write:

$$ROCE_{i,t} = \lambda_0 + \lambda_1 (ATO * PM)_{i,t} + \lambda_4 TLEV * SPREAD \quad (10)$$

where;

ATO is asset turnover defined as operating profit divided by total asset at time t-1;
PM is operating profit margin defined here as operating profit by gross sales.
ROA is the return on assets.

In the above equation, ROA has been considered as it recognizes the fact that profitability must be based on net assets invested rather than assets invested on operations.

Sample Selection and Methodology

The sample, collected from Capitaline Database, Mumbai, includes companies listed on the Bombay Stock Exchange from March 2003 to March 2014. The cross section of the sample is given in Appendix I. The study does not include financial companies like banks and other such firms because of their different reporting standards and that they work under highly regulated environment. Net earnings (income) is defined as profit before extraordinary items and tax (here it is worth mentioning that reporting of extraordinary items is not permitted under IAS, but reporting in India still follows the Indian GAAP, which does not have such restriction), total leverage as measured by the level of secured and unsecured loans scaled by opening book value of equity. Variables like account receivables (AR), accounts payables (AP), inventory (INV) and depreciation (DEPN) are available from the balance sheet and the profit and loss account of the companies and are scaled by lagged total assets. Return on Common Equity is calculated as profit available to equity shareholders divided by book value of equity. The sample has been selected so as to ensure data availability for the entire sample period of 10 years. Firms with missing data for variables of interest have been completely removed from the study. Also only those firms have been considered in the sample which have a positive and non-zero PB Ratio and PE Ratio. The sample started with 670 firm-year observations and after removing data as mentioned above, the final sample gets reduced to 486. I use the OLS as well as panel regression methods to estimate the regression coefficients. Woolridge (2009) suggests that fixed effect is a more convincing tool for estimating *ceteris paribus* the effects.

In order to capture linear interdependencies in the multivariate model, I use the Vector Auto Regression (VAR) in which the error term are assumed to be normally distributed. If there are two variables y_1 and y_2, then a VAR(1) model can be written in matrix notation as:

$$\begin{bmatrix} \mathbf{y}_{1,t} \\ y_{2,t} \end{bmatrix} = \begin{bmatrix} \mathbf{a}_0 \\ b_0 \end{bmatrix} + \begin{bmatrix} \mathbf{A_{1,1}} & A_{1,2} \\ A_{2,1} & A_{2,2} \end{bmatrix} \begin{bmatrix} \mathbf{y}_{1,t-1} \\ y_{2,t-1} \end{bmatrix} + \begin{bmatrix} \mathbf{e_{1,t}} \\ e_{2,t} \end{bmatrix}$$

Here, the error term $e_{i,t}$ are iid with a zero mean and variance of 1, $A_{i,j}$ are respective coefficients of the variables. Therefore, in this study I assume that earnings (NI), accruals (ACCR) and operating cash flows (CFO) follow a VAR process as shown in equation (11) & (12). The error terms u_t & v_t are iid with a zero mean and variance 1 or $\Psi(0,1)$, where Ψ is the normal distribution function. Using a VAR model enables us to predict multi-period forecast based on short-term behavior of the variables.

Assuming that both net earnings and cash flows can be predicted over a short horizon, the following equations are written:

$$NI_t = a_0 + a_1 CFO_{t-1} + a_3 NI_{t-1} + a_4 ACCR_{t-1} + u_t \quad (11)$$

$$CFO_t = b_0 + b_1 CFO_{t-1} + b_2 NI_{t-1} + b_3 ACCR_{t-1} + v_t \quad (12)$$

Where a_0, b_0, u_t and v_t are (2 x 1) matrix and a_i and b_j are (3 x 1) matrix, for i, j = 1,2 and 3.

Following the earnings fixation hypothesis of Sloan (1996), in which the current earnings are a better predictor of one year ahead earnings.

In other words, earnings follow a random walk and are defined here as the raw model:

$$NI_t = c_0 + c_1 NI_{t-1} + \varepsilon_t \quad (13)$$

The impact of leverage on future earnings is one of the major determinants of corporate debt level at any time. The joint impact of accrual component and leverage is explained through the following equation:

$$NI_t = \xi_0 + \xi_1 TLEV_{t-1} + \xi_2 \Delta AR_t + \xi_3 \Delta AP_t + \xi_4 \Delta INV_t + \xi_5 \Delta AP_t + \xi_6 DEPN_t + \varepsilon_t \quad (14)$$

In order to assess the impact of leverage as measured by the debt equity ratio (DER) on the net income of a firm, I form five portfolios on the basis of DER. For each quintile, I conduct the ordinary least square regression. Results are reported in Table 6.

Observations and Analysis

Figure1 shows the movement of the Price to Earnings (PE) and Price to Book ratio (PB) with respect to the return to equity shareholders (ROE). Therefore, the PE and the PB ratios are shown as a function of ROE.

All the variables have been taken on a natural log scale to maintain linearization of data. Both the PE ratio and the Market-to-book ratio change in a similar fashion. As the PE ratio indicates the rate at which a firm discounts its future earnings. The expected rate increases with the increase in profitability to shareholders. However, the PE ratios' reaction rate is higher than the PB ratios at higher ROEs. This is an affirmation of the earnings fixation hypothesis of Sloan (1996). On the other hand, the PB ratios accord more importance to the economic profit (White, *et.al.*, 2007).

They show that the PB ratio discounts the future abnormal earnings at the firm's discount rate by the following relation:

$$\frac{P_0}{B_o} = 1 + \sum_{j=1}^{\infty} \frac{(ROE_j - r)B_{j-1}}{(1+r_j)^j}$$

where, B_j is the book value of equity and r is the firm's discount rate.

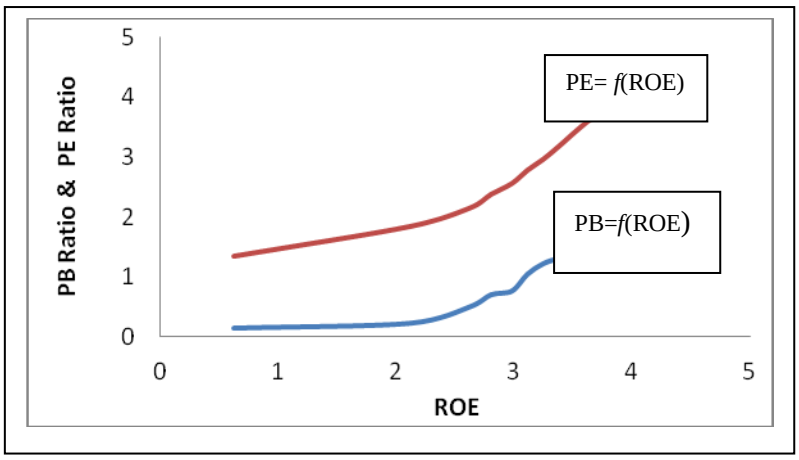

Figure 1

The figure above shows the response of the Market-to-Book Ratio and the Price-Earnings Ratio to the changes in the Return on Common Equity (ROE). The scale of the PE ratio is the corresponding number as multiplied by 10 and the PB ratios are in multiples with the respective values, whereas the scale of ROE is scale value multiplied by 10%.

Since $\left(\frac{1}{1+r}\right)$ is equivalent to the PE ratio, we can think the PB ratio is 1 plus the one-period ahead PE ratio times the expected future abnormal earnings as defined in the EBO model[1]. This suggests that when the abnormal profit is less than 0, then the PB ratio is less than 1. Figure 2(a) and 2(b) shows the relationship of operating leverage and financial leverage with net earnings[2]. The sample has been divided into ten equal portfolios sorted on the basis of financial leverage and operating leverage from lowest to highest. In both the cases, we find that firms with increasing leverage are associated with decreasing earnings, albeit with different rate. Penman & Nissim (2003) contend that while operating leverage arises from day-to-day operations like supply of raw materials from creditors, short-term borrowings, financial leverage is due to long-term borrowings like bank loans. Therefore, while OLLEV may be considered as an integral part of business operation on a daily basis, FLLEV indicates a firm's increase in outside liability.

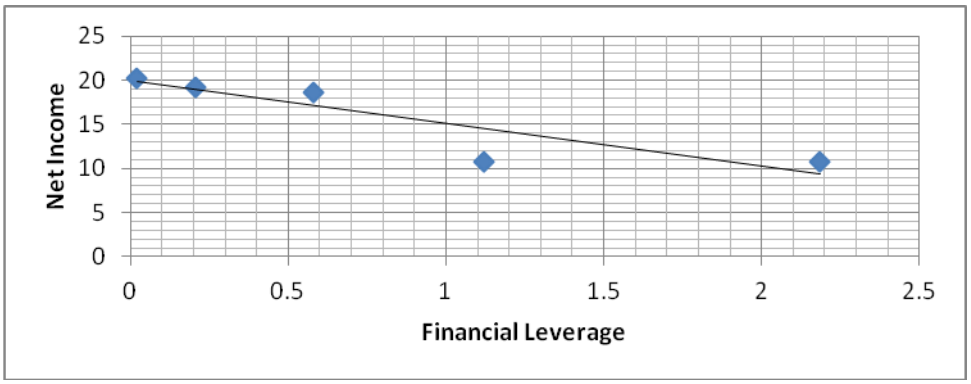

Figure 2(a)
(Financial Leverage Vs Net Earnings)

Five portfolios are constructed after arranging the financial leverage (FLEV) in the descending order and the corresponding net income (NI). The values on the axes are normalized using $\frac{x_i - \min}{\max - \min}$

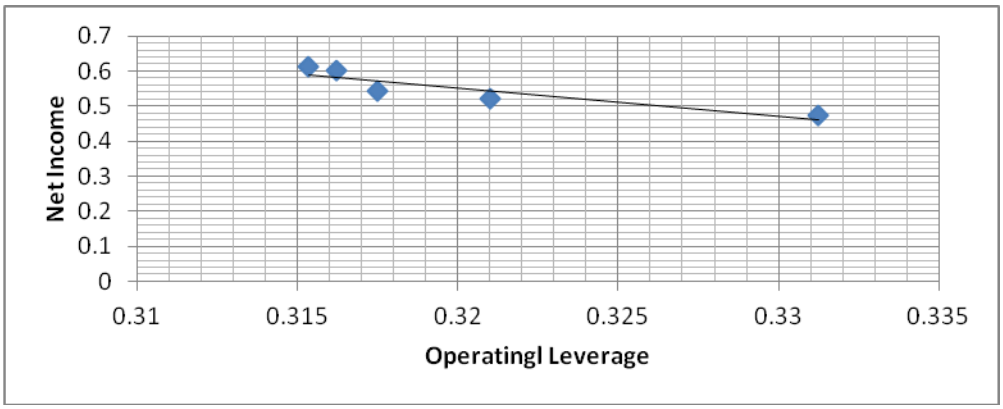

Figure 2(b)

[1] The Edward-Bell-Ohlson model for security valuation is written as $P_t = B_t + \sum_{t=1}^{n} \frac{NI_t - k_e \times B_{t-1}}{(1+k_e)^t} + TV$; where k_e is the cost of equity, TV is the terminal value. This model is based on the works of Ohlson (1995) and Edwards and Bell (1961).

[2] In the figures 2 (a) and 2 (b), net income has been plotted against financial and operating leverage respectively. Five portfolios are constructed on the basis of net income arranged from highest to lowest and against each such portfolio, the corresponding values of financial and operating leverage are plotted. All the variables are normalized by using $\frac{x_i - \min}{\max - \min}$; where, x_i is the corresponding cell value and min and max are the minimum and the maximum value of the respective variables.

(Operatingl Leverage Vs Net Earnings)

Five portfolios are constructed after arranging the operating leverage (OLLEV) in the descending order and the corresponding net income (NI). The values on the axes are normalized using $\frac{x_i - \min}{\max - \min}$

The sample characteristics are given in Table 1(a) and 1(b). There is a wide inter-firm differences in the accrual components especially change in current liabilities, as is reflected in high standard deviation from the mean values. The variability in the valuation ratios is quite distinct with the PB ratios showing a less variation across firms as compared to the PE ratios. This may be an affirmation of the fact that the market assigns more weight age to the earnings. The size of a firm (SIZE) is calculated using the natural log of its beginning book equity.

Table 1(b) shows the Pearson correlation matrix. We find that return to equity (ROE) shows a positive and significant correlation with net income (NI) and the PB ratio (PBR), while it is showing a negative and significant correlation with the leverage ratio (DER), depreciation (DEPN) and the price-earnings ratio (PER). While a positive relationship of ROE and the PB ratio is understandable, its opposite relationship with the PE ratio may be due to the fact that as the PE ratio increases, the discount rate of the firm decreases – an indication of falling investment avenues and thereby affecting shareholder's value. As expected, the opening balance of cash has a positive effect on the net earnings. However, this does not warrant holding a large cash balance because idle cash does not earn anything. This may take us to the well known area of corporate finance as to what should be the optimal cash balance maintained by a firm. An increase in financial leverage (FLEV) is related to a decrease in future profitability, as shown by the correlation co-efficient -0.218. Size of a firm also plays an important role in determining the profitability of a firm as shown by the coefficient of 0.178 with net earnings.

Tables 2(a) and 2(b) show the regression results of net earnings as a function of operating cash flows, the two valuation ratios and accruals. As reported above, both the CFO and PBR are positively and significantly related with future earnings and the model is able to explain about 35% (OLS) or 44% (Fixed effects) of the future net earnings. Therefore, a more fundamental ratio in predicting the earnings is the price to book ratio rather than the price to earnings ratio, although Sloan (1996) has empirically proved that the market prices earnings more than anything else. The t-value for the significance of differences between the regression coefficients of PBR and PER is 4.25 (significant at 1%). However, when future net earnings are regressed upon operating cash flows and the accrual components, the predictive ability of operating cash flows is reduced and the significance of the overall model is reduced from 192.61 to 65.54. Similarly Figure 2(c) examines the impact of opening cash balance on the year-end net earnings. Although, the Adjusted R^2 increases marginally from 41.7% to 43.1%, the overall significance of the model is reduced from 65.54 to 49.32. Individually, cash balance is found to be statistically significant and shows a positive relationship with one-period ahead profitability. Further, the predictive ability of CFO increases considerably when it is used along with the accruals. The coefficient in ΔCL increases [Table 2(b)] when fixed effect is applied although the significance level reduces to 5%.

Table 3 shows the predictions on the basis of VAR models specified in section 2.2. The table shows the comparative results of the income model, the cash flow model and the raw model. The results give an indication that current cash flows are better predictor of future cash flows, whereas, predictions only on the basis of current earnings may not be as strong as on the basis of cash flows. The explanatory power of the cash flow model is higher (30.7%) than the income model (27.6%).

Table 4 shows the regression results of return to equity holders as a function of financial leverage, operating leverage and the return on assets based on the relationship given in equation (10). It shows that the return on equity loads negatively on both the segregated components of total leverage and positively on return on assets (a measure of asset utilization). Each of the variables is found to be statistically significant at 1% or 5% and the explanatory power of the model is about 12% (16% under the fixed effects). The impact of FLEV reduces marginally when fixed effect is used but is still statistically significant.

When factor analysis is performed on the sample variables using Principal Components Method and using Varimax Rotation, it is observed that the factor loadings of CFO, NI, ROE and DEPN change after rotation whereas those of PER, PBR, ΔINV, ΔDR, ΔCR have remained the same. If we make the analysis of the rotated matrix, the following factors may be associated:

Factor 1: Short Term Accruals and Market Reaction

Factor 2: Long Term Accruals

Factor 3: Value added to the Firm

Factor 4: Value added to the Equity holders.

The valuation ratios are loaded in different factors. The PB ratio and ROE are loaded on factor 4, and therefore, we may deduce that these two can contribute in the value addition to equity holders. According to the valuation models, the value of a firm (which is the total of value of equity and value of debt holders) can be calculated by discounting the future cash flows (free cash flows) or the future abnormal earnings. We find that CFO and NI (both of which are used for company valuation) load on factor 3. Table 6 shows the regression results of net earnings regressed on earnings. Five portfolios are constructed on the basis of debt-equity ratio from highest to lowest, with Portfolio 1 shows the first 20% of the leverage. This is done in order to assess the impact of extent of leverage on a firm's profitability. As expected, leverage and profitability show a negative relationship. The extreme

portfolios are showing significant impact on the profitability. The explanatory power of Portfolio 1 is about 2% while that of Portfolio 5 is about 8%. The coefficients of the intercept terms signify that firms with low financial leverage show considerably higher profit than those firms which are highly levered.

Conclusion

The present study looks into the predictive ability of decomposed leverage and accruals about future profitability. Leverage is decomposed into operating liability leverage and financial leverage. As reported in Chan *et.al* (2004), with the increase in accruals and leverage, the future profitability decreases. However, the valuation ratios react in the opposite way. Both the PB ratio and the PE ratio increase (decrease) with the increase (decrease) in short term accruals, whereas they increase (decrease) with decrease (increase) in long term accruals i,e depreciation. Accounting policies therefore bear a significant impact on the way the market behaves. This result seems a bit complex in the light of the fact that an increase in depreciation may also be due to increased capital investment, a measure of future growth. As far as leverage is concerned, both financial leverage and operating leverage show a negative relationship with future profitability. Another important contribution of this paper is the role of opening cash balance on future profitability. The results have revealed that opening cash balance have a significant and positive impact on end of the period earnings. This may lead us to future scope of research on this aspect about corporate cash holdings in a levered firm.

Table 1(a)
Descriptive Statistics

While PER & PBR are the ratios, ROE is in percentage and EQUITY, CASH are in rupees crore, and all other variables are as a percentage of sales.

Variable	**Minimum**	**Maximum**	**Mean**	**Standard Deviation**	**N**
$CFO_{i,t}$	-79.07	41.48	10.45	10.11	421
$NI_{i,t}$	-3.39	57.72	17.27	9.36	421
PER	0.88	94.15	17.55	13.59	421
PBR	0.09	34.56	3.21	3.33	421
$DEPN_{i,t}$	0.11	13.28	3.19	2.2	421
$\Delta INV_{i,t}$	-86.09	97.55	0.1209	9.15	421
$\Delta DR_{i,t}$	-59.97	35.9	-0.0565	7.11	421
$\Delta CL_{i,t}$	-61.31	61.67	-0.018	8.57	421
$ROE_{i,t}$	-47.18	102.51	22.27	15.15	421
$ATO_{i,t}$	0.32	24.05	3.02	2.61	421
$CASH_{i,t}$	-11.48	0.32	-3.52	1.65	421
$SIZE_{i,t}$	-4.08	7.12	2.06	1.96	421

Table 1(b)

Correlation Matrix

	NI	DER	CFO	ΔINV	ΔDR	ΔCL	DEPN	CASH	ATO	PER	PBR	ROE	SIZE
NI	1	-0.278***	0.619***	-0.074	-0.054	-0.071	-0.058	0.177**	0.315**	-0.1*	0.098*	0.246***	0.178***
DER		1	-0.094***	0.094***	0.105**	0.083	-0.023	-0.118**	-0.143***	0.041	-0.217***	-0.218***	-0.178***
CFO			1	0.05	0.156***	-0.037	0.024	0.089*	-0.346***	-0.122***	0.078	0.256***	0.138***
ΔINV				1	0.618***	0.911***	0.028	0.019	0.05	0.858***	0.029	-0.054	-0.034
ΔDR					1	0.705***	0.026	-0.083	0.007	0.584***	0.045	0.015	-0.002
ΔCL						1	0.026	0.02	0.056	0.832***	0.033	-0.046	-0.024
DEPN							1	0.392***	-0.063	-0.03	-0.113**	-0.04**	0.59***
CASH								1	-0.008	0.057	0.042	-0.065	0.611***
ATO									1	0.031	0.06	0.066	-0.044
PER										1	0.194***	-0.148***	0.026
PBR											1	0.604***	-0.046
ROE												1	-0.032
SIZE													1

*** Significant at 1%; ** Significant at 5%; * Significant at 10%

Table 2(a)
Regression Results
The dependent variable is net earnings ($NI_{i,t+1}$) and CFO is the cash from operations taken as a percentage of gross sales and the Price Earnings ratio (PER) and the Price to Book Ratio (PBR) have been taken at face value.

Variable	Coefficients	
	OLS Estimates	Fixed Effect Estimates
Intercept	-3.082*** (124.38)	---
$CFO_{i,t}$	0.007*** (22.75)	0.012***(31.56)
$PBR_{i,t}$	0.062*** (6.287)	0.105***(6.45)
$PER_{i,t}$	-0.037*** (3.795)	-0.055**(2.91)
F-test	192.613***	110.45***
Adj R^2	35%	43.7%

*** Significant at 1%; ** Significant at 5%; * Significant at 10%; ( ) indicates t- value

Table 2(b)
Regression Results
Dependent Variable: Net Income (NI_{t+1})

Variable	OLS	Fixed Effects
Intercept	11.282***(22.02)	---
$CFO_{i,t}$	0.617*** (17.78)	1.354***(23.64)
$\Delta INV_{i,t}$	-0.058** (2.55)	-0.074**(2.62)
ΔDR_{it}	-0.269*** (4.896)	-0.347***(5.32)
ΔCL_{it}	0.052*** (3.463)	0.102** (2.51)
$DEPN_{it}$	-0.001*(1.943)	-0.012* (2.14)
F-test	65.54***	83.25***
Adj R^2	41.7%	46.21%

*** Significant at 1%; ** Significant at 5%; * Significant at 10%; $|t|$ indicates absolute value

Table 2(c)
Regression Results
Dependent Variable: Net Income (NI_{t+1})

Variable	OLS	Fixed Effects
Intercept	14.521***(14.01)	---
$CFO_{i,t}$	0.313*** (8.70)	1.214*** (11.23)
$\Delta INV_{i,t}$	-0.011 (0.871)	-0.036 (1.78)
ΔDR_{it}	-0.144***(3.054)	-0.325*** (4.78)
ΔCL_{it}	0.027***(2.67)	0.105***(4.52)
$DEPN_{it}$	1.609*** (9.556)	2.33*** (7.56)
$CASH_{i,t-1}$	1.627***(7.453)	1.46** (3.52)
F-test	49.32***	60.3***
Adj R^2	43.1%	52.4%

*** Significant at 1%; ** Significant at 5%; ( ) indicates t-value

Table 3
VAR Results

	Income Model	Cash Flow Model	Raw Model
Constant	11.38 (20.97)***	4.14 (7.26)***	15.47 (32.41)***
$NI_{i,t-1}$	0.044 (4.9)***	0.041 (4.3)***	0.056 (5.5)***
$CFO_{i,t-1}$	0.435 (12.05)***	0.513 (13.4)***	----
Adj R^2	0.276	0.307	0.059
F-test	92.96***	107.9***	31.18***

*** Significant at 1%

Table 4
Dependent Variable: ROE

Variable	OLS	Fixed Effects
Intercept	17.7*** (23.3)	---
$FLEV_{it}$	-1.904*** (-4.02)	-3.56*** (- 7.58)
$OLLEV_{it}$	-0.102*** (-2.71)	-0.155** (-3.56)
ROA_{it}	0.036***(4.185)	0.115*** (5.65)
F-test	20.83***	32.65***
Adj R^2	11.8%	15.69%

*** Significant at 1%; ** significant at 5%; ( ) indicates t- value

Table 5(a)
Factor Analysis
Component Matrix (Principal Component Method)

	Factors			
Variable	**1**	**2**	**3**	**4**
$CFO_{i,t}$	-0.093	**0.731**	0.013	-0.420
$NI_{i,t}$	-0.186	**0.761**	-0.038	-0.334
PER	**0.914**	0.056	-0.030	0.045
PBR	0.064	0.483	-0.378	**0.553**
$DEPN_{i,t}$	-0.005	0.104	**0.893**	0.264
$\Delta INV_{i,t}$	**0.937**	0.094	0.032	-0.024
$\Delta DR_{i,t}$	**0.776**	0.177	0.026	-0.085
$\Delta CL_{i,t}$	**0.951**	0.093	0.030	-0.011
$ROE_{i,t}$	-0.119	**0.601**	-0.315	0.468
$ATO_{i,t}$	0.089	-0.339	-0.184	0.629
$DER_{i,t}$	0.152	-0.395	0.074	-0.411

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Table 5(b)
Rotated Matrix (Varimax Rotation Used)

	Factors			
Variable	**1**	**2**	**3**	**4**
$CFO_{i,t}$	0.024	0.029	**0.832**	0.162
$NI_{i,t}$	-0.066	0.016	**0.808**	0.265
PER	**0.911**	-0.035	-0.104	0.011
PBR	0.117	-0.099	-0.025	**0.813**
$DEPN_{i,t}$	0.015	**0.933**	-0.048	-0.064
$\Delta INV_{i,t}$	**0.942**	0.010	-0.030	-0.037
$\Delta DR_{i,t}$	**0.795**	0.008	0.092	-0.014
$\Delta CL_{i,t}$	**0.955**	0.012	-0.041	-0.029
$ROE_{i,t}$	-0.044	-0.037	0.144	**0.818**
$ATO_{i,t}$	0.023	-0.053	-0.683	0.288
$DER_{i,t}$	0.103	-0.133	-0.044	-0.569

Table 6
Regression Results (Portfolio sorted on the basis of DER)
Dependent Variable: Net Earnings (NI)

Portfolio	Constant	DER_{it}	Adj R^2	F-test
Portfolio 1 (Highest)	15.802	-1.38	0.021	3.05
Significance Level				
	1%	10%		10%
Portfolio 2				
Significance Level				
	14.54	-1.8	0.008	0.224
	1%	**NS**		**NS**
Portfolio 3				
Significance Level	24.553	-11.85	0.009	1.91
	1%	**NS**		**NS**
Portfolio 4				
Significance Level	19.89	-0.809	0.01	0.007
	1%	**NS**		**NS**
Portfolio 5 (Lowest)				
Significance Level	22.92	-93.3	0.077	8.84
	1%	1%		1%

NS: Not Significant at any accepted level (1%, 5% or 10%)

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Appendix I

Cross Section of the Sample

Industry/ Sector	Companies
Aluminium	Hindalco, Nalco
Automobiles	Hindustan Motors, Maruti Suzuki, Hyundai Motor Corp.
Bearing	ABC Bearings, NRB Bearings, SKF India & Timken India
Cement	ACC, Birla Cements, Burnpur, Ultratech Cement, Andhra Cements, India Cements, Madras Cement

Domestic Appliances	Bajaj Electricals, IFB Industries, Whirlpool India, Samsung Electronics, LG India
Personal Care	Dabur India, Emami Ltd., Godrej Consumer, Marico Industries, Hindustan Unilever Ltd.
Pharmaceutical	Abott India, Alembic, Aventis, Cadilla, Cipla, Dr, Reddy's Lab, Glaxo, Merck, Novartis, Pfizer, Ranbaxy, Torrent, Wyeth
Refineries	Bharat Petroleum, Chennai Petroleum, Essar Oil, Hindustan Petroleum, Indian Oil, Mangalore Refineries, Reliance Industries
Heavy Engineering	BEML, BHEL, Crompton, Titagarh Wagons
Food & Dairy	Britannia, Heritage Foods, Lotte India, Modern Dairies, Nestle, Vadilal Industries
Gas Distribution	GAIL India, Indraprastha Gas
Mining & Minerals	Coal India, Kudremukh Iron Ore Ltd.
Steel	Steel Authority of India (SAIL), Bhushan Steel, Tata Steel, Usha Martin Ltd.
Civil Construction	Gammon India, Hindustan Construction Company, IVRCL, JP Associates, Punj Lloyd