# Assessing the Influence of Firm and Macroeconomic Variables on Corporate Profitability in India

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## Abstract

**Corporate profitability not only shows the firm's ability to generate revenue but also strongly communicate the health of the industrial sector of any country. The aim of this research was to provide realistic evidence about the factors motivating corporate profitability in India. Firm specific variables comprised of liquidity ratio, leverage ratio, firm size, and export intensity of selected firms. Among the macroeconomic variables, we included gross domestic product, wholesale price index, USD - INR exchange rate, and current account balance of India. To enable studying the varying relationship between the selected exogenous factors and corporate profitability, we segregated this study into three phases, that is, full period (2000 to 2015), prior to the global financial crisis period (2000 to 2007), and post global financial crisis period (2009 to 2015). We employed panel regression's fixed effect model and random effect model to determine the influence of these variables on firm's profitability. The outcome of the research indicated that leverage ratio had a significant negative relationship in both full period and pre-crisis period, while liquidity ratio and export intensity had a positive impact during the full study period. None of the macroeconomic factors solely affected the profitability of the firms. The study also revealed that no single variable used in the study affected corporate profit during the post-crisis period. Thus, beckoning corporate profitability depended upon a combination of various internal and external information.**

***Keywords:*** **corporate profitability, macroeconomic indicators, firm specific variables, panel data, fixed effect model, random effect model.**

**JEL Classification : D22, E02, E30**

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The profitability of a firm refers to its capability to make new wealth from regular operations over a particular period of time. Corporate profitability is a sign of corporate performance and is always defined in financial terms. The performance of a firm can be assessed either based on accounting data, which reveals a firm's past performance or based on market measures, which contains share prices of the firm. The shareholders, investors, and management of a firm are always keen to get financial information such as return on investments (ROI), return on equity (ROE), growth rate of profit and sales, etc. in evaluating the performance of a firm. Before the ambitious reforms of 1990s, the performance of the Indian corporate sector was not remarkable and the firms were constrained by stern regulations in relation to ensuring ideal debt - equity ratios, working capital norms, and highly administered rate of credit availability with no importance to the creditworthiness, etc. However, India experienced a substantial change in both economic and corporate sector performance after the landmark reforms in 1990s.

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Among the economic indicators, corporate profitability is one of the key factors, which is closely followed by the policymakers and investors across the world to judge the corporate's financial health and performance. Moreover, it is an essential component in uplifting a country's economy. Therefore, it is crucial to examine the factors affecting corporate profitability. The firm's profitability may be influenced by both external and internal factors. The external factors are the macroeconomic variables comprising of economic growth, inflation, money supply, interest rate, trade openness, political stability, exchange rate fluctuations, etc. Similarly, internal factors are the firm specific variables which include capital structure, exports, working capital policy, capital investments, firm size, etc.

Although numerous indicators have been used to measure the performance of corporates, the most commonly used measures include return on assets (ROA), return on investment (ROI), return on equity (ROE), return on sales and profit margins, etc. This research paper uses return on assets (ROA) and earnings before tax margin (EBTM) as a measure of corporate performance. ROA is a financial indicator which reflects the profit of a company in relation to its total assets, that is, it is the ratio of net profit to its total assets. ROA of a firm indicates how efficiently the firm is using its assets in generating earnings. EBTM measures the relationship between earnings before taxes (EBT) and sales, that is, it is the ratio of EBT to sales.

In this study, we consider liquidity ratio (LIR), leverage ratio (LER), firm size (FS), and export intensity (EI) as the firm specific variables for measuring the corporate profitability. Liquidity ratio examines the ability of the firm in meeting its short-term obligations by showing the ratio of current assets to current liabilities. Higher liquidity ratio enables the firm to pay off its liabilities by converting its other assets into cash at ease. It is also a well-known fact that excess liquidity leads to an adverse impact on firm's profit. Leverage ratio helps in ascertaining the quantum of debt capital in relation to equity capital of the firm and thereby communicates the ability of the firm in meeting the long-term financial obligations. This ratio assists the shareholders, lenders, and potential investors in making proper judgement by assessing the potential risk and return of the firm. The firm size can be measured in different ways, that is, by size of operations, sales, investments, employees, etc. We consider the value of total assets for determining the firm size. Total asset is the sum value of all investments, receivables, cash, and other assets found in the balance sheet of a firm. We also intend to find whether higher export activity of domestically produced goods enhances the corporate profit or not. Therefore, export intensity is considered as one of the firm specific characteristics in determining corporate profitability.

Among the host of economic variables which may have an impact on corporate profitability, we consider gross domestic product (GDP), wholesale price index (WPI), current account balance of India, and USD - INR exchange rate. GDP is a measure of a country's all economic activity. We used real GDP value (GDP at constant price) in determining the influence of GDP on firm's profit as nominal GDP value (GDP at current price) does not reflect the true change in economic activity as it fails to accommodate the inflation effect. WPI is the most prominent measure to observe the dynamic movement of prices in a most comprehensive manner. Various agents like governments, corporates, and banks use WPI data in valuable decision making processes. Current account balance in balance of payments (BoP) is a result of three components namely, net exchange of goods, net exchange of services, and net transfer of remittances. The current account balance reflects the pattern of a country's trade with the rest of the world. Exchange rate is the value of one currency against another currency. The changes in exchange rate affect every stakeholder either positively or negatively.

Even though many studies have been undertaken on determinants of corporate profitability, most of the studies considered only a few economic or firm variables to find the impact on corporate profitability. There are also many research studies available that have examined the relationship between specific variable and the profitability of a particular industry sector. This research study is one among the very few which gives a comprehensive picture about the impact of selected firm specific variables and macroeconomic variables on corporate profitability.

## Literature Review

Nandi, Majumder, and Mitra (2015) regressed corporate profitability on firm specific and macroeconomic indicators in a panel framework. The study focused on the impact of exchange rate depreciation on corporate profitability during stress scenarios. It was concluded that exchange rate was the only critical factor which had negative association with corporate profitability. Kebewar (2012) studied the consequence of debt on corporate profitability of non-listed French service sector firms and found that irrespective of the size of firms, debt ratio had no impact on the corporate profitability. Margaretha and Supartika (2016) established that firm size, lagged profitability growth, productivity, and industrial affiliation significantly affecting the profitability of the listed Small Medium Enterprises (SMEs) in Indonesian stock exchange. Niresh and Thirunavukkarasu (2014) tested the relationship between firm size (measured through total assets and total sales) and profitability (measured through return on assets and net profit) among Sri Lanka's listed manufacturing firms, which revealed that firm size had no profound impact on profitability. El-Masry and Abdel-Salam (2007) examined the influence of firm size and foreign operations on the exchange rate exposure of non-financial companies in UK and found that forex exposure was high for the firms which had higher revenues from abroad. The sensitivity of firm's stock returns to exchange rate exposure was very much evident. Burja (2011) investigated the influencing factors of firm's profitability using regression analysis and revealed the existence of strong connection between the management of resources and firms' profitability.

Triandafil, Brezeanu, and Badea (2010) probed the macroeconomic impact on corporate profitability of companies listed in Bucharest Stock Exchange and concluded that macroeconomic variables determined corporate profitability to a greater extent. Bekeris (2012) scrutinized the impact of macroeconomic indicators on the profitability of SMEs in Lithuania and discovered that changes in VILIBOR interbank interest rate and unemployment had a significant impact on SMEs' profitability. Shotar and El - Mefleh (2010) established a relationship between exchange rate volatility and the performance of Jordon's economy and the firms. The outcome disclosed that the country's economy and individual firms' performances were vulnerable to exchange rate changes. Isaac (2015) assessed the effect of exchange rate risk on bank performance in Nigeria and discovered that a unit increase in the exchange rate was headed by the rise in profit after tax. The study also indicated that there existed a substantial relationship between exchange rate management and performance of banks. Sajjan and Jaiswal (2016) studied the Indian economic reforms of 1991 and other policy measures that brought changes in business conditions over the long-term.

Di Iorio, Faff, and Sander (2013) observed the sensitivity of financial sector stock returns to two risk factors, that is, interest rates and exchange rates for all financial sectors of Sweden. It revealed that banks were more sensitive to short-term interest rate changes while the financial services and insurance sectors were more sensitive to long-term interest rate changes. Many researchers (Hasananov & Baharumshah, 2014 ; Kallianiotis, 2013 ; Srinivasan & Kalaivani, 2012 ; Walley, 2015 ; Yilmaz, 2012) studied the impact of exchange rate with different firm performance parameters and concluded that the exchange rate was one of the key significant factors which affected the economy and firms.

## Data, Methodology, and Framework

The variables used in the study are grouped into three categories namely corporate profitability variables (*ROA* and *EBTM*), firm specific variables (liquidity ratio, leverage ratio, firm size, and export intensity) and economic variables (*GDP, WPI,* Current account balance, and USD-INR exchange rate). We selected one firm from each sector of BSE Sensex index based on the foreign asset for measuring corporate profitability. We purposely ignored banking and financial service sector as their sensitivity to variables and regulation norms differ from

others. The firms considered for the study are ; Dr. Reddy's Laboratories, Infosys, Larsen & Toubro, ONGC, Reliance Industries, and Tata Steel.

We used annual data starting from 2000 to 2015 for firm specific variables and quarterly data from Q2 : 2000 to Q2 : 2015 for economic variables. We analysed the impact of firm and economy variables on corporate profitability in a panel framework. The dependent variable, corporate profitability is represented through proxy *ROA* and *EBTM* and they are computed as the ratio of net profits to total assets and profits before taxes to net sales respectively. The exogenous variables are divided into two sets, that is, firm specific variables and macroeconomic variables. Equations (1) and (2) exhibit the simple panel regression models of our study.

$$Y_{it} = \alpha + \beta^T X^{FIRM}_{it} + U_{it} \quad \text{---------- (1)}$$

$$Y_{it} = \theta + \delta^T Z^{MACRO}_{t} + U_t \quad \text{---------- (2)}$$

Here, '$Y$' refers to *ROA* or *EBIT* as a measure of corporate profitability. '$i$' indicates the firm and '$t$' specifies the time period. $\alpha$ and $\theta$ represent the intercept of the regression equation. $\beta^T$ and $\delta^T$ signify the transpose of coefficient firm vector and macroeconomic vector, respectively and '$U_t$' is the white noise error term. The reason for not considering the firm vector and macroeconomic vector in a single equation is due to difference in data frequency. The data of firm specific variables are available on annual basis ; whereas, the macroeconomic variables are available in quarterly frequency. The Table 1 demonstrates the data description of different variables used in the study.

In this study, we suspect that the sensitivity of corporate profitability to firm and macroeconomic variables may widely differ prior and after the global financial crisis. Therefore, apart from conducting balanced panel regression for the total sample period (2000 to 2015), we also segregate the study further into two parts, that is, pre-crisis period (2000 to 2007) and post-crisis period (2009 to 2015) and conduct balanced panel regression separately for these periods. The two simple forms of the model are used to discover the exact relationship of the variables. They are : fixed effect model and random effect model. The fixed effect model assumes that the unobserved effects are fixed in nature and reflected in intercepts. On the other hand, the random effect model assumes unobserved effects are arbitrary in nature and also uncorrelated with other explanatory variables.

**Table 1. Data Description of the Variables**

| Variable name | Computation | Frequency | Source |
|---|---|---|---|
| *ROA* | Net Profit / total assets | Quarterly & Annual | Ace Equity database |
| *EBTM* | EBT / Net Sales | Quarterly & Annual | |
| *Firm Size* | Log (total asset) | Annual | |
| *Liquidity Ratio* | Current assets / Current Liabilities | Annual | |
| *Leverage Ratio* | Total Debt / Total Equity | Annual | |
| *Export Intensity* | Export / Total asset | Annual | |
| *GDP* | - | Quarterly | www.rbi.org.in |
| *WPI* | - | Quarterly | www.rbi.org.in |
| *Current Account Balance* | - | Quarterly | www.rbi.org.in |
| *USD-INR Exchange Rate* | - | Quarterly | www.rbi.org.in |

Note: WPI series 1993-94 & 2004-05 are compared using linkage factor given by Central Statistical Office (CSO) and arithmetic method is used for conversion. Similarly, GDP at factor cost (constant prices) of 1999-00, 2004-05, & 2011-12 series are compared using linkage factor.

## Analysis and Discussion

Prior to assessing the relationship among variables using panel data analysis, we applied panel unit root test to verify the non-existence of unit root.

The Table 2 and Table 3 reveal the results of panel unit root test. Among the firm specific variables except export intensity, all other variables are found to be stationary at level, that is, *I*(0). Export intensity is found to stationary after taking first difference, that is, *I*(1). For stationary data, mean, variance, and covariance should be time invariant. Among the macroeconomic variables, *WPI* and *GDP* are stationary only after first differencing, that is, *I*(1). Exchange rate and current account balance are found to be stationary at level, that is, *I*(0). Table 4 and Table 5 depict the descriptive statistics of firm specific variables and macroeconomic variables, respectively.

The mean of a variable refers to the average value of the variable's data series. Standard deviation is a measure of dispersion of data series. The standard deviation of leverage ratio is very close to its mean value and the standard deviation of export intensity is higher than its mean value. The large standard deviation values indicate high variability in the data series. Normally distributed variables have a Skewness of 0 and Kurtosis of 3. The null hypothesis of normality is rejected for all the variables except for firm size. Descriptive statistics of macroeconomic variables show that the exchange rate has very high skewness and kurtosis representing excess leptokurtic nature of data series. Jarque-Bera statistics indicate that all the macroeconomic variables are not normally distributed.

The Table 6 explains that the panel regression model is carried out for ascertaining the factors inducing corporate profitability during the full sample period (2000 to 2015); pre-crisis period (2000 to 2007) and post crisis period (2009 to 2015). In the panel regression model, *ROA* and *EBTM* are dependent variables and all other variables are independent.

**Table 2. Panel Unit Root Test for Corporate Profitability & Firm Variables (Annual Data: 2000 to 2015)**

| Variables | At Level | | 1st Difference | | Result |
|---|---|---|---|---|---|
| | Test Statistics | *P*-Value | Test Statistic | *P*-Value | |
| *ROA* | -3.638 | 0.000 | - | - | I(0) |
| *EBTM* | -2.429 | 0.008 | - | - | I(0) |
| *LIR* | -3.780 | 0.000 | - | - | I(0) |
| *LER* | -4.794 | 0.000 | - | - | I(0) |
| *FS* | -7.809 | 0.000 | - | - | I(0) |
| *EI* | -1.097 | 0.136 | -4.640 | 0.000 | I(1) |

*Results are based on Levin, Lin, & Chu Panel Unit Root test

**Table 3. Panel Unit Root Test for Corporate Profitability & Macroeconomic Variables (Quarterly Data: Q2-2000 to Q2-2015)**

| Variables | At Level | | 1st Difference | | Result |
|---|---|---|---|---|---|
| | Test Statistics | *P*-Value | Test Statistic | *P*-Value | |
| *ROA* | -4.130 | 0.000 | - | - | I(0) |
| *EBTM* | -6.464 | 0.000 | - | - | I(0) |
| *GDP* | 6.944 | 1.000 | -73.335 | 0.000 | I(1) |
| *WPI* | -1.501 | 0.067 | -28.590 | 0.000 | I(1) |
| *ER* | -15.998 | 0.000 | - | - | I(0) |
| *CA* | -6.350 | 0.000 | - | - | I(0) |

*Results are based on Levin, Lin, & Chu Panel Unit Root test

**Table 4. Descriptive Statistics of Corporate Profitability & Firm Variables**

| Statistics | *ROA* | *EBTM* | *LIR* | *LER* | *FS* | *EI* |
|---|---|---|---|---|---|---|
| Mean | 0.118435 | 0.238934 | 2.267422 | 0.336806 | 10.41705 | 0.302456 |
| Median | 0.092106 | 0.223568 | 1.727994 | 0.308197 | 10.71562 | 0.147747 |
| Std. Dev | 0.077259 | 0.128055 | 1.184166 | 0.310824 | 1.435386 | 0.326344 |
| Skewness | 1.240600 | 0.117488 | 1.172976 | 1.057674 | -0.325455 | 0.862221 |
| Kurtosis | 3.723561 | 1.736880 | 3.314906 | 4.125618 | 2.275358 | 2.359822 |
| Jarque-Bera | 25.04959 | 6.190075 | 21.00997 | 21.53141 | 3.557960 | 12.68823 |
| Probability | 0.000004 | 0.045273 | 0.000027 | 0.000021 | 0.168810* | 0.001757 |

* Null hypothesis of normality is accepted.

**Table 5. Descriptive Statistics of Corporate Profitability & Macroeconomic Variables**

| Statistic | *ROA* | *EBTM* | *GDP* | *WPI* | *ER* | *CA* |
|---|---|---|---|---|---|---|
| Mean | 0.0297 | 0.2386 | 10283.69 | 126.9303 | 50.9351 | -307.9916 |
| Median | 0.0233 | 0.2346 | 10009.47 | 119.3333 | 46.6023 | -204.48 |
| Std. Dev | 0.0205 | 0.1382 | 3373.181 | 33.2536 | 18.4415 | 418.404 |
| Skewness | 1.1442 | 0.2229 | 0.2392 | 0.3594 | 6.361 | -1.0339 |
| Kurtosis | 3.7805 | 2.1525 | 1.8095 | 1.7262 | 46.419 | 3.856 |
| Jarque-Bera | 89.16 | 13.9822 | 25.1016 | 32.6251 | 31217.69 | 76.39 |
| Probability | 0.0000 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

**Table 6. Evaluating Corporate Profitability for the Full Period (2000-2015)**

**Panel 1 - Impact of Firm Specific Variables on Corporate Profitability - Annual Data 2000 - 2015; 96 Observations**

$$Y_{it} = \alpha + \beta_1 X^1_{it} + \beta_2 X^2_{it} + \beta_3 X^3_{it} + \beta_4 X^4_{it} + U_{it}$$

| *Y* | α | $\beta_1$ | $\beta_2$ | $\beta_3$ | $\beta_4$ |
|---|---|---|---|---|---|
| *ROA (ALL)* | 0.511882 | 0.290239 | -1.53894* | -1.08579 | 0.426179* |
| *p*-value | 0.7331 | 0.0528 | 0.0000 | 0.0819 | 0.0030 |
| *F*-statistic : 2.88 | | Durbin-Watson Statistic : 1.33 | | | |
| *EBTM (ALL)* | -3.3448 | 0.267635* | -1.17437* | 0.823635 | 0.170818 |
| *p*-value | 0.0168 | 0.0439 | 0.0000 | 0.1337 | 0.1711 |
| *F*-statistic : 2.03 | | Durbin-Watson Statistic : 1.86 | | | |

**Panel 2 - Impact of Macroeconomic Variables on Corporate Profitability - Quarterly Data (Q2 : 2000-Q2:2015) ; 366 Observations**

$$Y_t = \alpha + \gamma_1 Z^1_t + \gamma_2 Z^2_t + \gamma_3 Z^3_t + \gamma_4 Z^4_t + U_t$$

| *Y* | θ | $\gamma_1$ | $\gamma_2$ | $\gamma_3$ | $\gamma_4$ |
|---|---|---|---|---|---|
| *ROA* | 0.0452 | 0.0110 | -0.0276 | 0.0068 | 0.0004 |
| *p*-value | 0.0000 | 0.2882 | 0.0749** | 0.8715 | 0.8364 |
| *F*-statistic: 7.6304 | | Durbin-Watson statistic:1.07 | | | |
| *EBTM* | 0.2815 | 0.0713 | -0.1484 | 0.0136 | -0.0024 |
| *p*-value | 0.0010 | 0.0756** | 0.1032 | 0.5196 | 0.1917 |
| *F*-statistic: 1.9823 | | Durbin-Watson statistic:1.41 | | | |

** indicates significance at the 10% level

**Table 7. Evaluating Corporate Profitability for the Pre-Crisis Period (2000-2007)**

**Panel 1 - Impact of Firm Specific Variables on Corporate Profitability - Annual Data 2000 - 2007; 48 Observations**

$$Y_{it} = \alpha + \beta_1 X^1_{it} + \beta_2 X^2_{it} + \beta_3 X^3_{it} + \beta_4 X^4_{it} + U_{it}$$

| *Y* | α | $\beta_1$ | $\beta_2$ | $\beta_3$ | $\beta_4$ |
|---|---|---|---|---|---|
| *ROA* | 1.2273 | 0.1880 | -1.4512* | -1.1598 | 0.1946* |
| *p* - value | 0.5555 | 0.4392 | 0.0000 | 0.2019 | 0.0299 |
| *EBTM* | -1.5780 | 0.4608 | -1.2793* | 0.0624 | 0.0547 |
| *p*-value | 0.4967 | 0.0811 | 0.0000 | 0.9505 | 0.5741 |

**Panel 2 - Impact of Macroeconomic Variables on Corporate Profitability - Quarterly Data (Q2:2000-Q4:2007); 186 Observations**

$$Y_t = \alpha + \gamma_1 Z^1_t + \gamma_2 Z^2_t + \gamma_3 Z^3_t + \gamma_4 Z^4_t + U_t$$

| Y | θ | $\gamma_1$ | $\gamma_2$ | $\gamma_3$ | $\gamma_4$ |
|---|---|---|---|---|---|
| *ROA* | -0.0397 | 0.3840 | -0.0221 | 0.0676 | -0.0026 |
| *p* - value | 0.9357 | 0.1565 | 0.5619 | 0.3669 | 0.4508 |
| *EBTM* | -0.1213 | 0.1690 | 0.4031 | 0.4312 | 0.0336 |
| *p* - value | 0.6794 | 0.2931 | 0.8582 | 0.3319 | 0.9460 |

*indicates significance at the 5% level

**Table 8. Evaluating Corporate Profitability for the Post-Crisis Period (2009-20015)**

**Panel 1 - Impact of Firm Specific Variables on Corporate Profitability - Annual Data 2009-2015; 42 Observations**

$$Y_{it} = \alpha + \beta_1 X^1_{it} + \beta_2 X^2_{it} + \beta_3 X^3_{it} + \beta_4 X^4_{it} + U_{it}$$

| *Y* | α | $\beta_1$ | $\beta_2$ | $\beta_3$ | $\beta_4$ |
|---|---|---|---|---|---|
| *ROA* | 4.4029 | 0.3154 | 1.6954 | -3.0556 | -0.0897 |
| *p*-value | 0.4986 | 0.1364 | 0.3020 | 0.2753 | 0.5905 |
| *EBTM* | 4.0115 | 0.0085 | -3.0233** | -2.6316 | -0.1733 |
| *p*-value | 0.5105 | 0.9644 | 0.0609 | 0.3146 | 0.2753 |

**Panel 2 - Impact of Macroeconomic Variables on Corporate Profitability - Quarterly Data (Q1:2009-Q2:2015); 156 Observations**

$$Y_t = \alpha + \gamma_1 Z^1_t + \gamma_2 Z^2_t + \gamma_3 Z^3_t + \gamma_4 Z^4_t + U_t$$

| Y | θ | $\gamma_1$ | $\gamma_2$ | $\gamma_3$ | $\gamma_4$ |
|---|---|---|---|---|---|
| *ROA* | 0.0374 | -0.0240 | -0.0720 | 0.0337 | -0.1221 |
| *p*-value | 0.0000 | 0.7898 | 0.3853 | 0.2005 | 0.4824 |
| *EBTM* | 0.3717 | -0.1261 | -0.0913** | 0.0385 | -0.1201 |
| *p*-value | 0.0000 | 0.8662 | 0.0641 | 0.1065 | 0.4420 |

** indicates significance at the 10% level

Hausman specification test is used to differentiate between fixed effect model and random effect model. The Hausman test (refer Appendix-1) suggests fixed effect model for *ROA* and random effect model for *EBTM* for the full period panel regression impact of firm specific variables on corporate profitability. The leverage ratio has a significant negative impact on *ROA* and export intensity has a significant positive influence on *ROA*. It is also

identified that *EBTM* is positively influenced by liquidity ratio and negatively affected by leverage ratio. Hausman test for macroeconomic variables proposes a random effect model for both *ROA* and *EBTM*. None of the macroeconomic variables are found to impact either *ROA* or *EBTM* at the 5% level.

From the Table 7, it can be inferred that during the pre-crisis period, Hausman test advices random effect model for both firm specific variables and macroeconomic variables' impact on *ROA* and *EBTM*. In this phase, *ROA* and *EBTM* are negatively affected by leverage ratio. Macroeconomic variables have no influence on either *ROA* or *EBTM*.

From the Table 8, it can be inferred that in the post - crisis period, Hausman specification test suggests fixed effect model for impact of firm specific variables on both corporate profitability indicators and random effect model for impact of macroeconomic variables on both corporate profitability indicators. Here, none of the firm and macroeconomic factors have a bearing on either *ROA* or *EBTM* at the 5% significance level.

## Findings

Considering the necessity of good performance by Indian corporates to sustain the economic growth and ensure stable livelihood, this study on accessing the influence of firm and macroeconomic variables on corporate profitability is undertaken to identify the key determinants of corporate profitability in India. During the full period analysis, liquidity ratio is found to have a positive impact on corporate profitability. Export intensity has a positive bearing on ROA during both full period and pre-crisis study period. Similarly, leverage ratio too affects the profitability of Indian corporates during full period and pre-crisis period, but it has a negative impact on corporate profitability. No single macroeconomic indicators vividly affect any of the profitability variables during full and pre-crisis period. The post-crisis period corporate profitability is not affected by any of the firm and macroeconomic variables considered for the study. It indicates that corporate performances are no more relying on one or few factors but on a combination of several internal and external factors.

The results of the study are in line with the results obtained by Niresh and Thirunavukkarasu (2014) as they also found the firm size to not have a significant relationship with corporate profitability in all phases of the study. The results of the study contradict the research outcomes of Srinivasan and Kalaivani (2012) as USD - INR is not found to be a significant determinant of corporate profitability.

## Implications

This research study throws light on the key firm and macroeconomic variables which have an impact on the performance of the corporate entity. The outcome reveals that only a combination of macroeconomic and firm specific variables have a significant effect on corporate profitability. The industry associations should endeavour to impress the consultative machineries of the government to evolve policies to further the interests of the corporates and the nation.

## Limitations of the Study and Scope for Further Research

The research undertaken involves different variables like corporate profitability variables, firm specific variables, and economic variables. All these variables are highly sensitive to the current and recent past information. Thus, the result obtained in the research may hold well under the present environment only for a shorter time span.

We selected only one firm from each sector from the BSE Sensex index based on the foreign asset for measuring corporate profitability. We purposely ignored banking and financial service sectors as their sensitivity

to variables and regulation norms differ from others. The firms considered for this particular study are limited to Dr.Reddy's Laboratories, Infosys, Larsen & Toubro, ONGC, Reliance Industries, and Tata Steel.

The influence of other environmental variables like social, political, cultural etc. on the profitability and performance of corporates may be studied. The effect due to change in corporate taxation on the firms' profitability also deserves inquiry in future research.

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## Appendix 1. Hausman Specification Test

**($H_0$: Random Effect Model)**

| Dependent Variable | Chi. sq. stat | Prob. | Result |
|---|---|---|---|
| *ROA* (Full) - Firm | 22.56283 | 0.0002 | FE |
| *EBTM* (Full) - Firm | 0.409836 | 0.9817 | RE |
| *ROA* (Full) - Macroeconomic | 8.852032 | 0.1197 | RE |
| *EBTM* (Full) - Macroeconomic | 6.1636 | 0.1873 | RE |
| *ROA* (Pre-Crisis) - Firm | 4.380903 | 0.3569 | RE |
| *EBTM* (Pre-Crisis) - Firm | 4.139268 | 0.3875 | RE |
| *ROA* (Pre-Crisis) - Macroeconomic | 0.0012 | 0.9873 | RE |
| *EBTM* (Pre-Crisis) - Macroeconomic | 2.3478 | 0.6454 | RE |
| *ROA* (Post-Crisis) - Firm | 23.0445 | 0.0001 | FE |
| *EBTM* (Post-Crisis) - Firm | 93.8312 | 0.0000 | FE |
| *ROA* (Post-Crisis) - Macroeconomic | 0.5687 | 0.1784 | RE |
| *EBTM* (Post-Crisis) - Macroeconomic | 9.3156 | 0.0865 | RE |