



THE EFFECT OF MACROECONOMIC INDICATORS ON PROFITABILITY: AN EMPIRICAL ANALYSIS

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ABSTRACT

The research examines the impact of macroeconomic factors on the profitability of selected listed companies from 1998-2015. Pooled Ordinary least method is used to determine the effect of three major factors; gross domestic product (GDP), interest rate (INTR) and inflation (INFR) on return on equity (ROE) which proxies' profitability. The findings from the empirical point of view show a positive relationship of gross domestic product (GDP) with return on equity (ROE). Interest rate and inflation rate have a negative relationship with return on equity (ROE). Gross domestic product have a significant positive effect on Return on equity(ROE) while interest rate have a significant negative effect on return on equity(ROE) but inflation is not significant at all levels of significance.

KEYWORD: Gross Domestic Product, Interest Rate, Return on Equity, Profitability.

INTRODUCTION

The macroeconomic variables do affect the performance of the companies. Consequently, the corporates should remain aware of these variables in order to reduce the impact of these on the profitability. The study's major proposition is that the rate of return on equity of a firm is a function of the business-performance and government economic policy measured by macro-economic indicators.

In 2015, the Indian economy was the world's sixth largest by nominal GDP and third largest by purchasing power parity. The estimate by the United States Department for Agriculture Economic Research Service (USDA), based on data collated by World Bank and IMF, assumes the Indian economy will expand annually at an average 7.4% to \$6.84 trillion by 2030. This will make it bigger than that of the economies of Japan (\$6.37 trillion) and Germany (\$4.38 trillion). The growth rate of Gross Domestic Product (GDP) of India at constant prices (i.e. at the price level of the base year 2004-05) has been fluctuating during the period 2001-02 to 2013-14. The fluctuations range from 3.84% in the year 2002-03 to 9.57% in 2006-07.

The GDP growth rate decreased from 5.81% in 2001-02 to 3.84% in 2002-03. Thereafter, GDP growth rate increased and reached a high growth trajectory of 9% plus growth. India experienced 3 consecutive years of GDP growth rate in excess of 9% viz. 9.48% in 2005-06, 9.57% in 2006-07 and 9.32% in 2007-08.

The GDP growth rate declined to 6.72% in 2008-09 largely due to global financial meltdown following the collapse of Lehman brothers (investment bank) of US in September, 2008. GDP growth rate improved to 8.59% in 2009-10 and 8.91% in 2010-11 due to high capital inflows attributed to the massive Quantitative Easing (QE) undertaken by the US to combat economic slowdown of global level.

The GDP growth rate slumped to 6.69% in 2011-12, 4.47% in 2012-13 and 4.74% in 2013-14 (P). This was due largely to domestic policy logjam, tax disputes and shaken investor confidence in Indian economy with attendant lower Gross Domestic Savings Rate (GDSR) and Gross Fixed Capital Formation (GFCF).

Rose (1999) says that profitability is the net after tax income usually proxied by return on assets and return on equity ratios. These ratios are affected by numerous external factors like real gross domestic product, level of import and export, interest rate etc. The corporates have always played major roles in the economic development and their operations are always affected by macroeconomic conditions. In this regard, a lot of work has been done, Tanna and Pasiouras (2005) Staikouras and Wood (2004) gives evidence of significant contribution of factors that are external towards earnings of companies.

Rationale of the Research

The object of the research is macroeconomic variable and profitability of companies. It is often argued that macroeconomic variables affect profitability (Sufian and Chong 2008). However, the recent evidence for the period of the global financial crisis is rather scarce till date. This paper will attempt to contribute to research by studying the impact of selected macroeconomic variables on listed companies. It has been observed that various studies made different conclusions about the significance of each individual factor that was assumed to determine profitability. This can be explained by the selection of the sample of companies that are analysed in the studies, by the methods and approaches to the investigation, by the environment of the firm that are explored. It can be assumed that the differences in these factors imply discrepancies that are observed in the findings of other scholars.

The current study contributes to the literature as it analyses the impact of macroeconomic variables on companies' profitability. It is expected that the generalization of the findings will be possible and the observations that will be obtained herein will be applicable to different cases and environments. The number of observations allow the researcher to expect that the findings of the study will be applicable to different companies. The results can be important and valuable to company managers who are interested in knowing how government policies factor their returns, market requirements and company objectives. Besides, it is expected that the findings can be used by policy makers who can adjust the appropriate regulations in order to address the issues that are related to the levels of growth in enterprises.

LITERATURE REVIEW

Numerous studies exist on corporate profitability based on the types of companies and number of countries included in the study sample. ROA and ROE have been considered in most countries of the world as proxies for profitability. Mamatzakis and Remoundos (2003) studied seventeen companies using data from 1989-2000. Their findings showed no considerable link of Real interest rate and Consumer Price Index (CPI) with ROE and ROA. Also, Ahtanasoglou, brissimis, and Delis (2005) carried out a research on Greek companies using GMM estimator approach which revealed a significant positive effect of interest rate and inflation on profitability. Demirguc-Kunt and Huizinga (1999) conducted a research on companies of 80 countries using applied linear regression. Their findings showed a positive but an insignificant contribution of macroeconomic factors on profitability. Demirguc-Kunt and Detragiache (1998) used a multivariate logit model in the year 1980-1994 on 45-65 developing and developed countries, result showed a significant impact of external factors towards banking corporate failure. Naceur (2003) studied Tunisian companies' profitability. A sample of ten major companies was used from 1980 to 2000. The balanced panel data was applied, findings showed no significant impact of inflation rate and annual growth rate on corporates in Tunisia.

The performance of industry in Europe was reviewed between the period 1994 to 1998 by Staikouras and Wood (2004). The ordinary least square technique and fixed effects model was used and the findings showed that interest rate has a positive significant effect but GDP growth has a significant negative impact on ROA. Goddard, Molyneux, and Wilson (2004) used a cross sectional regression on the profitability of 583 union domestic companies in Europe and the result revealed a significant positive effect of gross domestic product on profitability. Hassan and Bashir (2003) used 43 Islamic banks eight years financial data. Their findings showed a significant positive impact on profitability of those banks. Bashire (2003) applied a linear estimation on 14 Islamic banks return between 1993 to 1998 on eight middle eastern countries. The result showed a positive impact of the variables that was used. Haron and Azmi (2004) proved a direct relationship between inflation rate and ROA but indirect relationship between real interest rate and ROA from 1984-2002 on five major Islamic banks-using statistical means.

Wong, Wong, Fong and Choi (2006) found that Gross Domestic Product (GDP) and inflation (INFR) have a significant impact on asset returns using a feasible generalized least square method. Anwar and Herwany (2006) focused on Indonesian industry. The result showed a significant relationship of inflation, real interest rate and economic growth with ROA but the result was the opposite with ROE. Sufian and Habibullah (2010) also found the same relationship in Indonesia.

Flamini, McDonald, and Schumacher (2009) applied a linear regression on 387 companies' annual data in 41 countries in sub-Saharan Africa between the years 1998 to 2006. The results showed a positive impact of Gross Domestic Product (GDP) and CPI asset returns but Francis (2011) used a random effect estimation and showed a negative relationship of inflation. Mercia, Evren, and Hassan (2002), and Panayiotis, Anthanasoglou, Brissimis, and Mathaios (2005), carried out a research large sample of companies profitability in developing and developed countries. The result showed positive relationship of all the variables. Ramlall (2009) studied quarterly financial data categorization of 31 local commercial banks in Taiwanese and found a negative impact of Gross Domestic Product (GDP) and real interest rate. Rasiah (2010) studied the impact of macroeconomic variables on banks profitability using applied pooled regression methods and found positive impact of the determinants. Al-Tamimi (2010) found a positive relationship between GDP and revenue using a simple regression model on companies in UAE between 1996 and 2008. Pasiouras and Kosmidou (2007) studied foreign and domestic commercial banks in fifteen countries in Europe. Findings reveal a significant impact of macroeconomic condition on ROA. Ghazali (2008) studied 60 Islamic banks domiciled in 18 countries. The results showed that Gross Domestic Product (GDP) and inflation has a positive influence on banks revenue. Suffian and Chong (2008) applied a linear regression on profitability in philippines. Their findings revealed an insignificant positive impact of market capitalization and gross domestic product (GDP) on ROA but found a negative impact of inflation.

Shaher, Kasawneh and Salem (2011) found a positive relationship between domestic product and Earnings. Khrawish (2011) studied macroeconomic indications that affect Jordanian listed companies. The result revealed a negative impact of inflation and gross domestic product

(GDP) with ROA and ROE. Solovjova (2011) carried out a comparative study of large five companies during the financial meltdown in Latvian industry. The result showed that gross domestic (GDP) product had a positive impact on profits but inflation affected ROA negatively. Alper and Anbar (2011) found that GDP growth, inflation rate and interest rate least affect assets and return on equity.

Davydenko (2011) used fixed effects estimation method. The result pointed that inflation and gross domestic product have a positive relationship with ROA of companies in Ukraine. Scott and Aria (2011) studied the earnings of largest five firms in the United States. Their findings showed that GDP affects the profit levels directly. Hoffmann (2011) researched on U.S. firms using pooled OLS estimation approach and GMM. The result from both techniques showed no relationship. Sutian (2011) studied 11-29 firms in Korea during the period 1992-2003. The outcome of the result pointed a negative impact of gross domestic product on ROA but had a positive impact of inflation.

Sharma and Mani (2012) carried out an empirical research on Indian Commercial Banks between the years 2006 to 2011. They found an insignificant relationship between inflation and gross domestic product on ROA. Zeitun (2012) observed influential macroeconomic factors on banks of Gulf cooperation council countries: the result from cross sectional, time series and panel data showed that GDP has a positive relationship with ROA and ROE ratios but inflation has a negative relationship with those ratios. Ali, Akhtar and Ahmed (2011) carried out a research in banks in Pakistan between the years 2006 to 2009. The result showed a significant positive relationship of CPI and growth rate with returns on equity ratio and assets. Also, Gul, Irshad, and Zaman (2011) analysed 15 top Pakistani commercial Banks portability for the 2005 to 2009. Gul et al (2011) found strong positive relationship between external variables and performance of bank indicators.

Methodology and Model Specification

The research method adopted in this study is the Ordinary Least Squares (OLS). The need for this technique is that, it is used to estimate the parameters of a single equation model. Besides, the estimator yields estimates that are best, linear, and unbiased estimators (BLUE) with the

desirable properties of consistency, efficiency and being unbiased. However, these properties are made possible after all the assumptions of the OLS method have been fulfilled. The research will rely mainly on secondary data. The data sources include Annual Reports and Statistical Bulletins of various issues.

Model Specification

From the research methodology, the model shall contain Return on equity (ROE), which represents firms' profitability as the dependent variable; the explanatory variables include gross domestic product (GDP), interest rate (INTR), exchange and inflation (INF) are the independent variables.

Therefore, the equation specified for estimation is in the following functional form:

$$ROE = f(GDP, INTR, INF)$$

This equation can be transformed into an econometric model as follows:

$$ROE = \beta_0 + \beta_1 GDP + \beta_2 INTR + \beta_3 INF + \varepsilon$$

Where: β_0 = Intercept; $\beta_1 - \beta_3$ = Coefficients of the regressors as defined above; ε = stochastic term.

A Priori: $\beta_1 > 0$; $\beta_2, \beta_3 < 0$.

Regression Result

The dependent variable is firms' return on equity (ROE) and 15 observations used for estimation from 1998 to 2015

$$ROE = 2.063GDP - 0.237INTR - 0.095INFR + E$$

(16.654) (-2.885) (-1.034)

$$R^2 = 0.9901, F\text{-Statistic} = 4813.78, DW\text{-Statistic} = 2.105$$

Source: Authors' Estimation, 2015.

From the above regression result, we examine the impact of gross domestic product (GDP), interest rate INTR and inflation (INF) on return on equity (ROE) which represents profitability. The result conforms to the a-priori expectation, the coefficients of the explanatory variables have the correct signs as expected and conforms to the theoretical expectations. The R^2 value of 0.9901 simply tells us that about 100 percent of the systematic variation in the dependent variable (ROE) is explained by changes in our explanatory variables: gross domestic product (GDP), interest rate (INTR) and inflation rate (INFR) from 1998 to 2015. The overall level of statistical significance using the F-statistic of 4813.78, shows that the model is significant at the one percent level, which implies that there is a significant linear relationship between the three regressors and the dependent variable in the above model.

As regards the t-values, the coefficients of gross domestic product (GDP) and interest rate (INTR) were statistically significant at the five percent level of significance, except inflation (INFR) that was not significant at all levels of significance. It can, therefore, be said that all the variables mentioned above have significant impact on ROE, except inflation rate (INFR) which has no significant relationship or positive impact on return on equity (ROE). The Durbin Watson (DW) statistic of 2.105, shows absence of autocorrelation in the model. Therefore, valid prediction(s) can be made with the equation.

The findings in the study show that a unit increase in gross domestic product (GDP) would increase return on equity (ROE) by about 2.063 units. (ii) A unit increase in inflation rate (INFR) will result to about 0.237 units decrease in ROE. (iii) A unit increase in interest rate will lead to about 0.095 unit decrease in ROE.

IMPLICATION OF FINDINGS

The findings of the study have important implication(s) for policy makers and regulators, Management need to be cautious in setting up economic policy that will not affect profitability negatively. They also need to know how macroeconomic policies affect the operation of corporates to ensure judicious use of resources and maximization of profit which should impact positively on the economy.

CONCLUSION AND RECOMMENDATION

The importance of macroeconomic variables cannot be over-emphasized in the role performed by corporates to contribute effectively to the growth of any country. The higher the risk associated with the macroeconomic variables such as gross domestic product (GDP) interest rates and inflation, the lower the return on firms' profitability. From the empirical result, all the variables of interest were in line with theoretical expectations. Considering the t-values, all the other variables were statistically significant except inflation.

Government should implement sustainable macroeconomic policies that will promote sustainable growth, business friendly and conducive environment that will enhance capacity utilization of industries so as to allow for high level of demand and absorption in the economy. Firms should strive to improve their operational efficiency internally and productivity in deploying both financial and human capital in managing and generating a well-diversified risk assets portfolio as this will ensure that both interest sensitive risk assets and liabilities are utilized towards maximizing returns.

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