

Chapter 2

Rates of Return on Equity Funds (ROEF)—Corporates' Perspective

Introduction

The most important financial objective of any firm is to maximize the wealth of its owners or ordinary shareholders which, inter-alia, depends on the earnings of the firm on its equity funds, technically referred to as 'return on equity funds (ROEF)' (in common parlance, return on equity (ROE)); the terms ROEF/ROE have been used interchangeably in this text. The returns test is more than a just conventional test of economic efficiency; it is a test of whether the resources are gainfully employed or not and whether the business enterprise is operating competitively or not (Jain et al. 2013).

In the subsequent chapter (Chap. 4), the rates of return earned by equity investors, emanating from the market, for varying holding periods, are calculated and presented for the sample companies. This exercise has been undertaken from the point of view of the equity investors. Returns in the context of the study include both capital gains (returns from market transactions) and dividend payments from the company.

Returns primarily depend on the fundamental strength and financial performance of the underlying company. Given the significance of financial viability of business operations, the objective of this chapter is to assess the financial performance of the sample companies in terms of ROE, with a special focus on comparing returns earned by the corporates during the pre- and post-recession periods. This exercise has been undertaken from the corporates' perspective. In the literature reviewed, there was hardly any literature related to ROE in the context of equity returns (from the firm's perspective), thus, filling the existing gap in the literature.

For better exposition, this chapter has been divided into four sections. Section I provides a brief literature review on the factors that affect ROE and its associated risks. Section II contains the scope and methodology related to the determination of the ROE. Section III presents the computed ROE and its descriptive statistics. Section IV contains the summary of important observations/findings.

Section I: Literature Review

The literature review focuses on the risk factors/determinants affecting ROE, in particular, and returns, in general. Literature on the recent financial crisis and its impact (if any) on Indian companies has also been presented, albeit, briefly.

Risk Factors/Determinants Affecting ROE

Beaver (1966) contended that a failing firm was costly to the suppliers of capital because the reorganization or liquidation costs consumed a major portion of firm's value. Nerlove (1968) investigated the factors affecting the rate of return on investment in the common stock using the multiple regression technique and concluded that the firm's sales growth was the only important explanatory variable. Auerbach (1979) examined the impact of taxes on the corporate equity policy using a simple dynamic model.

Nwaeze (1997) explored the movements in ROE for electric utilities and manufacturing firms and their effect on profits and share prices. Frank and Jagannathan (1998) examined data from the Hong Kong stock market for the effect of taxes on dividends and capital gains. Stulz (1999) analysed the impact of globalization on the cost of equity capital. In their study, Collins and Kemsley (2000) deduced that capital gains as well as dividend taxes reduced the valuation of the reinvested portion of earnings.

Ferreira and Santa-Clara (2011) studied data from 1927 to 2007 to forecast the components of stock market returns in the USA. The resultant significant components were dividend-price ratio, earnings growth and price-earnings growth. Kandel et al. (2011) studied how a firm's shareholding structure affected its financial and operating performance. Becker et al. (2013) tested the prediction, namely when corporate pay-out was taxed, internal equity (retained earnings) was cheaper than external equity (share issues).

As is evident, literature available around returns on equity in the context of corporate firms is scant. It was thus considered necessary to report ROEF and its analysis, for a large economy like India, in a humble attempt to fill this research gap.

Impact of Recent Financial Crisis on India

Investments have been predominantly financed by domestic savings in India. The Government's fiscal deficit has been high by international standards but is also largely financed internally through a vibrant and well-developed government securities market, and thus, despite large fiscal deficits, macroeconomic and financial stability has been maintained.

The Reserve Bank of India (RBI, India's central bank) in October 2008 stated that India had (at that time) not been seriously affected by the financial crisis, as per the response prepared for the International Monetary Fund (IMF)—Financial Stability Forum (FSF) (Source: RBI Website. <http://rbidocs.rbi.org.in/rdocs/Speeches/PDFs/87784.pdf>; Economic Surveys of India).

However, with the increasing integration of the Indian economy and its financial markets with the rest of the world, there is recognition that the country does face some downside risks from these international developments. The risks arise mainly from the potential reversal of capital flows on a sustained medium-term basis. As might be expected, the main impact of the global financial turmoil in India emanated from the significant change experienced in the capital account. Total net capital flows fell from US\$17.3 billion in April–June 2007 to US\$13.2 billion in April–June 2008 (UNCTAD Website 2011).

On the positive side, however, the characteristics of India's external and financial sector management coupled with adequate foreign exchange reserves and the growing underlying strength of the Indian economy reduced the susceptibility of the Indian economy to global turbulence (Source: Reserve Bank of India Website. <http://www.rbi.org.in/scripts/WSSViewDetail.aspx?TYPE=Section&PARAM1=2>. Accessed on 4 December 2011).

As per the Economic Survey of India of 2010–11, the Indian economy has emerged with remarkable rapidity from the slowdown caused by the global financial crisis of 2007–09. With the growth in 2009–10, estimated at 8 % by the Quick Estimates, released on 31 January 2011, the turnaround has been fast and strong (Source: <http://indiabudget.nic.in/>. Accessed on 17 November 2011).

Section II: Scope, Data and Methodology

The research methodology adopted in the study to compute ROEF and its descriptive statistics (for corresponding periods) has been delineated hereunder.

Scope

The sample comprises the NSE 500 companies that comprise the top 500 companies listed on the NSE based on their market capitalization. They represented 96.76 % of the free-float market capitalization of the stocks listed on the NSE as on 31 December 2013 (Source: National Stock Exchange (NSE) Website. http://www.nseindia.com/products/content/equities/indices/cnx_500.htm). Hence, virtually, the chosen sample presents a census on equity market returns in India.

The sample is representative in nature as the NSE 500 companies represent all industry groups. The period of the study for this chapter is 2004–2014.

NSE 500 Index Background

The company, Standard & Poor's (S&P), introduced its first stock-based index in 1923 in the USA. Traditionally market-value weighted, the index is now float weighted. That is, S&P now calculates the market capitalizations relevant to the index using only the number of shares (called 'float') available for public trading. This transition was made in two steps, the first on 18 March 2005 and the second on 16 September 2005 (Source: Wikipedia Website. http://en.wikipedia.org/wiki/S%26P_CNX_500).

Its Indian counterpart, the CNX 500 (hereby referred to as NSE 500) is the first broad-based benchmark of the Indian capital market. The Credit Rating Information Services of India Limited (CRISIL) and the NSE together own and manage the index through a joint venture called the India Index Services and Products Limited (IISL) (Investopedia 2013).

Secondary Data and Analysis

Individual Companies and Portfolios

The basic computation of ROEF is for individual companies. The average ROEF for the year has been built up from individual company ROEFs. This method is tedious but has the advantage of not only ensuring greater accuracy but also of providing many more insights. However, the presentation emphasizes the entire portfolio's ROEFs. This has been done in order to provide a benchmark and an over-all picture of returns on equity. Also, most of the serious equity investors, including individuals as well as institutions, have diversified portfolios.

Definition of ROEF

Return on equity (ROEF) is the ratio of net income (after the payment of preference dividends) of a firm (during a year) to its shareholders' equity funds during that year. It is a measure of the profitability of the equity shareholders' investments.

The formula to calculate ROEF for a particular year is given as follows:

$$\text{ROEF} = (\text{EAT} - \text{D}_p) / \text{Average shareholders' equity funds} \quad (2.1)$$

where

EAT Earnings after taxes,

D_p Preference dividend (if applicable).

Average shareholders' equity funds = the sum of ordinary shareholder's equity funds at the beginning and at the end of the year, divided by 2. It is useful to iterate here that the shareholders' equity funds also include the reserves and surplus (retained through the years) less the accumulated losses (if any).

Initial Public Offering (IPO) Adjustment

In the scenario where the company has made an initial public offering (IPO), in a particular year, its equity amounts would vary substantially when we compare the opening and closing figures. Hence, an adjustment is required in the calculation of the ROEF to reflect this change and also to normalize the otherwise distorted figures.

For example—Company ABC has an equity capital of Rs. 100 crores at the beginning of the year (the financial year beginning in India is April 1). On December 1, nine months from the beginning of the year, the company raises fresh capital through an IPO, thus increasing the equity capital to Rs. 200 crores. It is reasonable to infer that the earnings for that year have been made on an investment of Rs. 100 crores for the first nine months and on Rs. 200 crores for the remaining three months.

By the above calculation, the denominator representing average shareholders' equity would be computed as $(100 + 200)/2 = \text{Rs. } 150 \text{ crores}$. However, Rs. 200 crores have been employed only towards the last quarter of that year, necessitating an adjustment, to reflect such usage. It is reasonable to assume that, perhaps, the funds were not used for commercial purposes in that financial year since they were made available only towards the end of that year, and it would take time to deploy the funds into projects, straight away. Further, to make such adjustments related to the exact amount of funds deployed till the end of the said financial year is not plausible, due to the lack of appropriate data.

Hence, to aid calculations, the adjustment for the average equity capital values (taking 365 as the number of days in a year) has been made in the following manner:

$$((\text{Capital at the beginning of the year} * 365) + (\text{Additional capital introduced during the year} * (\text{Number of days for which it has been employed}))) / 365$$

This computational adjustment has been incorporated for all sample companies that issued additional or follow-on equity during the period of the study.

Data Sources and Analysis

The relevant data (secondary) were collected from the Bloomberg® database, for eleven years (2004–2014). Descriptive statistical values/positional values, i.e. mean, standard deviation, variance, coefficient of variation, skewness, kurtosis and quartile values, have been computed for each holding period. The entire set of data has been analysed using Microsoft Excel® spreadsheets and the statistics software SPSS®, namely Statistical Package for Social Sciences. The impact of recession (if any) has been tested through the paired t-test statistic.

The period of the study is of particular importance because of the recession (originating due to the American financial crisis) that impacted the world economy towards the second half of 2008 (Source: UNCTAD investment briefs, investment issues analysis branch of UNCTAD 2009).

Consequently, the study period has been divided into two subphases to ascertain the impact of recession. The five years of 2003–2004 to 2007–2008 denote the prerecession phase (phase 1) and the subsequent six years of 2008–2009 to 2013–2014 denote the post-recession phase (phase 2) for the purpose of this study. It needs to be noted that though the impact of recession was assumed to be felt towards the second half of 2008 (June 2008, cited above), the entire year has been included in the post-recession phase primarily due to two reasons; first, data were available in a consolidated manner (in the balance sheets) and second, it was not feasible to separate it for a particular year (2008) on the basis of when recession actually started impacting a particular data variable (Jain et al. 2013).

Section III: Rates of Return from the Company's Perspective—ROEF

The real owners of the business firm are the ordinary shareholders who bear all the risk and are entitled to all residual profits after all outside claims including preference dividends are met in full. In this section, the rates of return from the company's perspective have been computed. The measure, ROE, has been computed on an annual basis.

ROEF, for the purpose, was calculated separately for each constituent company in the sample, for 10 years, viz., 2003–2013 (years ending 2004–2014). A weighted average of the ROEF thus computed for the 500 constituent companies of the NSE 500 was taken as the average ROEF for that particular year. The unavailability of corporate financial data prior to 2003 is the reason for the non-computation of ROEF for the years prior to 2003.

Table 2.1 presents the average ROEF earned by the constituent companies of the NSE 500 index for the years ending 2004–2014 and their descriptive statistics, viz., mean, standard deviation, variance, coefficient of variation, skewness, kurtosis and

Table 2.1 Mean, standard deviation, coefficient of variation, skewness, kurtosis, median and quartile values related to return on equity funds (ROEF) of sample companies, 2004–2014

Year ending ^a	Number	Mean	Standard deviation	Coefficient of variation (%)	Skewness	Kurtosis	Median	Quartile 1	Quartile 3
2004	424	21.28	15.76	74.06	3.22	18.38	18.88	11.79	26.36
2005	436	21.91	15.36	70.10	1.90	5.33	19.06	11.78	26.82
2006	456	22.58	18.15	80.38	2.60	9.40	17.78	11.91	27.26
2007	465	22.42	16.47	73.46	2.63	11.09	19.51	12.43	27.44
2008	463	20.74	13.51	65.14	1.94	6.63	18.11	12.35	25.79
2009	455	18.44	13.42	72.78	3.02	19.01	16.30	10.21	23.76
2010	469	17.91	12.82	71.58	2.74	16.21	16.46	9.18	23.63
2011	468	17.09	12.60	73.73	3.27	20.84	14.81	9.32	22.26
2012	441	15.72	13.92	88.55	3.98	25.44	13.45	8.33	19.44
2013	467	16.19	13.61	84.06	3.65	24.65	13.89	8.41	20.55
2014	455	15.81	13.73	86.84	2.82	15.37	13.27	6.69	20.54
2004–2014	454	19.10	14.49	76.43	2.89	15.67	16.50	10.22	23.99
Phase 1 (2003–2004 to 2007–2008)	449	21.79	15.85	72.63	2.46	10.17	18.67	12.05	26.73
Phase 2 (2008–2009 to 2013–2014)	459	16.86	13.35	79.59	3.25	20.25	14.70	8.69	21.70

Figures are in percentages

(i) ^aThe Indian financial year begins on April 1 and ends on March 31 of the following year. The same holds true for all subsequent tables and notations

(ii) Extreme values of 150 % or more and negative values are excluded

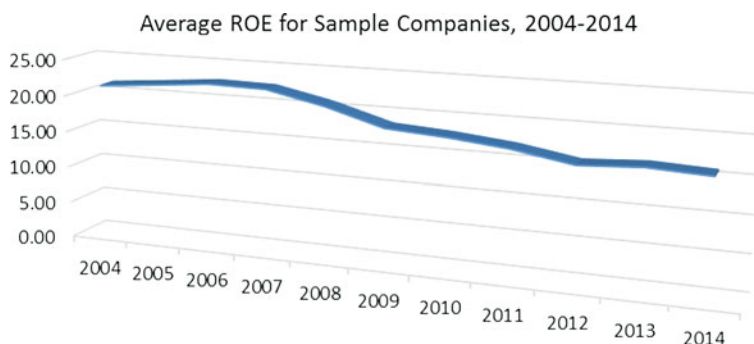


Fig. 2.1 Mean values of ROEF for sample companies, 2004–2014

quartile values. Figure 2.1 denotes the average ROEF for the sample companies pictorially. The frequency distribution is presented in Table 2.2.

Given the current interest rates prevailing in the capital market and social responsibilities the companies have to perform, the average rate of return on equity (ROEF) of 19.10 %, *prima facie*, can be considered satisfactory. Further, this figure is encouraging when compared to the average ROEF of 17 %, reported by Jain et al. (2013) for the BSE 200 companies over the period, 2001–2011. However, recession did impact the ROEF; the decline in the ROE to 16.86 % in phase 2 (post-recession) compared to 21.79 % of phase 1 (prerecession) is statistically significant, as per the paired t-test. It would perhaps be useful to note here that even though there was a drop in the ROE, post-recession, the sample companies were still able to record 16.86 % returns which are comparable with the average returns for the period 2001–2011.

Frequency distribution data further reinforce the above contention (Table 2.2). The percentage of companies having negative ROEF is 8.60 % in 2014. This is in contrast to the findings of an earlier study conducted by the authors on Indian public sector undertakings (PSUs) where 20 % of such companies had negative ROEF. Around one-third of the sample companies lie in the 10–20 % ROEF bracket. One-fifth of the companies reported a ROEF of more than 20 %, an indication of the fundamental robustness of the sample companies and, in turn, the Indian corporate sector.

Paired t-test								
	Paired differences					t	df	Significance (2-tailed)
	Mean	Standard deviation	Standard error mean	95 % confidence interval of the difference				
				Lower	Upper			
Phase 1–Phase 2	4.71	1.47	0.66	2.90	6.54	7.19	4	0.002

Table 2.2 Frequency distribution related to ROEF of sample companies, 2004–2014

ROEF (%)	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Less than 0	6.45	5.67	3.51	3.47	4.66	6.85	4.23	5.01	8.28	7.00	8.60
0–10	17.63	18.45	17.73	16.94	15.99	32.23	27.32	27.65	30.10	31.00	33.00
10–20	32.69	31.03	38.14	34.49	36.44	31.24	34.07	38.28	40.80	38.00	33.60
20–30	24.95	26.21	20.00	25.31	24.90	12.70	23.59	20.04	13.73	16.00	14.60
30–40	9.46	7.55	9.28	10.82	9.92	8.87	6.24	5.01	3.23	4.00	5.60
40–50	2.80	4.61	4.54	3.27	2.63	1.81	2.01	1.80	1.21	4.00	3.00
Above 50	5.59	6.08	6.80	5.31	3.64	1.81	2.01	1.60	2.42	1.00	1.80
Total	100	100	100	100	100	100	100	100	100	100	100

Note Total (100) may not tally due to rounding off

Hence, the sample companies appear to be providing adequate returns to their owners adhering to the primary objective of maximizing the wealth of its shareholders. The standard deviation and the coefficient of variation are, however, indicative of the volatility available in the ROEF of the sample companies. This could perhaps be attributable to the varying nature of the sectors represented in the sample.

Positive skewness, through the period of the study, is indicative of larger values of ROEF dominating the sample, which is also supported by the frequency distribution. Approximately, seven-tenths of the sample companies report a ROEF of greater than 10 %, for the entire period of the study, except for the years 2009 and 2012, when this ratio reduced, ostensibly due to the impact of recession occurring in 2008, and the slowdown in the Indian economy in the year 2011, respectively. The average quartile values (10.22 for quartile 1 and 23.99 % for quartile 3) also support the above contention of adequate returns.

Interestingly, a high kurtosis figure is indicative of the ROEF data exhibiting characteristics of a distribution containing high values that exhibit a high degree of clustering around the mean. The behaviour of volatility in returns (in detail), specifically market returns, has been analysed separately, in Chap. 7.

Section IV: Summary

This chapter presents the equity returns, measured through the ROE, for the Indian stock market, represented by the NSE 500 companies.

The returns earned by the sample companies, *prima facie*, appear to be stable and attractive (as an investment choice). Even though the recession in phase 2 did witness a reduction in the computed value of ROEF (a reduction of more than 4 % from 21.79 to 16.86 %), which was statistically significant, the reduced returns were still comparable with the average returns recorded for the period, 2001–2011 (Jain et al. 2013). These findings are notable as they support the RBI's views on the resilience of the Indian economy.

It appears safe to assume that the sample companies, constituting of 96.27 % of the total market capitalization at NSE, continue to be an attractive investment destination for long-term investors who base their investments on fundamentals.

Moreover, it is rather encouraging to note that the returns of the sample companies appear robust when compared to the findings of Gupta and Choudhary (2000). Hence, it appears safe to assume that the success story of the Indian equity market continues, both in terms of the returns and in their increasing market breadth and coverage.

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