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Future Business Journal 2 (2016) 138–151

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Full Length Article

Intrinsic value estimates and its accuracy: Evidence from Indian manufacturing industry

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Received 30 May 2016; received in revised form 16 October 2016; accepted 24 October 2016

Available online 22 November 2016

Abstract

The purpose of this article is to empirically examine the comparative accuracy of income oriented (Free cash flow to equity, Residual income model) and market oriented (Price to earnings multiple, Price to book value multiple and Price to sales multiple) valuation models for the Indian manufacturing industry, and propose a composite valuation model (CV) to explore whether combining value estimates may improve valuation accuracy. Data are drawn from a sample of 3756 Bombay Stock Exchange (BSE) listed manufacturing companies from 1997 to 2012. Findings from the empirically analysis indicate that residual income model is better than free cash flow to equity model under income oriented valuation model, whereas both Price to earnings multiple and Price to book value multiple are superior to Price to sales multiple and are equally likely under market oriented valuation model. Finally, the empirical findings suggest that CV provides better value estimates for Indian manufacturing industry. Further, lag of PE and profitability are the two probable determinants of prediction error of the model.

Keywords: Financial forecasting; Valuation models; Prediction error; Panel data; India

1. Introduction

Intrinsic value refers to the actual value of a firm determined through fundamental analysis without reference to its market value, which then becomes the barometer of decision making regarding over and under valuation of firms stock. Various valuation models (income oriented and market oriented models) have been prescribed for estimation of intrinsic values but which is most accurate of all is an issue of debate in finance community.

Several studies have been conducted to investigate the ability of one or more of these valuation models to generate reasonable estimates of market values, but the results are fragmented. While, analysing the related literature in this regard it is found that there exist different views on accuracy of valuation models. Proponents of income oriented models differ among themselves like Kaplan and Ruback (1995), Berkman, Bradbury, and Ferguson (2000) supported discounted cash flow model, whereas Bernard (1995) supported dividends discount model. On the other hand Frankel and Lee (1995, 1996), Penman and Sougiannis (1998), Francis, Olsson, and Oswald (2000), Plenborg (2002), Levin and Olsson (2000), and Jennergren (2008), Beneda (2003), Jiang and Lee (2005), Gleason, Johnson,

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Peer review under responsibility of Faculty of Commerce and Business Administration, Future University.

http://dx.doi.org/10.1016/j.fbj.2016.10.001

and Li (2012), Imam, Chan, and Ali-Shah (2013), Tiwari and Singla (2015) among others, where in support of abnormal earnings / residual income model. Proponents of market oriented models are also fragmented Berkman et al. (2000), Liu, Nissim, and Thomas (2002), Liu, Nissim, and Thomas (2007) and Demirakos, Strong, and Walker (2010) supported price earnings multiples. Gill (2003), Dhankar and Kumar (2007), Sehgal and Pandey (2010) have reported similar findings for Indian firms. On the other hand, Nissim (2011) supported book value multiples, earlier, Deng, Easton, and Yeo (2009) and Lie and Lie (2002) also suggested similar findings. Yee (2004) and Vardavaki and Mylonakis (2007) suggested that combining value estimates may result in better valuation accuracy. Yee (2004) asserted that combining value estimates makes sense, because every bona fide estimate provides information, so relying on only one estimate may ignore information. On the contrary Lundholm and O'Keefe (2001) and Fernandez (2003) have criticised previous studies and concluded that there is nothing to be learned from an empirical comparison of these theoretically equivalent valuation models. But Levin and Olsson (2000) and Plenborg (2002), have asserted that these models should give consistent and identical estimates of intrinsic value provided that the forecasts of different items are consistent with each other within a clean surplus[1] relationship and that all the assumptions are identical. Gentry, Reilly, and Sandreho (2003) stated that the only time for the equivalent condition is when the pay-out ratio is equal to one, as well as, the return on investment equals the cost of equity. Though, the claims of Lundholm and O'Keefe (2001) and Fernandez (2003) were valid, but empirical investigations fail to meet the above assumptions put-forth by Levin and Olsson (2000) and Plenborg (2002), therefore, it is worth examining the accuracy of valuation models.

Having surveyed, the wide-range of literature available on valuation, the study finds conflicting results regarding the most suitable valuation model. It is also noticed that majority of the studies concentrate on developed economies, and we are using those models as a proxy for valuing companies in developing nations. Even after knowing the fact that developing economies have varied socioeconomic and political settings. Thus, there is a clear need to examine the comparative accuracy of these models in developing economies at present, when global prosperity and stability is increasingly dependent on these economies.

The purpose of this study is to empirically examine the comparative accuracy and explanatory performance of the income oriented (FCFE: Free cash flow to equity model and RIM: Residual income model) and market oriented (PE_M: Price to earnings multiple, PB_M: Price to book value multiple, and PS_M: Price to sales multiple) valuation models. Past studies have also suggested that no single procedure is conclusively the most precise and accurate in all situations because as things are different valuation procedures applied to the same company often yield disparate results. Hence the study proposes to come up with a composite valuation model (CV) to see whether combining value estimates increase valuation accuracy. The study also attempts to identify the probable determinants of prediction error (PE) of the most suitable model.

Though the issue is so vibrating, but strikingly, little academic studies (Gill, 2003; Dhankar and Kumar, 2007; Sehgal and Pandey, 2010; Tiwari and Singla, 2015) have explored the comparative accuracy of these models in India. To my knowledge this is among the few studies that provide large scale evidence on the accuracy of valuation models in India. The contribution of this paper is to add empirical evidence to this research area. Rest of the study is organised as follows. In Section 2, we discuss the data and sample used in the study. Methodology is provided in Section 3. Section 4, deals with empirical results and finally, we conclude the study in Section 5.

2. Data, sample selection and research hypotheses

2.1. Data, sample selection

Data are drawn from a sample of 3756 Indian publicly traded manufacturing companies listed on Bombay Stock Exchange for the period March 1997 to March 2012. The data has been collected from CMIE's (Centre for Monitoring Indian Economy) prowess data base. The final usable sample comprises of only those companies with available positive book value, adjusted closing price and firms with minimum two years of data. Based on above criterion, 1404 firms are selected for empirical analysis. Further, the data has been winsorized by 2.5 percentage top

[1] Ending book value = beginning book value + net income − dividends.