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Dividends, research and development expenditures, and the value relevance of book value for UK loss-making firms[☆]

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ABSTRACT

We extend prior research on the value relevance of accounting information for loss-making firms by allowing the coefficient of book value to vary across three distinct set of loss-making firm observations in our valuation model. Our key findings are, first, that book value is a less important determinant of equity value for either high R&D-intensive firms or dividend-paying firms, relative to firms with low R&D-intensity and zero dividends. Prior literature suggests that book value is a strong indicator of firm value for loss-making firms. This reasoning stems from book value's role as: (i) a proxy for the value of the possibility of abandoning or adapting the firms' net assets; and/or (ii) a proxy for expected future normal earnings. Our work suggests that this prior literature does not fully capture the valuation role of book value for loss-making firms. Second, we also find that dividends are value relevant, but generally only when the valuation role of book value is contextualised by allowing its coefficient to vary across high R&D-intensive firms, and dividend-paying, loss-making firms.

1. Introduction

Firms reporting losses have become an increasingly notable phenomenon in the UK, as elsewhere (see Givoly & Hayn, 2000; Hayn, 1995; Joos & Plesko, 2005; Klein & Marquardt, 2006, for the US; Jiang & Stark, 2011, for the UK; Wu, Fargher, & Wright, 2010, for Australia). Attention has then turned to understanding how these firms are valued by the market and, in particular, the roles played by accounting aggregates such as book value of equity and earnings in underpinning such valuations.

Prior US research (e.g., Burgstahler & Dichev, 1997; Collins, Maydew, & Weiss, 1997), in which market value is regressed on book value and earnings, suggests that the book value has a substantially higher coefficient for loss-making firms than for profit-making firms. In this context, Collins, Pincus, and Xie (1999) argue that book value is important for valuing loss-making firms for two reasons. First, book value can act as a proxy for loss-making firms' expected future normal earnings (Ohlson, 1995). Second, it can act as a proxy for the value that loss-making firms can generate from either abandoning the firm and liquidating its net assets – exercising the abandonment option – or adapting the net assets to other, more profitable, uses – exercising the adaptation option (Berger, Ofek, & Swary, 1996; Burgstahler & Dichev, 1997; Hayn, 1995).

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In prior US research, there are also different relationships between market value and earnings for profit-making and loss-making firms. In particular, the coefficient of earnings is lower for loss-making firms and, further, it is negative, whereas it is positive for profit-making firms. The negative relationship between earnings and market value for loss-making firms is a puzzle because it is counter-intuitive – higher losses leading to higher market values does not make intuitive economic sense (Darrough & Ye, 2007).[1]

More recently, research has considered the impact of possible model mis-specification on the estimated coefficients in the simple model identified above for valuing loss-making firms. Darrough and Ye (2007) argue that the two measures alone, book value and earnings, can perhaps explain the market value for distressed loss-making firms, but not for loss-making firms that are likely to stay in business for many years, such as 'youth' firms and firms that make losses due to accounting conservatism. Focussing on the relation between market value and earnings, they find that the negative coefficient of earnings disappears when additional value drivers that capture the future prospects of loss-making firms are incorporated into the model. In particular, they show that book value, research and development (R&D) expenditures, nonrecurring charges, the sales growth ratio, and business sustainability proxies are all important value relevant items for loss-making firms. Within this model specification, the coefficient of earnings becomes indistinguishable from zero and, hence, the size of the loss loses information content.

In this study, we initially examine whether the puzzling negative relationship between market value and earnings for loss-making firms exists in the UK. We start from a simple model with only earnings and book value, and replicate the US finding that earnings have a significant negative relationship with market value (e.g., Burgstahler & Dichev, 1997; Collins et al., 1997; Darrough & Ye, 2007). Then, we test whether models similar to that in Darrough and Ye (2007) eliminate the significant negative relationship.

Subsequently, we extend prior research by expanding the Darrough and Ye (2007) model to include dividends and capital expenditures. We do so for three reasons. First, we include dividends because, although few US loss-making firms pay dividends, this is not the case in the UK where, for our sample period, nearly 25% of loss-making firm-years feature dividend payments. Further, in previous studies in the UK (e.g., Akbar & Stark, 2003; Dedman, Mouselli, Shen, & Stark, 2009; Rees, 1997; Shah, Stark, & Akbar, 2009), dividends have been found to be value relevant for all firms. It might well be hypothesised that dividends will be value relevant for loss-making firms (e.g., Rees & Valentincic, 2009), because paying dividends can be thought of as particularly costly for such firms where the preservation of cash can be seen as highly important. It is not clear, however, that they will retain their value relevance in the presence of the other signals about future prospects contained in the Darrough and Ye (2007) model. Second, similar arguments can be made with respect to capital expenditures, which have been found to be value relevant in the UK in Dedman et al. (2009) and Rees (1997). Third, we want to investigate whether a significant negative relationship between market value and earnings is eliminated in the enhanced model specification.

Although Darrough and Ye (2007) suggest that there are different types of loss-making firms, they pool them together in a single model, without allowing the coefficients of variables to vary across them. As indicated above, this is our initial approach too. Nonetheless, pooling firm-year loss observations assumes (implicitly or explicitly) that all loss-making firms are homogeneous. Therefore, we further extend prior research by introducing a more sophisticated contextualization of the valuation of loss-making firms. Specifically, we ask whether the association of market value and book value differs across different categories of loss-making firms.

For categories of loss-making firms that have other important signalling features concerning positive future prospects, we predict that the role of book value in providing value relevant information is less important, implying a lower weight placed on book value in the valuation of loss-making firms. In particular, we consider two signals: (i) R&D intensity; and (ii) dividend-paying. We argue that loss-making firms with either relatively high R&D intensity or dividend payments are more likely to be going concerns, with some prospect of loss reversal in the future.[2] Thus, shareholders/managers are not necessarily likely to exercise the abandonment/adaption option for such firms (Joos & Plesko, 2005). Moreover, these two signals can be means of forecasting future expected earnings as (part) substitutes for book value (as an indicator of future normal earnings).

Our empirical results can be summarised as follows. First, when estimating our various models using opening total assets as the deflator (Darrough & Ye, 2007), the coefficient of earnings remains significantly negative. Hence, in contrast to the USA, the counter-intuitive result that the larger the loss the higher the value of the firm is not removed by incorporating more variables into the valuation model. Second, as predicted by our arguments, book value has a lower valuation weight for both high R&D-intensive and for dividend-paying loss-making firms, relative to other firms. Third, allowing the coefficient of book value to vary across classes of firms induces value relevance for dividends where none exists in other models. Capital expenditures are not value relevant in any of the estimated models. In robustness checks, using a different deflator can remove the significantly negative coefficient for earnings in all but the simple model, although this result is not robust to various model estimation approaches. The other key conclusions of the paper are largely unchanged.

[1] Losses are negative numbers in these models.

[2] It is rare for UK loss-making firms to both have high R&D intensity and to pay dividends. The combination occurs around 3% of the time in our sample. Therefore, we treat them as essentially separate signals from now on. In untabulated results, we also remove firm-years that feature both high R&D intensity and the payment of dividends. The re-estimated results on the reduced samples are similar to those reported below.