

DEPRECIATION AND THE MARKET'S VALUATION OF EARNINGS

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ABSTRACT

The purpose of this paper is to better understand how financial markets use depreciation information that appears in the financial statements. When computing depreciation expense, a firm has discretion in its choice of depreciation method and this choice can impact the amount of depreciation expense and therefore reported earnings. Ceteris paribus, we claim that a firm which reports a low depreciation ratio (i.e. the ratio of depreciation expense to average gross property, plant, and equipment) tends, on average, to report understated depreciation and therefore overstated earnings, relative to similar firms that report moderate or high depreciation ratios. We expect market participants to adjust such a firm's overstated earnings downward. Accordingly, we hypothesize that firms with low depreciation ratios tend to have low earnings response coefficients (ERCs), where the ERC is the coefficient obtained from regressing a price metric on an earnings metric.

We find significant empirical evidence to support this hypothesis. The results hold while controlling for factors such as risk, expected growth, size, capital intensity, and industry. The results also do not appear to be attributable to differences in earnings persistence. The evidence suggests that financial markets are not fixated on reported earnings; instead, markets are making adjustments for the various depreciation methods selected by firms.

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1. INTRODUCTION

When analyzing financial statements and drawing comparisons across firms, financial analysts can encounter situations where firms differ in how they elect to report depreciation. For example, firms can differ in their choice of useful asset life. Generally accepted accounting principles allow firms to elect to depreciate their fixed assets, within reason, over relatively long or short asset lives. Generally, firms electing long asset lives for depreciation will report, *ceteris paribus*, lower depreciation expense and higher earnings than similar firms using short asset lives.

There are of course many other choices that affect depreciation (e.g. choice of salvage value). For our purposes, the key pattern is that depreciation choices can have a bearing on the level of depreciation expense and therefore reported earnings. Unlike prior research (e.g. Holthausen, 1981), this paper does not try to test differences based on the firm's choice of depreciation method. Rather we focus on a depreciation ratio (depreciation expense/average gross property, plant, and equipment) that serves as a composite proxy for depreciation choices made by a firm. After controlling for industry and other factors, we claim that firms with low depreciation ratios report relatively low depreciation expense and have overstated earnings.

This paper is motivated by a desire to better understand how financial markets use depreciation information that appears in financial statements. Prior research discusses how depreciation can be important to investment professionals. Siegel (1982) surveys accountants, security analysts, and financial managers. These professionals report that depreciation is an important issue bearing on the analysis of a firm's earnings. They also feel that certain depreciation methods can result in overstated earnings. Based on the survey results, Siegel (1982: 64) claims, "Furthermore, a firm's failure to provide adequate depreciation charges for the possible obsolescence of plant assets results in overstated earnings. . . ." Our paper follows this reasoning and conducts empirical tests on market adjustments for depreciation choices.

This paper also extends the substantial literature that began with Ball and Brown's (1968) seminal study on the relationship between earnings and stock prices. Recently, this line of literature has shown increased interest in the cross-sectional variation in the earnings response coefficient (ERC), the coefficient obtained from regressing a price metric on an earnings metric. These studies focus on the properties of the earnings-generation process, such as risk, growth, and persistence e.g. (Kormendi and Lipe (1987), Easton and Zmijewski (1989), Collins and Kothari (1989), Biddle and Seow (1991), and Ali and Zarowin (1992a, b)). Lev (1989, p. 172) notes, however, that this type of research is not

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