Available online at www.sciencedirect.com
ScienceDirect
Journal of Accounting and Economics 43 (2007) 219–244
JOURNAL OF Accounting & Economics
www.elsevier.com/locate/jae

How do accounting variables explain stock price movements? Theory and evidence ☆

Peter Chen, Guochang Zhang*

Department of Accounting, Hong Kong University of Science and Technology, Clear Water Bay, Kowloon, Hong Kong

Received 21 February 2005; received in revised form 25 November 2006; accepted 19 January 2007
Available online 1 February 2007

Abstract

This paper provides theory and evidence showing how accounting variables explain cross-sectional stock returns. Based on Zhang, G. [2000. Accounting information, capital investment decisions, and equity valuation: theory and empirical implications. Journal of Accounting Research 38, 271–295], who relates equity value to accounting measures of underlying operations, we derive returns as a function of earnings yield, equity capital investment, and changes in profitability, growth opportunities, and discount rates. Empirical results confirm the predicted roles of all identified factors. The model explains about 20% of the cross-sectional return variation, with cash-flow-related factors (as opposed to changes in discount rates) accounting for most of the explanatory power. The properties of the model are robust across various subsamples and periods.

JEL Classification: M41; G12; G14

Keywords: Stock return; Accounting variables; Earnings yield; Profitability (ROE); Capital investment; Growth opportunity

☆We appreciate the comments of Marc de Bourmont, Murray Carlson, Jerry Feltham, Gilles Hilary, Alan Kraus, Charles Lee, Clive Lennox, Kin Lo (Referee), Thomas Lys (Editor), James Ohlson, and workshop participants at Cheung Kong Graduate School of Business, HEC Paris, Hong Kong University of Science and Technology, University of British Columbia, University of California at Berkeley, University of Waterloo, and the 2004 Financial Economics and Accounting Conference at University of Southern California. We gratefully acknowledge financial support from the Research Grants Council of Hong Kong (HKUST6436/05H). All errors are our own.

*Corresponding author. Tel.: +852 2358 7569; fax: +852 2358 1693.
E-mail address: acgzhang@ust.hk (G. Zhang).

0165-4101/$ - see front matter © 2007 Elsevier B.V. All rights reserved.
doi:10.1016/j.jacceco.2007.01.001

1. Introduction

One of the major purposes of accounting is to help investors forecast firms' future cash flows.[1] If accounting data are informative about fundamental values and changes in values, they should be correlated with stock price changes. However, extensive research thus far has failed to find a strong link between stock performance and accounting measures of performance; for example, earnings variables explain only a small portion of price movements, with the R^2 typically less than 10% for comprehensive cross-sectional samples.[2] The purpose of this study is to further our understanding of the link between accounting information and equity returns. We first develop a theoretical model relating returns to accounting data that measure a firm's underlying operations. We then empirically evaluate the model's properties and its effectiveness in explaining observed stock returns.

Our return model builds upon the real-options-based valuation model of Zhang (2000), which provides a specific accounting representation of the long-established notion in the finance literature that firm value consists of the value of assets in place plus growth opportunities (e.g., Miller and Modigliani, 1961). Specifically, Zhang (2000) shows that equity value equals the capitalization of earnings from existing assets plus the value of real options that arise from the flexibility to adjust operations (through abandonment or growth). Because equity value hinges on two basic attributes of operations, scale (invested equity capital) and profitability (return on equity), valuation amounts to forecasting the scale and profitability of future operations. It follows that stock returns, as changes in value, are related to changes in expectations about the firm's scale and profitability in future periods.

We identify the following four cash-flow-related factors for explaining returns: earnings yield, capital investment, and changes in profitability and growth opportunities. The earnings yield represents contemporaneous value generation and thus constitutes part of the current-period return. Changes in profitability represent changes in operating efficiency (value generation per unit of capital), and thus affect expected future cash flows. Of course, future cash flows also depend on the scale of operations, with the level of capital investment affecting the scale of existing operations, and changes in growth opportunities affecting expected future scale. These cash-flow-related factors combine with the change in the discount rate to form the full set of information associated with returns.

Our model predicts that equity returns are positively related to the four cash-flow factors and negatively related to changes in discount rates. Furthermore, due to the convexity properties of real options, changes in profitability and growth opportunities should have a greater effect on returns for firms with higher profitability. In addition to these directional predictions, our model also predicts the coefficient values for both the earnings yield and capital investment.

Since most of the variables in our return model can be measured with publicly available data, the model can be easily estimated and applied in an empirical context. We estimate the return model using a comprehensive set of firm-level data from Compustat for 1983–2001. We find that the signs of the coefficients on all five identified factors are as predicted and highly significant. Furthermore, the coefficients on the profitability and

[1]See Statement of Financial Accounting Concept No. 1 (FASB, 1978a, b).

[2]See reviews and comments by Lev (1989), Kothari (2001), and Lo and Lys (2000).