

AN EMPIRICAL STUDY OF STOCK PRICE AND RISK AS THEY RELATE TO ACCOUNTING CHANGES IN INVENTORY VALUATION METHODS*

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THIS THESIS analyzes the relationship between the behavior of investors and changes in accounting methods for inventory valuation. Since financial information affects the interests of many economic agents including investors and creditors, such relationship is a major concern for the auditors and for the bodies responsible for development of financial accounting standards. Changes to and from Last-in, First-out (LIFO) method of inventory valuation have been selected for this study because such changes have a real economic impact on the firm through their tax implications.

Investor behavior with respect to the accounting changes is examined through empirical measurement of changes in market price and risk of stocks associated with the accounting changes. Price changes associated with the accounting changes are isolated from the market-wide price movements by using the Sharpe-Lintner capital asset pricing model. Risk of a stock is defined as the contribution of the stock to the rate of return variance on the market portfolio.

After a brief review of a few closely related studies, the effect of the accounting changes on reported income and economic value of the firm is analyzed. If stock price in the market follows the economic value of the firm, changes to and from LIFO will be associated with price increase and decrease respectively. If market price follows the reported income, changes in price of stocks due to the accounting changes will be reversed. A research design which assumes that risk of stocks is constant over time is discussed and applied to the data. The risk of stocks can, however, be affected by the accounting changes through the effects of inflation and debt-equity ratio. Pre-change and post-change estimates of risk are compared and it is shown that changes in risk, if not accounted for, can contaminate the estimates of price changes associated with the accounting changes.

A procedure for testing the stability of risk of stocks in the framework of random coefficient model is developed. The null hypothesis that the risk of the stocks was constant during the years surrounding the accounting change is rejected. The adaptive regression model is used to estimate changing risk of stocks. These estimates are examined for association with the accounting changes and are used to measure the price changes associated with the accounting changes.

The average stock price of the firms which changed to LIFO increased by about five per cent during the fiscal year of the accounting change. During the following year, the price of these stocks showed no abnormal movements. The risk of these stocks decreased by about five per cent during the two-year period surrounding the accounting change. The stock prices of the firms which gave up LIFO decreased after the accounting change and their risk also declined during the two-year period surrounding the accounting change.

The results of this study do not support the view that the market reacts adversely to the reduction in earnings caused by adoption of LIFO or reacts favorably to the

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increased earnings obtained by giving up LIFO. When an accounting change simultaneously affects the economic value and reported income of the firm in opposite directions, the market price seems to follow the former; and in this sense the market is not "fooled" by manipulation of the information system.

The assumption that the risk of firms is constant may not always hold. Changes in risk can be detected by the use of random coefficient models. The adaptive regression model can be used to estimate the behavior of an unstable risk parameter, and measure the association of price and risk of stocks with specific economic events.