

# Review of the ball and brown study



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With the rise of multinational companies and the rapid growth of transnational investments, there has been an increasing demand for an empirical evaluation of accounting income numbers. This is a broad area of research that originated with the seminal publication of the Ball and Brown study(1968). The literature has grown rapidly, with over 1, 000 published papers in leading academic accounting and finance journals in the past three decades (Kothari, 2001). However, several accounting experts assert that there are some weaknesses in the research of Ball and Brown. Meanwhile, critics argue that their empirical evaluation contributed to the positive accounting theory that revolutionized accounting literature in the late 1970s. The purpose of this essay is to introduce the strengths of Ball and Brown’s paper and identify its influence on the development of accounting. This essay will argue that the limitation of the paper is not serious, but its advantages are very significant. First, arguments for and against the

empirical research are discussed. Then, an evaluation is explored . Lastly, a conclusion is presented.

## **2. The weaknesses of the paper**

Providing empirical evidence to ascertain whether accounting numbers contain or convey information about a firm's financial performance was the major motivation that led to the research of Ball and Brown (1968). They pioneered capital markets research in accounting. However, their study still has some weaknesses.

### **2. 1 Unreliability**

As a potential limitation of their studies, the reliability of their results depends on the sources of information. Although we are not disputing the reliability of the said sources, they should be investigated. Research should be conducted to document various types of institutions. According to Zhang (2007), the selection of the sample did not include companies meet the following four conditions. The first one is the failed company. The second one is a company whose financial year does not end on the 31st of December. The third one is the company that is not recorded in the CRSP database of stock price research centers. It also includes the young firm that is not described by the Wall Street Journal. Given those situations, the generality and reliability of their results may be reduced.

### **2. 2 Limitations**

This research firmly establishes that earnings reflect some of the information in security prices. However, this early research did not perform statistical tests comparing alternative performance measures, considering that the

primary concern was to ascertain whether there is any overlap between the earnings information and the information reflected in security prices.

In the 1980s, several studies statistically compared stock returns with earnings, accruals, and cash flows (Rayburn, 1986). Aside from providing a formal test, the previous research used a relatively crude measure of cash flow. The succeeding studies used more sophisticated expectation models to isolate accurately the unexpected components of earnings, accruals, and cash flows, given that returns in an efficient market only reflect the unanticipated components (Livnat et al., 1990). ListenRead phonetically

### **3. The strengths of the paper**

Although the weakness of this paper is obvious, the design of variables and the results of the test have made outstanding contributions to research of accounting income.

#### **3.1 Ingenious design of variables**

After identifying the research themes, Ball and Brown selected the most representative accounting income numbers to measure the information content. Considering that shareholders are more concerned about EPS and net income, Ball and Brown used them as variables. To determine the information content of the accounting income, they used market efficiency hypothesis and the capital asset pricing model as references.

According to the efficient market hypothesis, the authors maintained that observable stock price is fluctuant and linked with information. This can mean that accounting income numbers are useful. The key to determining the relationship between accounting income and stock price is to distinguish

the security prices of a particular company as well as all the other companies. Therefore, the authors built two models of market expected return to examine how the market reacts to accounting income numbers.

Ball and Brown separated factors that affect earning into two different kinds: specific factors and system factors. System factors affect all companies, thus, the surplus of one company and other companies can be linked with each other. If the link is suitable, then stability can be shown using a fixed function, enabling us to achieve the income conditional expectation of one company based on other companies' data. Thus, changes in the unexpected surplus of earning can be estimated by calculating by the changes in both actual income and conditional expectation. The authors defined the difference as the gain of current information. At the same time, they assumed that the changes in policy and corporate have been enacted before the first estimation. Thus, the influence of macroeconomic and policy changes can be estimated jointly.

The authors initially used the Ordinary Least Squares (OLS) to estimate the linear regression coefficient and intercept of samples' annual income changes and average income changes. Secondly, the changes in the market income average were used as independent variables and included in the regression model to calculate the expected value of income changes. Finally, the changes in the value of unexpected earnings (prediction residual) referred to the actual value of the earnings change minus the change in earnings expectations. Therefore, market effect was removed from the estimation of expected surplus, which means the authors did not take system factors into account.

Similarly, the factors affecting the impact of no stock or stock returns can still be separated into two factors: system factors and specific factors. First, the authors used capital asset pricing model to separate the system factors and from non-system factors, then calculated the deviation of actual rate return and expected stock return. Secondly, Ball and Brown calculated the company's stock return residuals (abnormal returns). Given that markets are efficient, stock prices will adjust quickly and effectively about the new information, so residuals can show the impact on stock prices of new information. To test the validity of statistics, Ball and Brown used an alternative model- naive model. In this model, an alternative variable is the expected surplus for last year's actual surplus. The naive model does not eliminate the market effects, but verifies the earnings per share targets.

### **3. 2 Remarkable results**

This paper distinguished expected changes and unexpected changes in accounting incomes to estimate the abnormal return and changes in unexpected accounting incomes. In addition, it theorized that when the surplus prediction error is negative, it is both advantageous and disadvantageous. This paper presented the hypothesis that if the accounting income numbers could be linked with stock prices, then the announcement of accounting income numbers could result in changes in the stock returns. In the empirical test, the authors defined the month of annual report as 0, API representing the abnormal performance index of month M. In the process of calculating the API, the changes in unexpected earning are first separated into two groups (positive and negative), and then all samples are calculated together. Ball and Brown thought that if accounting income is related to

stock returns, it can be assumed that if the changes in unexpected surplus are positive, then API is larger than 1 ; if they are negative, then the API is less than 1. In the combined sample, API is close to 1.

Ball and Brown thought that annual income report can provide new information; however, it cannot be transmitted in time, because most of its content comes from various sources (interim report and non-accounting information, annual accounting report is only one of them) . The authors also found that after the announcement of the annual report, API has a tendency to drift on, that is, revenue projections' residual error signal and the relationship between stock returns in the annual report may be continued for two months. After analysis, which may be caused by the transaction costs, and excluding the impact of transaction costs, the market reaction to the numbers tends to be unbiased.

#### **4. Evaluation**

At first glance, one weakness of this empirical research is the limitation of the sample which may decrease the generality and reliability of the results. However, the selection of the sample was similar to the tests used in related literature, which could lead to consistent results if used the same way on other samples.

The weaknesses of the paper also include the limitation of the statistical tests. Nonetheless, it had a significant impact on later research. Ball and Brown (1968) provide compelling evidence that there is information content in accounting earnings announcements. In the meantime, they correlate the sign of the abnormal stock return in the month of an earnings announcement

with the sign of the earnings change of a certain firm's earnings in a previous year earnings. Starting with Ball and Brown (1968), many studies used such association with stock returns to compare alternative accounting performance measures, such as historical cost earnings, current cost earnings, residual earnings, operating cash flows, and so on. Circumstances similar to those that facilitated the Ball and Brown (1968) study also contributed to Watts and Zimmerman's positive accounting theory that revolutionized the accounting literature in the late 1970s (Watts and Zimmerman, 1979). As Watts and Zimmerman (1986) point out, most accounting research since Ball and Brown (1968) has been positive, and the role of accounting theory is no longer normative.

Ball and Brown (1968) heralded the positive-economics-based empirical capital markets research in the late 1960s. Concurrent developments in economics and finance constituted the theoretical and methodological impetus

to the early capital markets research in accounting. This historical detour exploring the forces that shaped the early capital markets research has positive pedagogical externalities, particularly for guiding new researchers. Seasoned researchers can skip over portions of this section without losing continuity.

In addition, this paper analyzes the insufficiency of theoretical studies using empirical testing to find out whether the accounting income numbers are useful. It initially provides reliable evidence that stock markets can influence annual reports. Then researchers began to do a lot in reflect of stock market.



Furthermore, the method used is also applicable to a large number of accounting and financial issues, including dividend announcements, earnings announcements, mergers and acquisitions, and investment spending.

## **5. Conclusion**

This essay has discussed the weaknesses and strengths of the empirical evaluation of accounting income numbers by Ball and Brown (1968).

Although this research has some limitations, the merits far outweigh the disadvantages. It preceded the positive-economics-based empirical capital markets research of the late 1960s. Concurrent developments in economics and finance constituted the theoretical and methodological impetus to the early capital markets research in accounting. Therefore, it is suggested that this research plays a great role in the development of accounting . In this essay, only a few strengths are mentioned; the ways of putting these benefits into practice need further exploration.