Post-Earnings Announcement Drift (PAD)
Phenomenon in the Price/Earnings Relationship:
An Evaluation of Existing Explanations

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Abstract
The stocks are valued well by the accounting information. Various methods/techniques are used for valuation. This paper examines the historically evaluation of “Post-Earnings Announcement Drift-PAD” the late price adjustment phenomenon for valuing stocks. Several streams of researches conducted over the time on this concept are evaluated in this paper which highlight the strong and weak points of using PAD. It has been concluded that there still exist some shortcoming in the evaluation method of stock and more research is needed to be done in this area to make it more effective both for developed and the developing countries.

Keywords: Post-Earning Announcement Drift (PAD); Capital Asset Pricing Model (CAPM); Standardized Unexpected Earnings (SUE); Seasonal Random Walk (SRW).

I. Introduction
This is now a well established fact in accounting and finance literature that accounting information is relevant for valuing stocks. The utility of accounting information for the purpose of valuing stock was sighted by early researchers and this relationship has been subject to intensive debate and scrutiny particularly since 1960’s. This was after the emergence and wide acceptance of the concept of efficient market hypothesis (EMH hereafter). The EMH, as defined by Fama (1970), is a market state where stock prices fully reflect all relevant information. By ‘fully reflect’, he means knowledge of information does not allow anyone to earn above normal profit. Fama (1991) later suggested three forms of market efficiency: strong form, semi strong form and weak form. These forms categorises capital markets on the basis of their ability to reflect various forms of information, public as well as private, into stock prices. Of these three forms, the semi-strong form of EMH is of direct interest to accounting professionals.
and academics because it claims that publicly available accounting information does not provide any trading advantage as this information is already incorporated into market prices (James and Walter, 1984). The implication is that information contained in financial statements are of no use to investors. It is perhaps because of these contradictory believes that price-earnings relationship has become the most widely researched issue in the accounting history (Lev, 1989).

In 1960’s, research efforts were shifted to focus on exploring some firm relationship between accounting information and investment decisions based on this information. One of the earliest attempts was the pioneer work by Ball and Brown (1968) who made first organised effort to examine usefulness of accounting numbers in terms of information contents timeliness. The results revealed that a strong majority of contents of annual report particularly income statement are anticipated and reflected in the market prices well before the annual report became public. In fact, the market prices accounted for about 85% to 90% of information contents. They suggested that market anticipation was accurate and spontaneous and it causes no noticeable adjustment in market prices in the period in which annual report was released. They, however, could not provide at that time any explanation for unaccounted for information contents, which were about 10% to 15%, and the respective market price adjustment. This pioneering study by Ball and Brown had two consequences. Firstly, it supported the concept of efficient market hypothesis suggesting that prices reflected about 85% to 90% contents of annual report before it was released. Secondly, it created another avenue for research and debate. This was how the market reacted to the unaccounted for 10% to 15% contents of annual report and what was the price adjustment to it like. This late price adjustment phenomenon later became popular as “post-earnings announcement drift (PAD)”. The research since then has confirmed validity of PAD as an issue. The PAD emerged as a challenge and damage to the concept efficient market (Lev and Ohlson, 1982; Ball, 1992). The explanation of PAD still lacks mutual agreement among the academics and the debate on it is still inconclusive. This paper aims to review existing literature on PAD and provides an evaluation of the existing explanation provided for this phenomenon.

II. A Review of Existing Literature on PAD

Since Ball and Brown (1968), the PAD controversy has attracted interest of researchers in all decades. The focus of researchers was largely to provide an explanation as to what caused PAD to occur. After a good deal of work was produced, there emerged two school of thoughts suggesting the division of PAD’s explanation into two categories (Ball, 1992: Bernard and Thomas, 1989). First of the two categories is, The Market Inefficiency Perspective, which favours the view that a portion of the price response to new information is delayed as market does not anticipate the full contents of information. Second category is, Flaws in Research Methodology Perspective, which advocates the view that the capital asset pricing model used to calculate abnormal return is either incomplete, or misestimated, or researchers fail to adjust raw return fully for risk. Both of these views are widely held, however, on the basis of existing evidences, it is suggested that majority supports the market inefficiency explanation for PAD, as attempts to explain drift as compensation for risk or flaws in research design seems to be unconvincing (Bernard and Thomas, 1989; Bhushan, 1994; Freeman and Tse, 1989). The next section examines notable studies, which took place during the last few decades providing competing explanations for the post-earning announcement drift.
Studies Favouring the Market Inefficiency Perspective of PAD

Bernard and Thomas (1989) aimed to discriminate between competing explanations of post-earnings announcement drift. They reviewed existing studies providing competing explanations and also empirically tested for these explanations. They reported that estimated post-earnings announcement abnormal return vary monotonically with the standardised unexpected earnings (SUE) deciles. A long position in a portfolio 10 (that with the highest unexpected earnings), combined with the portfolio 1 (that with the lowest unexpected earnings), yields an estimated abnormal return of 6.31% over the 60 days trading period after the earnings announcement, or about 25% on an annualised basis. Addressing whether this estimated abnormal return reflects an incomplete adjustment for risk or a delayed price response, they concluded that:

“Much of the evidence cannot plausibly be reconciled with argument built on risk mismeasurement but is consistent with a delayed price response”.

Another worth mentioning study is by Freeman and Tse (1989), who tested the hypothesis that investors re-evaluate earnings announcements in the lights of post-announcement information. They examined quarterly earnings announcement as the possibility that price reactions in the earnings announcement period (q+4) depends on the current earnings news as well as on whether the news confirms or contradicts a previous earnings implications (q+1, q+2, q+3). They use financial analysts’ forecast errors as proxies for unexpected earnings and seasonal random walk (SRW) forecast errors to clarify announcement by the type of corroborating news. Their Finding shows cumulative abnormal return for long (short) position in top (bottom) quintiles based on standardised seasonal random walk forecast errors with and without control for future earnings announcement. They also reported the cumulative abnormal return for the second day following the earnings announcement for quarter q (day 1) through the day following the earnings announcement for quarter q+4 (day 240). They concluded that the time-series behaviour of earnings provides a partial explanation of the drift phenomenon.

Bartov (1992) presents an empirical exploration of market-inefficiency explanation for the observed post-earnings announcement drift in stock prices. He specifically examines whether or not the observed relation between unexpected earnings in quarter t and stock price changes in quarter t + 1 represents a failure of the market to characterise the time series properties of earnings correctly. Bartov’s findings support the argument of failure of market to characterise the process underlying earnings correctly and suggest that this failure fully explain post-earnings announcement drift. Bartov’s study is motivated by the recent evidence on market-inefficiency explanation for the drift, which suggests that market participants fail to characterise correctly the process underlying earnings.

Bhushan (1994) presents evidence that the magnitude of PAD is positively related to the direct and indirect costs of trading. Share prices and annual dollar trading volume are chosen as proxies for the inverse of direct and indirect costs of trading. Drift is found inversely related to both these variables and these relations subsume the previously documented inverse relation between drift and firm size. The overall conclusion is that transaction costs are an important determinant of the PAD and hence the efficiency of
capital market. The important aspect of Bhushan’s work is the separation of trading cost into direct and indirect costs. Bhushan’s work compliments the work of Bhardwaj and Brooks (1992) who present evidence suggesting that the direct cost of trading inversely related to share prices. Hew, Skerratt, Strong and Walker (1996) makes first major attempt to provide preliminary evidence on PAD from UK. Although their findings are inconclusive they, however, argue that if Bhushan’s hypothesis is correct one would expect even strong evidence of PAD in London than in New York. Asthana (2003) proves that advancement in information technology (IT) is causing PAD to decline favouring market inefficiency perspective of PAD.

Studies Favouring the Mis-Specification of CAPM Perspective of PAD

The first recognised study suggesting that PAD is a phenomenon because of mis-specification of CAPM model in measuring the abnormal returns is by Ball (1978). Ball presented evidence that trading strategies based on earrings may result in abnormal return even if the market is efficient. Later, Ball with Kothari and Watts (1993) further extended the evidence that abnormal return may occur if the CAPM used to measure the abnormal return is mis-specified. Ball suggests that the evidences regarding PAD are not totally clear, as might be expected. He summarised the existing research on PAD in the following words:

“The anomaly is unlikely due to accounting variables proxying for expected return, endogenous risk shifts, transaction costs, liquidity, or trading-mechanism effect; it possibly is due to some combination of these”.

Foster et al. (1984) extended the evidence presented by Ball (1978). They examined the proposed explanation for PAD that systematic post-announcement drifts in security returns are associated with the sign or magnitude of unexpected earning changes. They document that the systematic drifts in security returns are found for only a subset of earnings expectations models. They also found that drift is a persistent phenomenon over the 1974-1981 period with no evidence of being concentrated in a specific sub-period. The properties of expectations models based on the time series of earnings are contrasted with earnings expectation models based on security returns. The latter exhibit no evidence of systematic post-announcement drift behaviour. The result presented by Foster et al. (1984) has been interpreted by some as indicating that post-announcement drift reflects some problem in risk measurement (Bernard and Thomas, 1989).

Another notable study is by Ou and Penman (1989). The price-earnings anomaly documented by Ou and Penman (1989) seems most likely to result from an association between accounting variables and errors in estimating abnormal returns. Ball (1992), summarising PAD research, concludes that evidence provided by Ou and Penman (1989) most likely results from an association between current account information and errors in estimating abnormal returns, where as the evidence in Freeman and Tse (1989), and Bernard and Thomas (1989,90) among others, reflects either market inefficiency or substantial costs of investors acquiring and processing information.

Research focusing on this aspect of causes of PAD took different angle in the beginning of current decade. Liquidity risk as an explanation for PAD was heavily tested by researchers. Some notable studies in this direction are Brav and Heaton (2002), Mendenhall (2004), Hou and Moskowitz (2005), Sadka (2006), Batalio and Mendenhall
Ali Malik, Muhammad Shaukat Malik, Muhammad Nauman Abbasi

(2007), Ng et al (2008) and Chordia et al (2009). This in fact is becoming an established area of research on PAD.

III. Evaluation of PAD Research: Gaps to be filled in

Ten years after Ball and Brown’s (1968) attempt to explore some firm relationship between earnings and security prices, Joy et al. (1977) and Ball (1978) initiated the “anomalies” research into post-announcement drift phenomenon reported by Ball and Brown. The literature review from Ball and Brown (1968) to Chordia et al (2009) suggests that PAD phenomenon is still looking for some explanation mutually acceptable to academics and professionals. The studies by Bernard and Thomas (1989), Bhushan (1994), Hew, Skerratt, Strong and Walker (1996) favour market inefficiency explanation for post-announcement drift. Even Ball (1992), who initiated the other explanation of mis-specification in CAPM or flaws in methodology, comments that it is possibly because of some combination of existing explanation. His conclusion is really critical:

“Nevertheless, the implications of the evidence are not totally clear, as might be expected. Hopefully future research will provide greater clarity, though our substantially incomplete knowledge of security pricing in a competitive market suggests anomalies are likely to continue. It perhaps is worth recalling that anomalies are not the only property of the relation between accounting earnings and stock prices, that stock prices are not the only measure of the use of accounting earnings by stockholders, and that stockholders are not the only users of accounting information”.

Further studies provide convincing evidence and arguments that market inefficiency perspective on post-announcement drift is more acceptable (Bartov, 1992; Bhushan, 1994, Hew et al., 1996). The results of these studies suggest the possibility that the earnings expectation of market participants do not fully reflect the implication of past earnings. It means that earnings announcement is always likely to have an effect that persists over some time. There are important implications of existence evidence particularly for the weak and semi-strong forms of efficient market hypothesis (EMH), which rule out the possibility of return predictability from the past information as well as current publicly available information. But evidence suggests that market do not fully incorporate the implications of current earnings. It means that failure of the market to characterise the time series properties of earning largely explains the post-earnings announcement drift. Put it in different words, post-earnings announcement drift explains the weak and semi-strong form inefficiencies of markets.

Another important factor which literature review reveals is the fact that almost all the studies on post-announcement drift are from USA. Even first major study from UK published in 1996 (by Hew et al.). Very little or no evidence exists from developing countries where capital markets are less efficient compared to USA and UK and can be more exposed to post-earnings announcement drift. Moreover, most of the studies relating post-announcement drift to market inefficiency use quarterly earnings data whereas the most studies on price-earnings relationship use annual earnings data.

None of prominent previous studies on post-announcement drift has actually tested for the quality of reported accounting information and particularly earnings numbers. There exists voluminous evidence suggesting that accountants use creative accounting to
affect reported information, and more importantly creative accounting has the ability to mislead the market and its participants. If the market is efficient, it is efficient to information (Beaver, 1973; Grover, 1994). Information is, therefore, lifeblood to the functioning of a capital market. It suggests that a lot depend on the quality of reported information and particularly that of the earning numbers. Lev (1989), summarising the three decades of market based accounting research, suggests that the future research should focus on the quality of earnings. Breton and Taffler (1995), Walker (1997) and Baker (1998), among others, raise very important issue and show their concern by urging the need of research into appropriate research methodologies for measuring creative accounting and assessing its impact on investor behaviour are lacking.

Finally, the impact that latest technology, particularly modern information technology (IT), is another issue that needs further investigation. Research efforts do exist in this direction though limited. Asthana (2003), in a notable study on the area, concludes that IT is causing decline in PAD.

IV. Conclusion

PAD phenomenon is still looking for further elaboration on which there must be a consensus between the professional and academics. It is stated that these inconsistencies in the EMH are likely to continue. It has been suggested that market inefficiency standpoint is more satisfactory. Most of the studies conducted are related to USA. Developed countries mostly have efficient markets; hence it is important that research must be carried out in the markets of developing countries. Hence we strongly recommend that the gaps identified in the paper make it significant to (1) examine the post-earnings announcement drift phenomenon in developing countries, and (2) examine the extent to which creative accounting is practised by the companies in developing countries, and (3) test the likely impact on market prices when companies involved in creative accounting make annual announcements.

References


