

Positive Accounting Theory and Science

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Earlier versions of this paper benefited from comments from Lee Parker of the University of South Australia, William Maguire of Manukau Business School, Keith Hooper of Auckland University of Technology, Divesh Sharma of Florida International University, Ainul Islam of Massey University and Santi Narayan Ghosh of the University of Dhaka.

Positive Accounting Theory and Science

Abstract

This paper examines the development of positive accounting theory (PAT) and compares it with three standard accounts of science- Popper (1959), Kuhn (1996) and Lakatos (1970). PAT has been one of the most influential accounting research programs during the last four decades. One important comparison to which Watts and Zimmerman (1986) have appealed to popularize and legitimize their approach is that their view of accounting theory is the same as that in science. Thus, it is important to examine how far accounting could have been studied in the mould of science and how the development of PAT compares with the three standard accounts of science. Such a comparison will enhance our understanding of how PAT progressed over the last decades and what methodological gaps remain. This paper shows that there are some limits to the study of accounting in the mould of natural science. Furthermore, the methodological position conforms to none of the standard accounts of science. Rather it contains elements of all three. Finally, it identifies some methodological gaps in PAT.

Keywords: Positive Accounting Theory, Science, Methodology, Philosophy of Science, Methodological Controversies

1. Introduction

This paper examines the development of positive accounting theory (hereinafter PAT) and compares it with three standard accounts of science. There is some confusion about what PAT is. If the definition of accounting theory (i.e., accounting theory seeks to explain and predict accounting and auditing practice) given in Watts and Zimmerman's (W & Z) 1986 book is taken to mean PAT, studies of accounting choices and auditing practices constitute PAT. This theory is

discussed in Chapters 8-14 of W & Z (1986). At the same time, W & Z (1986: 1) also say that their book seeks to explain the economics-based empirical literature in accounting and their book describes, in addition to accounting choice studies, capital market-based accounting research. W & Z (1986: 37) further say that Ball and Brown's 1968 paper initially popularized positive research in accounting. This seems to suggest that PAT includes both capital market-based accounting research and research in accounting choices. This paper takes PAT to include both research programs. This usage is consistent with W & Z's (1986: 8) assertion that they use the term "positive" to differentiate it from "prescriptive".

PAT has been one of the most influential accounting research programs during the last four decades. It has spawned a lot of empirical research on the association between accounting numbers and stock prices and returns, and determinants of accounting choices by management. It has spawned a number of accounting journals, among which the Journal of Accounting and Economics is the most prominent. Brinn et al. (1996), in a survey of UK academics' perceptions of journal quality, found that the top four accounting journals are: Journal of Accounting and Economics, Journal of Accounting Research, the Accounting Review, and Accounting, Organizations and Society. Articles published in the top three journals are predominantly in the positive tradition. The sheer number of articles in these two paradigms published in major accounting journals and the dominance of PAT in PhD programs in U. S. and other universities testify to the dominant position of PAT. In fact, the emergence of empirical accounting research as the dominant research approach can be attributed to PAT. Thus, judged by the number of research articles, the number and dominance of the journals it spawned, and the dominance of

PAT in doctoral programs, PAT has been immensely influential.

One important comparison to which W & Z (1986: Chapter One) have appealed to legitimize and promote PAT is the sameness of their view of theory and that in science. They have cited various philosophy of science authors to assert that their view of theory is the same as that in science and to justify their method and to discredit, to a certain extent, normative theory. Thus, given that PAT has been here for around four decades, it is important to examine how far accounting could be studied in the mould of natural sciences and what were the limits. It is also important to revisit the methodological positions of PAT. It would be interesting to see how the development pattern of PAT compares with accounts of science to which W & Z appealed to legitimize and promote their theory. This is because such a comparison will enhance our understanding of how PAT progressed and what are the methodological gaps that remain.

It is to be noted that PAT has been subject to various criticisms since its emergence. For example, Chambers (1993) called the advocates of PAT as PA cult. Sterling (1990) criticizes PAT on the ground that it restricts itself to the positive study of accounting practice and accounting practitioners and hinders accounting progress by neglecting the need for the assessment of accounting practice. Sterling (1990) further assesses its potential accomplishment as being nil. Whittington (1987) criticizes PAT for its methodological intolerance and asserts that normative accounting theory has a legitimate place in accounting. Neu (1997) provides a largely negative appraisal of PAT. Sue (1997) says that that PAT narrows the researchers' focus. Hall (1997), on the other hand, disagrees with Sterling's (1990) assessment that the potential contribution of PAT is nil. Deegan (1997) examines how PAT has ignited emotions among academics. It attracted many academics and alienated some at the same time. Milne (2002) judges

PAT's attempt to explain an entity's social disclosures as failure.

However, not many articles compared the development of PAT with different accounts of science in spite of the fact that W & Z appealed to science as a way of promoting their theory. Mouck (1990) is the notable exception. He likened PAT to the Lakatosian research program. Others (e.g., Christenson, 1983; Sterling, 1990) criticized PAT not for following the methodological dictates of Popper. However, none of these papers have attempted to compare the development pattern of PAT with Popper (1959), Kuhn (1996) and Lakatos (1970). This paper attempts to do this. Though these accounts may be a little old, this paper chooses these three accounts of science because W & Z (1986) cite these sources, yet these accounts do not give the same account of the development of science.

This paper focuses mainly on W & Z's 1986 book and 1990 paper and the empirical accounting literature of accounting choices. The first two sources contain some methodological discussion by the two protagonists of PAT and the empirical accounting literature is surveyed to determine how it developed during the last four decades.

This paper discusses three interrelated methodological issues: (a) how PAT progressed over time, (b) role of counterevidence/anomalies in PAT, and (c) how a theory is to be chosen from among competing theories. These three issues are chosen because, as mentioned above, Popper (1959), Kuhn (1996) and Lakatos (1970) do not give the same account of these issues.

The rest of this paper is structured as follows. The next section provides a brief sketch of the development of positive accounting theory and this sketch serves as the basis for discussion in Sections 3-6. Section 3 examines the difficulties of PAT. Sections 4-6 compare the developmental pattern with three standard accounts of the development of science. The last section contains conclusions.

2. Development of PAT¹

PAT started with examining some assumptions underlying normative accounting prescriptions during the 1960s. Two sets of empirical studies² were conducted. One set of studies (e.g., Ball and Brown, 1968; Beaver, 1968; Foster, 1977; Beaver, Clarke and Wright, 1979; Beaver, Lambert and Morse, 1980; Grant, 1980; McNichols and Manegold, 1983) examines the association between accounting earnings numbers and stock prices. Results indicate that earnings numbers reflect factors (e.g., cash flow, risk, etc.) relevant to stock valuation. This, according to W & Z (1986), undermined the claim in normative accounting literature that accounting earnings numbers are meaningless because they are computed using multiple valuation bases. The second set of studies (e.g., Kaplan and Roll, 1972; Sunder, 1973, 1975; Ricks, 1982; Biddle and Lindahl, 1982) attempts to discriminate between two competing hypotheses- the no-effects hypothesis and the mechanistic hypothesis.³ Evidence in these studies is mixed and could not successfully discriminate between the competing hypotheses.

The above sets of studies have used the Efficient Market Hypothesis (EMH) and the Capital Asset Pricing Model (CAPM) as their underlying foundation. Furthermore, it

was assumed that contracting costs⁴ were zero. Overall, these studies raised doubts about the empirical descriptiveness of the following assumptions underlying normative prescriptions during the 1960s: (a) there is only one source of information about a company, (b) earnings numbers are useless because they were not prepared according to a single basis, and (c) it is possible to mislead the stock market by manipulating the earnings number through accounting choices. Information content studies reveal that these assumptions are unlikely to be descriptive of the real world. The EMH implies that there is competition for information. There are alternative sources of information about the firm such as information releases by management, interviews of corporate personnel by analysts, etc. The observed association between unexpected earnings and abnormal rate of return reveals that earnings number reflects factors relevant to the valuation of stock despite not being calculated on a single basis. Furthermore, the believers in EMH and CAPM argued that it is not possible to systematically mislead the market by accounting changes. The market differentiates between accounting changes having cash flow effects and changes with no cash flow effects. Thus, the mechanistic hypothesis was unlikely to be descriptive of the real world.

As noted above, early studies could not successfully discriminate between the no-effects hypothesis and the mechanistic hypothesis. This did not lead to the rejection of the no-effects hypothesis. Instead the results led the researchers to examine the methodological aspects of those studies and question the empirical validity of one important assumption (i.e., zero contracting costs) underlying the tests. This has led to a breakthrough in accounting research. It has long been held in economics that contracting costs are non-zero (Coase, 1937).

¹ This section is largely based on W & Z (1986).

² Watts and Zimmerman (1986: Chapter Three and Four) review some early studies of this literature.

³ The no-effects hypothesis says that no stock price changes are associated with voluntary changes in accounting procedures unless they have any cash flow impacts. This hypothesis is based on EMH, CAPM, and zero contracting costs. On the other hand, the mechanistic hypothesis posits a mechanical relation between accounting changes and stock price changes. This hypothesis states that managers can systematically mislead the stock market by manipulating the earnings number through accounting changes. The no-effects hypothesis, on the other hand, says that the market can see through the earnings number. See W & Z (1986:72-76).

⁴ Contracting costs denote the amalgam of transaction costs, information costs, agency costs, renegotiation costs, and bankruptcy costs (W & Z, 1990: 134-135).

Accounting researchers abandoned the assumption of zero transaction and information costs.

This breakthrough opened the door to possibilities for explanation and prediction of variation of accounting practice across firms. The major idea behind this literature is that the firm is a nexus of contracts and accounting methods constitute an integral part of this set of contracts. Accounting numbers are used to write, monitor, and enforce contracts. Viewed in this way, accounting can affect firm value via their impact on contracts. Accounting is no longer mere form as was assumed under the EMH and CAPM regime.⁵ The dropping of the assumption of zero contracting costs has shown that accounting methods have the potential to affect the cash flow to the contracting parties. It thus provides incentives to the contracting parties to influence accounting methods.

Though the above idea is general, early empirical studies of accounting choices investigated the impact of variables related to earnings-based bonus plans, debt, and the political process affecting the firm. Three major hypotheses tested are: (a) the bonus plan hypothesis, (b) the debt-equity hypothesis, and (c) political cost hypothesis. The bonus plan hypothesis states that firms with bonus plans choose accounting methods so as to increase current period earnings. The debt-equity hypothesis says that firms with higher debt-equity ratios choose accounting procedures so as to shift earnings from future periods to the current period. The political cost hypothesis says that large firms rather than small firms choose accounting methods so as to shift earnings from the current period to future periods. Size has been used as the proxy variable for political attention in early studies (e.g., W & Z, 1978). Underlying all these hypotheses is the assumption of non-zero contracting costs. Empirical evidence is

generally consistent with these hypotheses (See W & Z, 1986: Chapter Eleven; Christie, 1990). Another stream of research examines the stock price effects of accounting changes- both mandated and voluntary (See W & Z 1986: Chapter Twelve).

After the initial studies of earnings management, empirical studies have investigated different hypotheses. For example, some have examined earnings management around specific events (e.g., management buyouts (DeAngelo, 1986), labor negotiation (Liberty and Zimmerman, 1986), proxy contests (DeAngelo, 1988), import relief investigation (Jones, 1991), non-routine executive changes (Pourciau, 1993), and initial public offerings (Teoh et al., 1998)). Still others have investigated the linkage between corporate governance characteristics and earnings management (e.g., impact of institutional ownership on R & D behaviour (Bushee, 1998), impact of independent directors and CEO stockholdings on earnings management (Reitenga and Tearney, 2003), impact of the then Big 6 auditors on discretionary accruals (Becker et al., 1998; Francis et al., 1999), impact of Big 6 auditor industry expertise on earnings management (Krishnan, 2003), association between auditors' fees for audit and nonaudit services and earnings management (Frankel et al., 2003), impact of outside directors and audit committee on abnormal accruals (Peasnell et al., 2005), association between board of director characteristics and conservatism (Ahmed and Duellman, 2007)). Also recently, some studies have examined the rationale of accounting conservatism (Watts, 2003a, 2003b).

3. Difficulties of PAT

This section discusses two difficulties of PAT. First, there is a long-running debate on whether the methodology of the natural sciences is appropriate for social sciences. There are some (e.g., Malinowski, 1960; Durkheim, 1964) who believe that the methodology of natural sciences can be used

⁵ Under the EMH and CAPM regime, accounting is mere form and does not affect cash flow except the switch to the LIFO inventory method that affects tax in the USA.

to study social phenomena. Durkheim (1964), for example, treated social phenomena as things and argued that they be treated as things. Thus, they can be studied objectively as external things. There are others (e.g., Lessnoff, 1974: 32) who believe that the model of physical sciences is not appropriate for social sciences in several aspects. To see an event as a human action, it is necessary to interpret empirically observable behavior in terms of mental categories. It is the subjective aspect of behavior, not its physical aspect, which provides meaning to an action. Weber (1964) argued that action is social insofar as, by virtue of the subjective meaning attached to it by the agent, it is conditioned by the agent's awareness of the behavior of others. Both Whitley (1988) and Mouck (1990) argue against the reliance of accounting researchers on the philosophy of natural science.

As the brief review in Section 2 shows, one major question that PAT researchers seek to answer is: why do managers make accounting choices as they do? According to Intentionalism, the explanation must be couched in terms of mental processes of the agent (i.e., the manager) (Fay, 1996: 136-139). The explanation must be couched in terms of beliefs and reasons that weighed in the mind of the manager at the time of making accounting choices. The validity of explanation does not depend on the regularity of the particular accounting choice behavior in the same situations by the agent himself/herself and others (Lessnoff, 1974). This is because human being does not *always* resort to the same action in the same situation. Two persons can take two different actions in the same situation and the same action in different situations.

PAT researchers subscribe to the behaviorist position. The idea is that mental processes can be defined in terms of observable behavior. If it is observed that managers tend to shift income from future period to the current period when the conditions in the debt covenant reach their limit, it is assumed that the tightness of the conditions caused the current period

income-increasing accounting choices. Thus, W & Z (1986: 11) emphasize large sample and statistical methods.

Second, social science laws are not as specific as their natural science counterparts. There is no theory that specifies the exact magnitude of earnings management in response to the incentives stated in the hypotheses (i.e., bonus plan hypothesis, debt-equity hypothesis and the political cost hypothesis). The magnitudes depend on the particular sample chosen for investigation. Furthermore, social science laws are less general and less universal than their natural science counterparts. For example, the three widely tested hypotheses of earnings management (i.e., the bonus plan hypothesis, debt-equity hypothesis, and the political cost hypothesis) have particular institutional environmental background. These hypotheses are applicable to cultures in which accounting numbers are used to write, implement and enforce contracts comprising the firm. Anglo-American societies are such examples. But there are societies (e.g., Japan) where the structure of industrial organizations and the contracting relationships between the bank and the borrowing firm is different from those observed in the U. S. A. and the U. K. (Sunder, 1999). There are societies (e.g., Japan) where debt contracts are not as detailed as those observed in Anglo-American societies and the extent of use of accounting numbers in such societies may not be as great as that in Anglo-American societies. Trust plays a major role in the debtor-creditor relationships in such societies (Sawabe and Yamaji, 1999). Thus, it is natural that the accounting and control system needed to implement and enforce such relationships will be different from that appropriate to Anglo-American countries (Sunder, 1999). And, the debt-equity hypothesis may have only limited application in such societies. Even in the same society, the extent of use of accounting numbers in debt contracts may vary over time. For example, Begley and Freedman (2004) find that the role of accounting numbers in public debt contracts changed

during the 1975-2000 period. The frequency of accounting-based restrictions on dividends and borrowings declined significantly from the 1975-1979 sample to 1999-2000. Thus, the generalizability of PAT is limited by institutional environments and time.

4. PAT: Normal Science or Extraordinary Science?

According to Popper (1959), science as practiced by scientists is extraordinary in nature in that scientists constantly attempt to refute theory. On the other hand, Kuhn's (1996) position is that 'normal science' constitutes most of the scientific activity of the scientific community. It is to be noted that Popper (1970: 52) acknowledges the existence of normal science. However, his attitude towards normal science is strikingly different from Kuhn's. While Kuhn views normal science as essential to scientific progress, Popper considers the uncritical attitude of normal scientists unfortunate.

The brief sketch of the development of PAT drawn in Section 2 seems to suggest that what Kuhn calls 'normal science' characterizes the development of PAT in important aspects. Normal science involves detailed efforts to articulate the paradigm with the aim of improving the match between it and nature. A paradigm will always be sufficiently imprecise and open-ended to leave plenty of that kind of work to be done. Kuhn depicts normal science as a puzzle-solving activity governed by the rules of the paradigm. The puzzles will be of both a theoretical and experimental nature.

Kuhn asserts that normal scientists must be uncritical of the paradigm in which they work. It is only by being so that they can concentrate their efforts on the detailed articulation of the paradigm and to perform esoteric work necessary to probe nature in depth.

PAT defines the legitimate problems and methods for the researchers. The problems that concern the positive researchers are: Why does management choose certain accounting methods, not others? Why does

management switch from one accounting method to another? What incentives and constraints does management face in making accounting choices? These questions have occupied the positive accounting researchers since the publication of W & Z's 1978 paper.

W & Z's 1978 paper propagated the idea that management's incentives determine their lobbying position on an accounting standard. Later researchers expanded this idea and developed many hypotheses linking management's incentives and his/her accounting choice behavior. Since the publication of W & Z's 1978 paper, PAT researchers have engaged themselves in the expansion and articulation of this theory.

Two examples illustrate the above point. The first one is the measurement of the dependent variable (i.e., accounting choice by management) in studies of earnings management. Early researchers (e.g., Deakin, 1979; Hagerman and Zmijewski, 1979; Dhaliwal, 1980) investigated the choice of a single accounting procedure (e.g., depreciation methods, inventory costing methods, etc.) at a time. This led to the criticism that managers manipulate earnings number not through a single accounting procedure but by a number of accounting procedures that are available to management. Zmijewski and Hagerman (1981) improved upon previous studies by investigating a portfolio of accounting procedures. Healy (1985) went further and used accounting accruals as the dependent variable to capture the effects of a host of discretionary decisions- both accounting and real- by management. While accruals provide a summary measure of managerial discretion and possibly an improvement over previous studies, it suffers from certain shortcomings. Healy (1985) uses total accruals as a proxy for discretionary accruals. The major question that researchers (e.g., Kaplan, 1985; McNichols and Wilson, 1988) have asked is whether total accruals are all discretionary in nature. This then engages positive researchers to design better models of discretionary accruals. DeAngelo (1986), Jones (1991),

Dechow et al. (1995), Dechow and Sloan (1991), Teoh et al. (1998), Dechow and Dichev (2002) and Kothari et al. (2005) have developed different models of discretionary accruals.

Secondly, as mentioned earlier, the three most tested hypotheses are the bonus plan hypothesis, the debt-equity hypothesis and the size hypothesis. Early studies used crude proxies of variables representing managerial bonus, debt covenant constraint, and political cost. However as time passed, researchers refined both theory and the variables. For examples, early researchers used (1,0) dummy variable to represent the existence of bonus plan to test the bonus plan hypothesis. Later researchers (e.g., Healy, 1985) examined the details of bonus plan and generated hypotheses linking bonus plan details and direction of earnings management. We observe similar efforts (e.g., Duke and Hunt 1990; Press and Weintrop 1990) in articulating the debt/equity hypothesis. Again, early researchers (e.g., W & Z, 1978) used size as a proxy for political cost. This was criticized on the ground that size might proxy for variables other than political cost. Later studies examine managers' accounting choice behavior in response to situations that reflect firms' sensitivity to specific political situation. Jones (1991) is an example. She investigates the accounting choice behavior of managers of domestic producers that would benefit from import protection.

The above examples illustrate: (a) how one study builds on previous studies, and (b) how PAT defines the particular questions addressed and keeps a group of researchers occupied. These examples also illustrate that while PAT researchers have been committed to the basic framework for investigating accounting choices (i.e., management incentives explain accounting choices), they have been critical within that framework. Thus, they have made constructive criticisms of colleagues' works and engaged themselves to developing better models.

5. Role of Anomalies

Popper (1959) gives one of the most famous accounts of science. He is a falsificationist. Lakatos (1970) describes three brands of falsificationism: dogmatic, naive and sophisticated. Dogmatic falsificationism says that all theories are conjectural and science cannot prove, it can disprove. They demand that once a theory is disproved, it must be unconditionally rejected. This means that science grows by the repeated overthrow of theories by hard facts. (Lakatos, 1970: 97). Naive falsificationism is similar to dogmatic falsificationism except that some methodological decisions⁶ need to be taken in naive falsificationism. Lakatos (1970: 115) mentions two characteristics common to both dogmatic and naive falsificationism: (a) a test is- or must be made- a two-cornered fight between theory and experiment, and (b) the only interesting outcome of this confrontation is refutation of the theory. PAT researchers do not subscribe to this methodological dictate of falsificationism.

PAT has so far emphasized verification. Evidence consistent with hypotheses has been taken to lend support to the hypotheses. From a logical viewpoint, a hypothesis cannot be necessarily true just because it accords with facts (Blaug, 1992: 15). While consistent evidence lends a certain degree of support to hypotheses, it need not necessarily entail the truth of the hypotheses. W & Z (1990) implicitly recognizes this. There have been problems of interpretation of the empirical regularity observed in positive accounting research. Especially it has been argued that omitted variables may be responsible for the evidence gathered in accounting choice studies. Thus, it may be erroneous to attribute the regularity to the contracting variables related to management

⁶ One such decision is to demarcate the theory under test from the unproblematic background knowledge. (Lakatos, 1970: 107).

compensation, debt and the political process.⁷

Some (e.g., Christenson 1983; Sterling 1990) have criticized PAT because it does not follow the methodological dictates of Popper. This criticism is misplaced. Anomalies abound in science (Lakatos, 1970). Chalmers (1991: 91) probably gets it right when he says that theories that are considered as being among the best examples of scientific theories would never have been developed if they had been rejected in their infancy. In a similar vein, W & Z (1990: 149) argue, in response to Hines' (1988) criticism of laxity in W & Z's 1978 paper, that if all the methodological dictates were applied to a single paper, no research paper would ever be published. Popper (1970: 55) later admits that dogmatism has an important role to play in science. If scientists give in to criticism too easily, they shall never find out where the real power of theories lies.

W & Z (1986: 10) propose that anomalies need not lead to the abandonment of a theory. A theory is not discarded merely in the presence of inconsistent observations (W & Z, 1990: 150). No theory ever predicts all the phenomena successfully. The data-theory fit is never perfect. What leads to the abandonment of a theory is the emergence of an alternative theory with greater explanatory power (W & Z, 1990: 140). In an important sense, this position resembles both Kuhn's (1996) and that of sophisticated falsificationism. Kuhn's (1996: 77) study of the history of science suggests that a paradigm is declared invalid when an alternative paradigm emerges to take its place. The decision to abandon a paradigm is simultaneously a decision to accept an alternative paradigm. That decision involves a comparison between alternative paradigms and between the paradigms and nature. According to sophisticated falsificationism, a scientific theory T_0 is falsified if another theory T_1 has emerged with the following

characteristics: (a) T_1 has excess empirical content over T_0 , i.e., T_1 predicts novel facts, (b) T_1 explains the previous success of T_0 , and (c) some of this excess empirical content of T_1 has been corroborated (Lakatos, 1970: 116).

Accounting-based stock market anomalies illustrate the attitude of PAT researchers towards anomalies. Ball and Brown (1968) reports evidence on post-earnings-announcement drift (PEAD) and since then other studies (e.g., Sloan, 1996; Hirshleifer et al., 2004; Taffler et al., 2004) documented other accounting-based anomalies. As Nichols and Wahlen (2004) note, PEAD remains one of the most puzzling anomalies in accounting-and finance-based capital market efficiency tests. Yet capital market-based accounting researchers have not abandoned the Efficient Market Hypothesis. Rather researchers have looked at the data and statistical tests more critically, redefined market efficiency, suggested alternative explanations for anomalies and further research opportunities. Basu (2004) is an example.

Every observed fact is fact in the light of an 'interpretative theory' (Lakatos, 1970). Thus, when any observed fact clashes with a theory, that clash may be between the theory under test and the 'interpretative theory'. Thus, the clash between facts and the theory need not indicate that the theory under test be eliminated, rather it may indicate the need for reviewing the interpretative theory. Both Lakatos (1970: 128-29) and Feyerabend (1993) tell us that this happened in the history of science. In PAT when accruals are used as the dependent variable, they are used as proxy of discretionary accruals. Thus, accruals data are discretionary in the light of a theory. Thus if accruals data fail to confirm earnings management, the failure need not indicate that the theory under test (i.e., earnings management) be rejected, rather it may indicate the need for review of the accrual models. Indeed, PAT researchers have invested considerable research efforts in constructing different models of accruals. And it is to be noted that this investigation

⁷ See W & Z (1990) for this and other criticisms of the positive accounting literature.

of accruals models started without any significant anomaly. In fact, Healy's 1985 paper, which used accruals in investigating earnings management for the first time and came up with evidence consistent with his hypotheses, caused Kaplan (1985) to raise questions about the appropriateness of his (i.e., Healy's) accruals model.

Lakatos (1970) admits that there have been crucial experiments in the history of science and those experiments led to the rejection of a theory. But he shows that the elimination process is slow and sometimes takes decades. He further argues that crucial experiments become crucial after the emergence of a better theory (Lakatos, 1970: 158-59). Hindsight plays an important role in this regard. Furthermore, it has been noted in the history of science that with the passage of time anomalies have turned into corroboration of the theory under test (Lakatos, 1970:137).

The response of positive researchers to the failure of early studies to discriminate between the competing hypotheses- the no-effects hypothesis and the mechanistic hypothesis- illustrate the attitude of positive researchers towards data and theory. The failure of early studies to discriminate between the competing hypotheses did not lead them to reject the EMH. This is because tests of the no-effects hypothesis are tests of the joint hypotheses of EMH, CAPM, and zero contracting costs (W & Z, 1986: 74). The failure might be due to the empirical non-descriptiveness of any one assumption- EMH, CAPM, or zero transaction cost. Success of EMH in finance seems to have had also its impact on the positive researchers' attitude. As noted earlier, instead of rejecting the EMH and CAPM, researchers started to raise question about the descriptive validity of zero transaction costs and finally dropped the assumption. This suggests that positive researchers do not regard empirical evidence as the final arbiter of a theory. Both data and theory have influence over each other. Complex value judgments enter the process. Success of a theory in contiguous disciplines may lead researchers to ignore certain contrary

evidence. This has happened in this case. Success of EMH and CAPM in finance and accounting may have played a role in this regard.

It is to be noted that the dropping of the zero contracting cost assumption led Mouck (1990: 236-237) to consider PAT as resembling the Lakatosian research program. The validity of this argument is suspect, because the dropping of the zero contracting costs led to the emergence of a research program distinct from capital market-based accounting research. The new line is the research in accounting choices. It is true that dropping the zero contracting costs assumption enables positive researchers to explain accounting choices. But the two research programs address different issues. The new research program addresses different questions, let alone explaining the success of the capital market-based accounting research program. This developmental pattern does not fit the Lakatosian program, because, according to this program, adjustments are made in the protective belt to accommodate new facts (Lakatos, 1970:133-37). After adjustment, the research program continues to explain the unrefuted content of the earlier version of the theory.

6. Choice of Theory

There is an important difference between PAT and Kuhn's (1996) account of science. W & Z's (1990: 140) position that a theory is abandoned when an alternative theory with greater explanatory power emerges indicates that the competition between rival theories can be decided rationally. The theory with greater explanatory power is selected. This indicates that PAT researchers consider knowledge cumulative in nature. Popper (1970: 56-57) subscribes to this idea. He believes that a critical comparison between competing frameworks is always possible. On the other hand, Kuhn (1996: 103) suggests that rival paradigms are incommensurable. Thus the debate over rival paradigms cannot be settled by logic or experiments alone (Kuhn, 1996: 148-150).

Persuasion is used to convert the supporters of the old paradigm to the new one (Kuhn, 1996: 154). One of the most important features of Kuhn's account of science is that science is not cumulative in nature. This contrasts with PAT researchers' position.

The problem with the above position of PAT on theory choice is that no theory with greater explanatory power probably emerges all on a sudden. The explanatory power that PAT now has is the result of four decades' research efforts. Thus, if the relative explanatory power of competing theories is to be made the arbiter in theory choice, that has to be applied not at the initial stages but at some later stages. So, three relevant methodological questions are: (a) how to decide rationally whether to give chance to a new theory or allow it to die away in its infancy? (b) at what stage of theory development is the relative explanatory power criterion to be applied? and (c) how to choose between two theories when the new theory explains some aspects of the old theory and some new phenomena not explained by the old one? The two diagrams in Figure 1 illustrate the third situation. Doubtless to say, a rational decision is much easier to take in Situation A below than in ⁸Situation B.

Figure I Here Please

Situation B can be illustrated with the help of the legitimacy theory and the stakeholder theory. These theories have been used to explain social and environmental disclosures by an entity (Deegan, 2007: 275-304). The political cost hypothesis can also be used to explain social and environmental disclosures. For example, using the agency theory framework, Ness and Mirza (1991) found a positive association between environmental disclosures in annual reports of large UK companies and the oil industry.

⁸ W&Z (1990) seem inclined to admit this in the case of PAT itself. The explanatory power of PAT is the result of research efforts of numerous researchers over four decades.

Thus, the legitimacy theory and the stakeholder theory may be considered competing theories of PAT. However, no theory explains fully the phenomena explained by the other theory. Furthermore, as Deegan (2007) note, the theories in question are based on different assumptions. Thus, the relative explanatory power cannot be used to choose from among these theories at this stage.

7. Conclusions

This paper examines the development of PAT and compares it with three standard accounts of science: Popper, Kuhn and Lakatos. This paper shows that PAT's methodological position fits none of these accounts fully. Rather it contains elements of all the three.

The analysis in this paper reveals that the development of PAT over the last decades may be characterized as what Kuhn (1996) calls 'normal science'. While PAT researchers have remained committed to the basic framework for investigating accounting choices (i.e., management incentives explain accounting choices), they have been constructively critical of colleagues' works.

PAT holds that data are not the final arbiter of a theory. Rather there is a complex interplay between theory and data. Thus, anomalous evidence does not automatically lead to the rejection of a theory. A theory is to be abandoned only when a competing theory with greater explanatory power emerges. Thus, the choice between theories is rational and accounting knowledge is cumulative in nature.

However, this paper argues that PAT's methodological position on theory choice runs into difficulty. It is argued here that holding that a theory is replaced when a competing theory with greater explanatory power emerges does not resolve the theory choice problem rationally. If no theory with greater explanatory power emerges all on a sudden, the criterion of greater explanatory power cannot be applied at the initial stage of development of a theory. Rather this

criterion is to be applied at some later stages of development. Thus, three important methodological questions are: (a) how to decide rationally whether to give chance to a new theory? (b) at what stage should the criterion of greater explanatory power be applied to choose from among competing theories? and (c) finally, how to choose from among two competing theories when one theory explains some phenomena explained by the other and some phenomena not explained by the other? PAT proponents are silent on this issue.

It is also important to note the role of value judgment in PAT. The role of value judgment and belief is larger than W & Z (1986: 8) would like to admit. They admit the role of value judgment in the choice of the research topic and choice of model. However, that role is much less in evaluation of research. When a research program follows what Kuhn (1996) calls 'normal science', as PAT does, the community of researchers must have some belief in the future of that program.

This paper notes two difficulties in PAT. First, it is difficult to determine reliably the intention of management making accounting choices. Second, though the basic tenet of earnings management (i.e., management incentives influence accounting choices) seems to be quite general, the generalizability of specific hypotheses that PAT examines is limited by institutional environments and time. Thus, as long as differences in institutional environments persist in the world, we may not experience a global PAT. However, this is not unique to accounting. Rather it is endemic to social sciences.

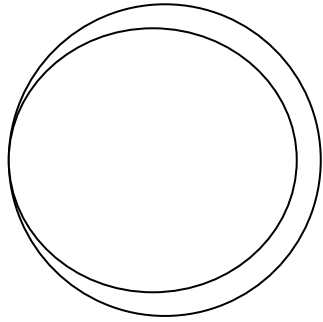
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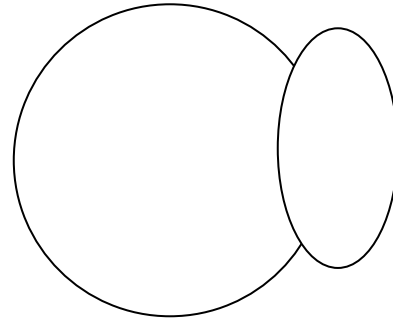
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Situation A: The new theory explains all of the old theory and some new phenomena



Situation B: The new theory explains some of the old theory and some new phenomena.

Figure 1: Two possibilities of the relation between an old, established theory and a new one

(Please insert the above figure in page 11)