

**A Game Theory Approach to Research on
Lobbying Activities in Accounting Regulation:
Benefits and Issues**

**WORKING PAPER SERIES
Working Paper no. 42
2007**

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Abstract

There is a lack of consensus on the most appropriate methodological framework for studies of regulation and due process in order to provide robust outcomes and predictive potential. In addition to this diversity of approaches, research typically adopts a “single-event focus” to an examination of due process and regulatory efficiency. The objective of this research is to examine the advantages and issues arising when methodologies offering a multi-event approach are adopted; specifically the utility of game theory methodology in accounting lobbying research. The applications of game theory in previous studies in accounting research are summarised (the application to FASB voting rules, auditor-client interaction, and accounting disclosure choices relevant to wage bargaining); and the theoretical basis for studies of lobbying behaviour is also reviewed. The standard model as currently utilised in research on lobbying activities is described; and an alternative dynamic model proposed. Four core issues arise in the application of such a dynamic model: identification of the master game and sub-games; gradual or punctuated equilibrium; agency issues; and reputation effects. It is apparent from the application of game theory in other areas of accounting research, that evolutionary game theory offers a more comprehensive and dynamic model of real-world events, based on multi-period or sequential events. The proposed utility of a game theoretic model in accounting research on due process and regulation justifies further developments in this area.

1.1 Introduction

Researchers of lobbying activities, regulatory processes and events in standard setting have had an abundance of material in recent occurrences. For example, the debate on provisions and contingencies in the United Kingdom, and the stock compensation events and the implementation delay in the new financial instruments standard in the USA. However, there is a lack of consensus on the most appropriate methodological framework for studies of regulation and due process in order to provide robust outcomes and predictive potential. In addition to this diversity of approaches, research typically adopts a “single-event focus” to an examination of due process and regulatory efficiency. It is one of the objectives of this research to examine the advantages and issues arising when methodologies offering a multi-event approach are adopted; specifically the utility of game theory methodology in accounting lobbying research. Although other research has claimed to apply game theory to other topics in accounting, it was surprising a recent publication provided no linkage between the primary characteristics of game theory and accounting in spite of the title of the study (see Wilks and Zimbelman, 2004)

Research on lobbying activities extends beyond accounting, and attracts interest from political scientists and economists as well as academic accounting researchers. In such research, the interaction of the decision-makers and lobbyists is monitored and analysed. From a rational viewpoint, each party would like to obtain the most preferred outcomes. The preference ranking of regulators over the outcome does not translate into a decision which can't be revoked – the final outcomes also depend on decisions of other parties. Therefore it is suggested that game theory can be used to define an optimal disclosure decision in such an interactive situation. It may also be used to analyse these “solution concepts” in general as well as in particular instances. To discuss and illustrate issues which develop in the advocacy of game theoretic models in accounting research on due process and regulation, the rest of this paper is organised as follows:

A brief summary of the parameters of game theory is provided, and then the applications of game theory in previous studies in accounting research are summarised. At the end of section 2 the theoretical basis for studies of lobbying behaviour is reviewed. To consider the application of game theory and evolutionary game theory in Section 3 involves describing the standard model as currently utilised in research on lobbying activities; and the proposition of an alternative dynamic model. Section 4 addresses four core issues which arise in the application of a dynamic model:

- a). Identification of the master game and sub-games;
- b). Gradual or punctuated equilibrium
- c). Agency issues; and
- d). Reputation effects.

A consideration of possible research directions and the future outlook for this approach conclude this paper.

1.2 Parameters of Game Theory

Two traditional approaches to utilising game theory have been:

- (1) non-cooperative i.e. strategic choices of individuals; and
- (2) co-operative deals, with options available to the groups of participants; i.e. how are coalitions formed and how the available payoff is divided.

Non-cooperative theory is intimately concerned with processes and rules defining the game. Cooperative theory abstracts away from such rules and looks only at more general descriptions that specify only what each coalition can get. Co-operative game theory cannot be intimately concerned with processes and rules. It can only specify what each coalition can achieve, without saying how. This is part of extensive literature on game theory which developed since the 1920's; few disciplines remain untouched by its impact. The development of co-operative game theory, based on the 1944 von Neumann and Morgenstern study, included an underlying assumption of transferable utility; Aumann (1985, 1996) extended this to repeated games where there was non-transferable utility. Such developments in game theory lead to an expectation of increasing applications to accounting research, and promises to provide a more robust means of modelling events in standard-setting than previous theoretical frameworks provided.

Not that this is a recent idea; in 1982 Amershi, Demski and Wolfson expressed concerns that the implicit or explicit modelling in research on regulation in accounting had a single-item focus. They advocated that there was a carry-over effect from political behaviour into sequential events, and thus multi-period considerations may prove to be important (1982: 30). Although their study made little progress in such modelling, it was a harbinger of the events observed during due process, for example the stock compensation debate in the USA; a debate which has rolled on from 1982 until the present day. Previous reviews of the stock compensation project have described or analysed the outcome on the basis of a single-period event (Barlas, 1994; Demery, 1995, Beresford, 1996, 1998, Craig 1997).

It is the objective of this research to propose a further application of game theory to lobbying and regulation events (such as the stock compensation debate in the United States). This may demonstrate the utility of application of a multi-period methodology to analysis of lobbying and due process events in accounting regulation. Game theory provides an alternate model to those provided by institutional and hegemonic theory as a means of analysing conflicts of interest.

2. Previous Studies:

2.1 A review of the extent of application of game theory to accounting research

The application of game theory in accounting research has been demonstrated three areas:

- 2.1.1 The broadest application has been to the analysis of the need for information disclosure where such information can influence collective wage bargaining. A summary of these studies is provided in Table 1. The debate between Pope & Peel (1981) and Frantz & Walker (1997) provides a useful description on possible constraints in the application of game theory to modelling a possible equilibrium when disclosure is discretionary. The major constraints revolve around the effect of multi-period sequential disclosures, and reputational effects. Such constraints may apply to other applications of game theory in accounting research.
- 2.1.2. There was also a study which applied game theory to the analysis of auditor'-client interaction in the United Kingdom (Hansen & Watts, 1997) including a hypothesis test that choose between standard and game-theoretic interactions. Although it had to be assumed all interactions are either standard or strategic, they believed both types exist in the population. Scott's (1997b) critique to this application focussed on two issues; firstly, econometric problems associated with the use of available data to

test the two models, and secondly, the role of earnings management in financial reporting.

- 2.1.3. Amershi, Demski and Wolfson (1982) provided a theoretical analysis of accounting regulation, and the possible modelling of strategic voting by members of a regulatory board such as the FASB. A further study of voting rules for the FASB also invoked game theory, using a simulation of the impact of a rule change on the decision-making processes (Fields & King, 1996). This simulation supported the prediction that the requirement for a super-majority (re-introduced in 1990) maintained the *status quo* more often than a simple majority rule, as utilised from 1977-1990.

These theorists applying game in accounting have been forced to think about what it means to assert that accounting practice is rational. To utilise game theory means one takes for granted that players will act *per* rationalisable strategies. This premise of rational behaviour has already been invoked in other research on lobbying behaviour, with a variety of outcomes.

Some of the earliest studies of lobbying behaviour such as the study by Hussein and Ketz (1980) utilised some aspects of game theory; they provided a measure of unity between the firms, and the lobbying power for each of the big eight CA firms in a study of the potential for control over the FASB. Brown 1981 used a discriminant analysis to study the distinctive of groups of respondents and the FASB alignment on the issues. Haring 1979 was testing for association, not causality, when examining lobbying positions of CA firms and the responsiveness of the FASB. However, later studies did not continue these approaches, and instead looked more towards the content of the promulgations and submissions.

2.2 A Review of the theoretical basis of studies of lobbying behaviour in accounting:

Data from the Financial Accounting Standard Board (FASB) records on events in lobbying on accounting standard setting could provide a source of multi-period strategies and outcomes of lobbying activity. Although the topic generates regular research attention, there remains an absence of any unity on the appropriate theoretical basis for such research, and no modelling on the basis of game theory.

There have been three major approaches to studies of constituency lobbying:

1. to study lobbying on a particular exposure draft;
2. to study lobbying by a particular sector (e.g. the corporate sector or the academic sector); and
3. to study longitudinal data of the levels of constituency responses to exposure drafts of different standard-setting bodies (see Table 2).

Earliest studies of lobbying focussed on the first type of approach, but the detailed studies of submissions did not give the researchers confidence to relate the changes or withdrawal of the exposure draft to submissions. This highlights that it is yet to be established whether or not testable hypotheses concerning the relationship between

1. the level of responses;
2. incentives for lobbying;
3. content of submissions; and
4. the outcome of due process

can be developed and tested when only one event is reviewed.

Secondly, studies of the responses of a particular sector (the corporate sector and the academic sector): when the responses of the corporate sector were first studied, it was with

the utilisation of the Watts and Zimmerman framework for identifying incentives to participate in due process. Specific income effects appeared to be unimportant in determining whether or not a firm was likely to submit comments (Griffin, 1982: 66). Kelly (1985) focussed on those firms forced to change accounting methods to comply with SFAS 8; it was possible to identify that without controlling for firm size, firms with higher leverage and asset size, but lower management ownership, lobbied against the proposals. The economic consequences framework was also utilised by King and O'Keefe (1986) in analysis of the selling and buying activities of firms near the exposure release date for SFAS 19, which indicated that lobbying activity was correlated with management's anticipated wealth.

Deakin used a similar framework to further investigate the association between management lobbying and the effect of the proposals on future cash flows and reported revenues for the oil and gas industry. This suggested that contract and cash flow effects were stable predictors of lobbying activity, but it was not clear if this was due to the specifics of the proposals (the context of the debate) or attributable to the greater clarity offered by the proposals (1989: 150). Theoretical perspectives other than the positivist approach have also not proved as useful as might have been anticipated; the agency theory perspective on standard setting processes examined by Tower and Kelly (1989) concluded that agency theory was of limited usefulness in specifying the role and processes of accounting standard setting mechanisms (1989: 16).

A study of the academic sector responsiveness by Tandy and Wilburn (1996) offered a comparison of views of academic participants responding to exposure drafts with a similarly identified group of non-participants. They identified that the level of participation did not vary with the type of document issued. They also examined whether or not the scope of the proposal affected participation, but this was undertaken solely by separating the proposals into substantive standards compared with amendments or industry-specific standards.

Thirdly, studies of longitudinal data of responses to exposure drafts of a particular standard setting body over a number of years. The standard setting bodies in the United Kingdom and the United States can be observed overall to generate a materially higher average level of responses per ED than in the International Accounting Standard Committee, Canada, Australia or New Zealand. A detailed study of longitudinal data of responses to exposure drafts issued by the FASB over a number of years was the study of responses to nine topics considered by the FASB since its inception in 1973: Paul Brown (1981) examined the preferences of respondents, and the degree of the FASB alignment with those responses; and considered that in the majority of these topics, the FASB was revealed as "having taken on an outlying position among respondents, indicating that major differences existed between the FASB decisions and many of the respondents' preferences"(1981: 245). Brown suggested that either the FASB attempted to compromise among diverse preferences, or simply ignored many constituent preferences in reaching its decisions (*ibid.*).

Mezias and Chung (1989) studied 30 randomly selected SFASs issued by the FASB up to December 1987 and analysed the content and sources of the submission letters. This provided a measure of the position of each constituency group. They found that all the constituency groups tended to send letters opposing rather than supporting alternatives, noting that "there is no way to conclude from this study that the "five best letters" from preparers have any less impact than the five best letters from public accountants" (1989: 18).

Tandy and Wilburn (1992) examined constituent participation on the United States by looking at the responses by sector to the first 100 FASB statements. Generally they identified that the highest responses, in particular the top ten standards which had generated most comment letters, preceded substantive standards (all of which appeared to also affect reported profits). The ten standards with the lowest response rates were specific industry standards, except for SFAS 10 which was an amendment (1992: 51). Their analysis was based on distinguishing between amendments, industry-specific standards, and substantive proposals amending major changes to standards or introducing new standards. They did not distinguish which standards addressed disclosure versus measurement issues, nor which proposed changes may be most likely to impact on reported profit. Substantive standards had significantly greater numbers of responses than industry standards or amendments (1992: 54). They also examined whether or not there had been a change in response levels since the establishment of the Emerging Issues Task Force in July 1984; the responses on exposure drafts issued subsequent to its formation was greater than the response to exposure drafts before its formation.

It is a characteristic of these studies since 1981 of the outcome of lobbying events in the United States that the theoretical basis has been agency theory, institutional theory or transaction cost economics. There has only been a very occasional study of theoretical modelling of strategies and outcomes, which could be anticipated by characteristics of the participants in the lobbying activities (see Keenan n.d.). The underlying standard model driving the majority of research is further discussed in section 3.2.

2 Game Theory and Regulation

Institutional theory largely ignores the effect of changes in the dynamic behind due process mechanisms on lobbyist submissions. Most research based on contracting theory and institutional theories analyse only either characteristics of lobbyists (corporation characteristics or behaviour around implementation dates) and treat a regulatory board (e.g. the FASB) as a passive recipient of submissions. Institutional theory does not incorporate the effect of a sequence of successful or unsuccessful lobbying outcomes on incentives to lobby, or lobbying strategies. By contrast, game theory suggests:

- the strategies adopted by any of the multiple parties during due process will affect other lobbyists strategies, and also the regulatory board's response; and
- that the strategies will form an equilibrium.

The game-theoretic approach views the board as active, in that the board acknowledges the effect that their due process strategy has on lobbyist's submissions. For example, it is noted that in some circumstances the positions taken on a Discussion Memorandum can be close or at considerable variance from the subsequent exposure draft (Dhaliwal, 1982; Johnson & Swieringa, 1996). Such a strategy attracts an examination of the level of acceptance by the constituency of the eventual exposure draft, and how this compares with promulgations where the discussion memorandum was very similar to the exposure draft?

The following summary of some of the most pertinent aspects and issues surrounding the application of game theory is derived from a number of books written on game theory, in particular Hart & Neyman, 1995; Hargreaves Heap & Varoufakis, 1994; Scott, 1997a, and Creedy, Borland & Eichberger, 1992. Game theory has an advantage over other analytical methods because it is based on interaction between the parties. In applying game theory two steps are necessary:

- (1) defining the optimal rational decision in a standard-setting event; and
- (2) analysing these solutions both generally, and specifically with respect to observed sequential accounting events.

Game theory provides a tool with which factors such as information, communication, strategy, coalition and bluff can be examined and formalised. Key classifications depend on the number of players, the degree of opposition between players, and the amount of information available to each player. Game theory may be applied to situations allowing:

No indifference	Indifference permitted
One Vote	Sequential or preferential voting
Independent players	Interdependence between players
Single-period setting	Multi-period events or sequential settings
Preferences are public knowledge	Individual preferences are unknown
Coalitions may form (co-operative formulation)	Coalitions cannot form i.e. non-cooperation
Incomplete information	Complete information
Perfectly competitive situations – individual influence is negligible	Imperfect competition – some entities/people have a more material influence than others
One-event games	Repeated games, where different stages are interdependent

Most applications of game theory assume strategic behaviour and rational decision-making, although experimental and non-rational behaviour modelling has been undertaken. Many different aspects of one particular game or series of events can therefore be analysed, testing both underlying assumptions of game theory, and characteristics of a particular set of circumstances. For example: are all parties, or players, going to act rationally? Different parties may have a different utility concept. Will parties bluff? Can the value for each party of every possible combination of strategies be estimated?

In a hypothetical example provided by Scott (1997a: 305) he suggested a reasonable payoff for two players could be evaluated as follows. Each player faces two strategies: complying with the accounting policy directive, or sticking to their policy regardless of the wishes of the regulator. In this case, Scott called the column player the CICA, and the row player the Government:

		CICA	
		Co-operate	Strong – sticking to own policy
Government	Co-operate	50, 50	8, 60
	Strong	20, 10	12, 15

Although this matrix suggests both parties would have been better off if they had co-operated, Scott suggests that would have been unlikely that such a strategy would have been chosen (1997: 306). Is it likely that of all the areas of social research, that this is one area where game theory does not apply? Or are there other aspects which have to be factored into the calculation of probabilities and pay-offs?

Take another example of two CPA firms; one of which faces more costs from litigation if a particular procedure is not regulated; the other has benefited from material income streams

from the diversity of practice. It is possible that pay-offs could be determined for such firms if they need to co-operate. For example if these two CPA firms needed to persuade the AICPA to adopt a single lobbying position, then the pay-off matrix could be identified and tested on the basis of different firm characteristics.

Given diverse conceptions both of game theory and the degree to which the sets of interests are in opposition, the focus is on each player's individual use of strategy. Strategy in game theory has a specific meaning; it connotes a plan of action that cannot be changed by actions or strategies of other interested parties. A single plan is a pure strategy; combinations of pure strategies are mixed strategies. Intuitively, it appears that disclosure strategies during lobbying are part of a repeated game, a long-run multi-stage game. These may be:

- repeated games (with and without complete information); or
- stochastic games

Stochastic games are played in stages, and a player's strategy is a specification of a probability distribution over their action at each stage, conditional on the current state and the sequence of moves up to that stage. The equilibria depend on the way in which the parties evaluated their payoffs in the game, and are based on the notion of the relative degree of "informativeness" of an action i.e. how much it reveals about the actions of the opponent.

3.1 Evolutionary Game Theory

The regulatory environment is such that lobbying activities result in non zero-sum games. The best example of these is the well-known prisoner's dilemma. Non zero-sum games do not lead themselves to easily-derived satisfactory solutions. In regulatory events players may at times communicate directly, leading to an entirely different solution. This key characteristic of the acquisition of knowledge during the game driving a change in strategy is a component of evolutionary game theory. As multi-period events occur, the desirability of alternatives (the pay-off) depends on the adaptive behaviour of the parties involved. However, evolutionary game theory is usually only based on two groups. Within each group, individuals play a pure strategy, but overall each group exhibits a mixed strategy. As play proceeds, some strategies receive higher payoffs than others. This causes individual players to switch strategies.

This switching adds a dynamic dimension to the game. Strategy adjustments are largely driven by additional information. The standard solution concept is that of the evolutionary stable strategy (ESS). An evolutionary stable strategy exhibits considerable structure. If evolutionary game theory was applied to standard-setting events, with such modelling restricted to two groups, then game theory may provide a mechanism for modelling the processes whereby the lobbyists and regulators choose and adjust strategies. Samuelson (1992) suggested that if the evolutionary approach to games is adopted, and interest focuses on examining stable behaviour, then we "should be interested in proper equilibria in normal games and sequential equilibria in extensive form games." If modelling can be successfully extended to the application of evolutionary game theory to asymmetric games, it would provide a useful alternative to the "common knowledge of rationality" foundation for game theory.

Samuelson continues by considering the ability for players to confront counterfactuals. This leads to a review of the necessity for trembles i.e. in sub-game perfection repeated non-equilibrium moves are attributed to unintended "slips of the hand" or mistakes. By contrast, in an extensive form game, trembles are seen as evidence of "a pattern of reasoning on the part of the opponent that is systematic but does not match the reasoning of the proposed

equilibrium” (1992 : 30). Thus in an extensive form game players are most likely to believe that past deviation provide systematic evidence that deviation will take place in future.

Samuelson concludes that “it is unlikely that an analyst using game theory to study behaviour will ever be able to obtain a description of the game so precise as to include the processes by which players make decisions. A game theory which depends upon such details is likely to be useless.” He concludes that research using the normal form with sub-games and information sets would avoid extensive-form paradoxes (1992 : 33).

Lobbying is an extensive form game with sequential equilibrium, and “a theory of equilibrium for extensive form games must be able to confront counterfactuals, meaning that players must form hypotheses about expected future play after out-of-equilibrium moves have contradicted their previous hypotheses concerning play” (Samuelson, 1992 : 30).

3.2 The Standard Model

Lobbying has previously been analysed by the standard model. In summary, the regulatory board decides on a number of proposals based on current accounting behaviour. The lobbyist decides whether or not to lobby by three routes: submissions, lobbying 1/1 or seeking influence by appointment. If the lobbyist will have more costs by implementation of the proposals than the cost of one of the three routes, then they will lobby. Alternatively, if the lobbyist will benefit from the proposals, either directly or indirectly (cost to competitors) then they will also lobby.

The standard model incorporates consideration of three aspects:

<i>Characteristics of lobbyist</i>	<i>Characteristics of promulgation</i>	<i>Direction of impact of proposals on entity</i>
If a firm: size, leverage, management compensation patterns	Will it impact on earnings	Will not impact on the entity's current practice
If a CA firm: client preferences, size,	Is it a primary statement or secondary statement	Will be consistent with current practice
If the academic sector: attitude, expectation of impact, cost/benefit tensions	Industry specific versus those of general application	Will force a change in current practice

In most studies of the characteristics of lobbyists, each lobbying event is a one-off occurrence.

3.3 A Dynamic Model

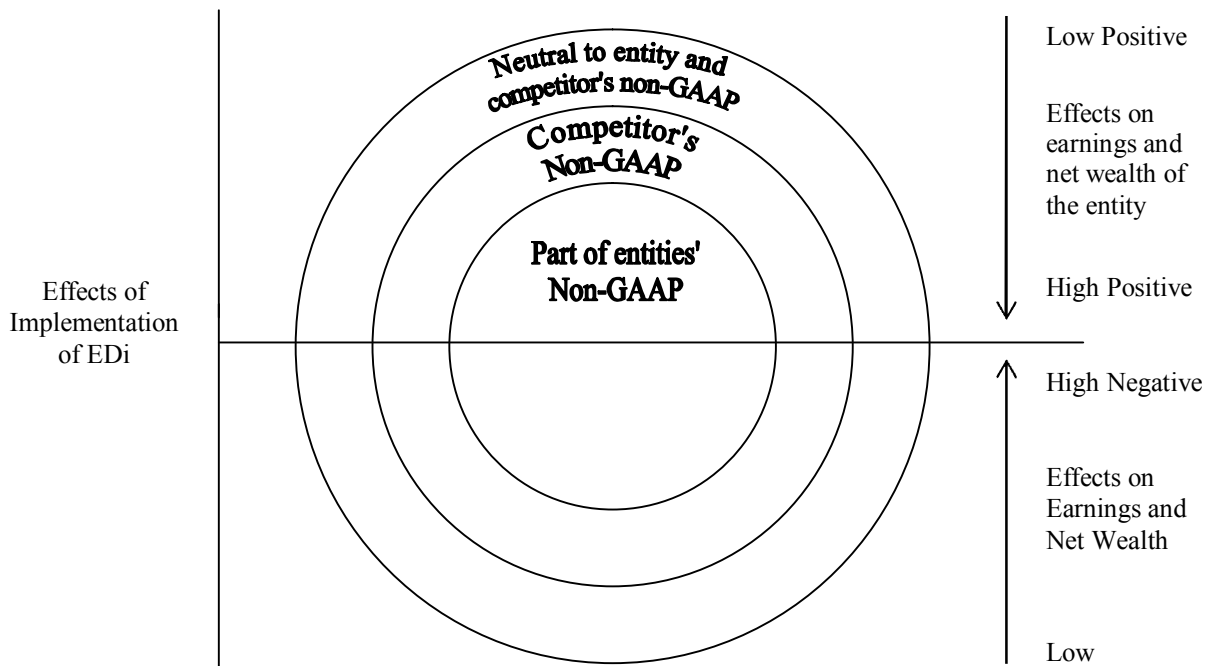
Instead of a three-column matrix, the cost/benefit of lobbying can be represented as a core → outer layer diagram thus. In the standard model each firm is using a diverse number of accounting treatments. By setting standards, the board may be able to prevent or deter diversity of practices by proposing through an ED the new accounting standard. The set of all accounting practices (A) of one entity

$$\#A = \text{GAAP} + \text{Non GAAP}$$

For the board,

$$\begin{aligned} \#A &= \text{GAAP} + \text{Future GAAP} \\ &= \text{FAS} + \chi\text{ED} \end{aligned}$$

For one entity, for each ED the lobbying costs for ED_i vary according to whether ED_i = Non GAAP or ED_i ≠ Non GAAP. The third alternative, ED_i ⊃ Non GAAP, also may have some lobbying value if ED_i is going to affect the entity's competitors. The cost/benefit of lobbying decreases as the impact of a particular ED tends towards the centre/core; thus providing an increasing incentive to lobby either positively or negatively.



This dynamic model thus more closely represents rational lobbying decisions with characteristics of a dynamic vortex, because the simultaneous re-positioning of multiple parties in lobbying events changes the lobbying cost/benefit valuation. The advantage of this dynamic schema over the standard model is because of three drivers which impact on the static cost/benefit relationship in the standard model:

- (1) as the non-GAAP domain for each entity decreases, the value of successful lobbying to keep the accounting practice outside of GAAP increases exponentially;
- (2) once the outcome of a lobbying event is determined, if ED_i remains in the non-GAAP domain the entity will gain a multi-period advantage as the regulatory agency is unlikely to “re-visit” the issue in the immediate future; and
- (3) in different jurisdictions, the degree to which auditors are subject to successful and sizeable litigation results in varying degrees of pressure on the regulatory boards to reduce the non-GAAP domain. In less litigious jurisdictions, chartered accountancy practices lobby groups benefit from a larger dimension to the non-GAAP domain, but each litigation event may alter this equilibrium.

If a dynamic game theory model is applied to the standard-setting process it could provide a fundamentally different set of equations than the standard model as described above. Not only has the entity had to share information disclosing qualitative aspects of net worth and earnings; but the future earnings may be able to be better predicted by the market after ED_i has been incorporated into GAAP.

Comparing game and standard theories, standard theory is nested in game theory (as noted by Hansen & Watts 1997: 32). One distinction between the two is that lobbying costs change depending on the success or failure of the prior lobbying event. Rather than being sequential, game theory equations are simultaneous, reflecting strategic interactions between Board and lobbyists. In such a model, for example, a CEO may have private information regarding the entity's net worth, and incentives to maintain a diversity of accounting practices to give management choices in valuing the entity's net worth, thus the apparent lobbying cost/benefit from maintaining the size of non-GAAP may be an agency issue. The standard-setting board observes the entity's incentives and decides the cost to the market of these diverse practices warrants standardisation of accounting practices.

If the application of a multi-period game model is to be successful, the following four issues need to be further addressed:

4 Four Core Issues

- (1) Identification of the level of game (Sub-games and Master Games);
- (2) Whether or not there is a gradually changing dynamic which ensures smooth and slight changes to the equilibrium, or the process is characterised by a punctuated equilibrium;
- (3) Agency issues: Informational asymmetry may affect strategy decisions by the CEO, and while the strategy adopted in lobbying by an entity may apparently be driven by shareholder interests, a pure strategy may be corrupted by the agent's interests; and
- (4) Reputation Effects.

Issue 1: The identification of the master game and sub-games

Evolutionary theory, as in its original biological model, imputes that success ensures not only survival of the individual, but also survival of the species. In a cultural context of regulation and evolutionary game theory, success in the Master Game would therefore be measured by survival of the overall regulatory characteristics of each standard setting board, even when they change by name. For any regulatory system to survive, a board must both be seen to have the authority to regulate, monitor and, if needs be, discipline; while also demonstrating the sensitivity to consider views and needs of constituents and funders, such as the users, preparers, and auditors.

The standard setting structures which have survived and, necessarily, evolved to retain control of regulation show a diversity of characteristics in different jurisdictions. However, the measure of success in the master game of control of regulation is the same, whether considering the IASC, the FASB and any other such board. Every sub-game equilibrium has a potential to impact on the authority of the board in the larger game. Having correctly identified the Master Games in regulatory research, possible Sub-Games (in the United States for example) may also be identified:

Master Game: Regulation versus Free Market, and the

Larger Game: Control over regulation
(Private v. Public); then possibly

Sub-Games:

- Agenda setting
- Appointment of FASB members by FAF; funding of FAF & FASB
- Functioning and authority of EITF
- Decisions on particular issues
- Determination of GAAP: Customer focus v. Principles

- Reviews of FASB effectiveness c.f. any other private body
- Relative strength of professional alliances, Big 6, and financial analysts in control and funding of FASB
- Voting rule changes
- Regulatory capture

This is not an exhaustive list. Usually research on any of these sub-games can identify drivers to the outcome, and some methodological approaches may provide predictive models. But any analysis of sub-games must assume a multi-period setting analysis, and also assume rational behaviour. Sub-game analysis, as is typified in studies of due process which focus either on a particular lobbying group or a particular event in standard-setting, will render sterile results if the event is viewed as independent from other events and the master game in standard-setting.

What sub-games have already been studied? Amershi *et al* (1982) examined voting patterns of the FASB. However, because of the tremendously complex empirical domain being studied, Amershi *et al* relied on examples to drive the discussion, rather than engaging in a formal modelling exercise. They viewed each regulatory action taken by any party as a single move in a multimove “political regulatory game” (1982: 20), thus suggesting the master game was control over regulation. It was considered that if such an approach allowed a single-item or single-period focus, then a series of three-person, two period examples demonstrated a simplified approach. The model of strategic voting was based on preference uncertainty i.e. that the player’s preferences are not public knowledge (1982 : 21). In this study of FASB members voting patterns, they provided a formal consideration of FASB voting patterns with an assumption of rational behaviour in a multi-period setting with preference uncertainty.

Issue 2: Punctuated Equilibrium or Gradual Change

An optimal solution may have some irresolute qualities because the players utilised a “mixed strategy” selection. After extensive lobbying, players may attempt a cooperative solution that will provide the highest total joint return. That non zero-sum games most often are found to lack a guaranteed stable solution initially seems to provide an unsatisfactory model. However, such a problem with an evolutionary stable strategy overlooks a feature inherent in evolutionary processes: that of the punctuated equilibrium (Gould & Eldredge, 1993). This concept has been applied elsewhere in academic business research, as in Gersick (1991) and Romanelli & Tushman (1994), but does not appear yet in core discussion of evolutionary game theory. It suggests that periods of stability (stasis) are followed by periods of rapid change, rather than the slow gradualism depicted in earlier biological models of evolutionary change and speciation.

Applying this to evolutionary game theory would suggest that non zero-sum games might lack a guaranteed stable solution, but if they provide sufficient stability for the time being, then the lack of optimality does not negate the on-going regulatory functioning. It has been documented that standard-setting boards in most jurisdictions show “life cycles” with long periods of stable equilibrium, but also with both major and minor structural changes at points in the life cycle. Because any regulatory board has multiple functions, an optimality of structure to achieve one particular function most likely weakens another. For example, one board function may be to demonstrate

responsiveness to constituency input, but this may compromise timeliness of deliberation. The lack of a guaranteed stable solution therefore is less important than a solution which is sufficiently stable for the time being to allow the equilibrium to be maintained. More importantly, a episode of disequilibrium can be viewed normal part of a stable system, and will not threaten the board's survival as the board can adapt its processes in a pattern of irregular but major structural changes.

This is illustrated by Zeff's 1984 review of the five major turning points in accounting regulatory history between 1917 – 1972. The five turning points illustrate the principle of punctuated equilibrium, and he suggests that the private v. public regulation debate (the master game) drove the change process at different junctures. The impact of this pattern on analysis of lobbying activities and board reactions might be that early in the period of stability the board strategy chooses may driven by a policy of demonstrating sensitivity to constituency views, but then becomes increasingly entrenched in its established positions as time elapses since the establishment of the new equilibrium. This lessens the ability of the regulatory agency to achieve constituency support. Therefore analysis of Boards strategy has to be on a dynamic basis; the impact of prior events and lobbyists' strategies has the potential to translate into episodic instability. The driver to the next period of change punctuating the stability will be from an increasingly disillusionment of constituents of the cost/benefit for them of the present structure, and their ability to impact on the outcome. The stridency of the alternate strategies adopted by lobbyists during the recent stock compensation debate is a harbinger, and the response by the board will not diminish the likelihood of such lobbyists' strategies being adopted again in future.

Issue 3: Agency Issues

The interface between agency theory and game theory was examined by Scott (1997a: 284ff), in which contracting issues were analysed using a game theoretic approach. However, there are also some other issues when lobbying decisions analysed:

3.1 Corporates

Most analysis of lobbying events identifies corporates as entities with varying proxies for measuring cost/benefit of lobbying activities. Although analysis may incorporate drivers to lobbying activities due to information asymmetry, by examining the proportion of shareholding held by management, there remains an agency issue inherent in the increasing value of the increasingly small domain of non-GAAP. Agency theory suggests management favour maximisation of the domain of non-GAAP, and oppose the prescription of any recognition methods which reduce accounting policy choice. They also have incentive to oppose any disclosure requirements which might draw attention to excessive surpluses, overly generous remuneration, or unfavourable results. This will apply both to the largest entities, which may have high political visibility and who are most concerned with smooth surpluses; and also to the smaller entities whose concerns may be with debt covenants and executive compensation contracts.

Discretion over accounting policy choices reduces as non-GAAP reduces, so the value for management in lobbying increases (perhaps exponentially) as the domain of accounting choices remaining in the non-GAAP set decreases, irrespective of the specific issue under debate. If the manager can retain choices in the non-GAAP domain, irrespective the present accounting practices of the entity, it presents a future

opportunity for accounting policy choice. Contestability over the accounting choices remaining in the non-GAAP set heightens as each exposure draft or FAS reduces the size of non-GAAP.

Recent debate in the USA over stock compensation and financial instrument expense recognition focuses attention on two areas of accounting where management can both control earnings and smooth volatility. The debate on pooling promises to be hotly contested, as pooling of interests also gives management a powerful earnings management tool. These three issues in the USA promise to cause considerable strain on the stability of the FASB simply because as other significant areas of scope for earnings management by CEOs has been brought into GAAP, these remain outside. Therefore retaining the importance of opportunities for the CEO to maintain earnings and share price targets means lobbying on these issues is increasingly cost/benefit efficient.

3.2 CPAs

An associated issue arises when considering the most likely lobbying position of CPAs. On one hand, an increasing uniformity of accounting practices leads to less demand for their services (Watts & Zimmerman, 1986). CPAs may lobby, providing a conceptual rationale for their position, while the unstated driver to the lobbying choice may be to retain the opportunity for fee generation. However, the advantages to this strategy may be offset by the litigious tendency of users in different states and other jurisdictions. From the auditors' or attestors' perspective, lobbying may be expected to support conservatism and costly disclosures (Saemann, 1997). Thus analysis of lobbying position taken by CPAs may be driven by the tensions between the incentive to retain diversity in the set of non-GAAP practices, and avoidance of costly litigation.

Issue 4: Reputation Effects

How can reputation effects be accommodated in game modelling? If a board accommodates players' position in a sub-game, will this strengthen their position in the master game? The standard model as described imputes that successful lobbying in a sub-game to dissuade the board will set up an expectation of other successes. For example, in the stock compensation project some observers considered that the FASB was seen to back down because of the corporates' threat of the real possibility of legislative changes to the FASB control (the Master Game).

Subsequent accounts by FASB advanced arguments that

- (1) their advocacy of recognition of stock compensation costs in earnings was not incorrect, nor had it been proved "bad accounting" (a sub-game), i.e. their authority was intact.
- (2) their continuation of efforts to introduce such recognition was largely because of SEC backing i.e. they had been sensitive to key players strategies.

In order to maintain power in the Master Game, they had to show sensitivity to constituency preferences (the Sub-Game of FASB effectiveness measurement) while also defending the legitimacy of their claims of expert knowledge and correct knowledge and correct application of accounting principles. Such "reputation creating behaviour" encourages particular strategies by lobbyists. From a game theoretic

perspective, the reputation of the FASB based on past responsiveness is critical to the correct formulation of strategies by lobbyists. The FASB did not wish for a repeat of the alternate strategies adopted by lobbyists in the endplay stages of the stock compensation project.

5 Research directions

The above discussion of issues which arise in the application of game theory modelling to regulation events in account research suggests there may be considerable research potential in this approach if some of these issues can be resolved. It is anticipated that the outcome from a number of these projects would be to deliver a more accurate representation of lobbying incentives and the impact of regulatory events and institutional changes on due process than other theoretical frameworks to date. The underlying objectives would therefore be: to examine whether or not firm lobbying and regulatory decisions reflects rational decisions; and to provide an adequate and verifiable explanation of observed behaviour of firms and regulators.

The required initial steps are:

- a). defining the optimal rational decision in a standard-setting event; and
- b). analysing these solutions both generally, and specifically with respect to observed sequential accounting events.

Therefore some initial directions for further research would be:

1. To examine submissions by one entity over a period of ten years and review the outcome of due process; if the promulgation is consistent with their position, does this result in a change in strategy or more frequent submissions? Were they making optimal rational decisions in their lobbying strategy? Evolutionary game theory suggests that their behaviour will adjust on a trail and error basis towards that behaviour which offers the highest pay-off.
2. When political lobbying outside of due process is successful, how does the regulatory body react, and do these strategies reflect optimally rational decisions? Does a board consider that it needs to change its strategy while still essentially retaining the existing structures of due process, or is part of its strategy a revision of the due process. Evolutionary game theory suggests that their positioning on sequential issues will partly reflect their experience of constituency acceptance or rejection on immediately prior issues before each promulgation.
3. When events cause an increasing dissatisfaction of some constituency groups, such as the stock compensation debate, should it be expected to impact on the content of future submissions, or does it result in adoption of other rational strategies outside of submission preparation?
4. To examine the magnitude of the free-rider effect, and the impact of this on lobbying strategies. This could be approached by identifying some issues which generated a number of positive lobbying propositions, and then to survey or interview a set of matched pairs of lobbyists (submitting in favour of the proposal) and non-lobbyists in order to examine the differences between the pay off for lobbyists and non-lobbyists on this particular proposal?
5. To examine incentives to lobby based on a pay-off matrix modelling player characteristics: in the example provided by Scott (1997a: 305) as discussed in section 3 the equilibrium did not appear to be the course most likely to be followed, but further examination of the manner of calculating the pay-offs to the different players could be better estimated with data from firm characteristics.

6. Outlook and Conclusion

The review of the theoretical basis of studies of lobbying in accounting research indicated a lack of robust theoretical framework. The standard model as summarised in Section 3 did not incorporate changing dynamics in lobbying cost/benefit evaluations. It is apparent from the

application of game theory in other areas of accounting research, (such as the application to FASB voting rules, auditor-client interaction, and accounting disclosure choices relevant to wage bargaining), that evolutionary game theory offers a more comprehensive and dynamic model of real-world events, based on multi-period or sequential events.

Such historical events, even in the recent past, present a complex body of data from which processes and strategies may be able to be identified using a game theory model. However, some core issues require attention, particularly distinctions between the master game and sub-games in lobbying events. The other issue concerning the likelihood of punctuated equilibrium means that those researchers who analyse hegemonic processes can benefit from a multi-period dimension in recording the survival, success, expansion or extinction of regulatory agencies toward which so much research is directed.

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Table 1: Research on Game Theory, Discretionary Disclosures and Wage Bargaining

Date	Source	Author	Title	Objective of Study	Method	Outcome
1974	J Bus Fin & Acct 1(1): 109-127	Maunder, K T and Foley, B J	Accounting Information, Employees and Collective Bargaining	To examine implications of new statutory disclosures on trade union negotiations in the UK	Used conflict models to examine use of accounting information in collective bargaining	Disclosure requirements will impact differentially on three parties: unions, management and the accounting profession
1981	J Bus Fin & Acct 8(1): 139-146	Pope, P F and Peel, D A	Information Disclosure to Employees and Rational Expectations	To apply a decision-oriented analysis to assess impact of non-disclosure on employee wage bargaining	Mathematical representation of hypothesis of information disclosures, and impact on bargaining power or measurement errors	Only constraint on information disclosures should be processing costs. May be possible to re-specify regression models to represent information sets more accurately.
1983	J Acc & Econ 5: 179-194	Verrechia, R	Discretionary Disclosure	To extend studies of signalling to the withholding of information (not its delay).	Mathematical modelling of the discretionary disclosure equilibrium.	Analysts and the market make inferences from non-disclosure. Equilibrium can be modelled as long as there is a cost associated with the disclosure.
1990	J Acct & Econ 12: 219-243	Darrough, M and Stoughton, N	Financial Disclosure Policy in an Entry Game	To analyse incentives for voluntary disclosures of proprietary information	Uses stylised model of a static entry game	An equilibrium exists for full disclosure if market is optimistic, or entry costs are low. In other scenario, the equilibrium may reflect partial or non-disclosure.
1997	J Bus Fin & Acct 24 (9 & 10): 1421-1431	Frantz, P & Walker, M	Information Disclosure to Employees and Rational Expectations: A game theoretical perspective	Challenged Pope & Peel 1981 that disclosure policy should only be limited by disclosure costs. Examines whether there is a role for this information by capital markets, and whether or not disclosure can have adverse effects	Utilised a rational expectations hypothesis, and the use of game modelling based on incomplete or asymmetric information. Used non-cooperative game theory involving three risk-neutral actors: entrepreneur, unions and investor.	A non-disclosure optimum can exist i.e. it can be optimal for managers to avoid information disclosure. Multi-period modelling useful, as there is a cyclical pattern of forecast/realisation; if information is suppressed in one wage bargaining round, it will subsequently be revealed.
1997	J Bus Fin & Acct 24 (8-9): 1433-1435	Pope, P F and Peel, D A	Information Disclosure to Employees and Rational Expectations: A comment.	To respond to F & W critique (1997)	Short discussion only	<ul style="list-style-type: none"> a) The FW model is constrained by being a single period model, and that it does not allow for the effect of multi-period sequential disclosures, nor for reputational effects. b) The non-disclosure equilibrium might not apply to debt-financing. c) The entrepreneur/employer is not as passive as F & W's model infers.

Table 2 - Lobbying Research

Date	Publication	Author(s)	Title	Objective and Method	Finding/Outcome
1979	Journal of Business 52 (4): 507 - 519	Haring J R	Accounting Rules and 'The Accounting Establishment	Examined lobbying position of CA firms and the relationship between the firm's position and its client preferences; 98 observations on 20 FASB issues	FASB does not appear to be responsive to business interests; client preferences may not be a key factor in CA firm lobbying views
1980	Essays in Honour of T R Johnston Eds.: Emanuel & Stewart	Gibson, R W	The Public Comment Procedures in the Setting of Accounting Standards	To compare constituency responses in different jurisdictions. A comparative study of response levels in United Kingdom, USA, Australia 1973-1978.	Found a higher average level of responses in UK (122) and USA (155) compared with other jurisdictions.
1980	J. Acct., Aud., & Finance 3 (4): 354 - 367	Hussein M E and Ketz J E	Ruling Elites of the FASB: A Study of the Big Eight	Used political science concepts of ruling elite to examine characteristics of Big 8 lobbying and FASB response; analysed 28 issues from FASB statements 2-14	Big 8 does not have absolute control over FASB; FASB appears to be influenced by many centres of power
1981	JAR 19(1): 232-246	Brown, P R	A descriptive analysis of selected input bases of the FASB	To identify FASB alignment with different responder groups. Multi-dimensional scaling analysis of respondents' preferences for 51 policy questions in nine EDs 1973-1978.	FASB appeared to take an outlying position on issues compared with respondents; and FASB decisions have not mirrored preparer or attester preferences.
1981	Mgmt. Acct. 49-53	Nakayama, M, Lilien, S & Benis, M	Due Process and FAS No. 13	Classified 167 industry respondents to FAS 13 including content analysis and effects of proposals. No control group used.	Response rate affected by the perceived interest in or impact of proposals.
1982	Abacus 18: 50-69	Griffin, P A	Foreign Exchange Gains & Losses: Impact on reported earnings	Studied financial reports of respondents and non-respondents and concerns expressed to FASB on SFAS 8, May 1978.	Forex rules have a minor impact on earnings. Limited evidence that FASB respondents exhibited greater earnings volatility than non-respondents.
1982	JBFA 9(2): 255-265	Dhaliwal, D	Some Economic Determinants of Management Lobbying for Alternative Methods of Accounting: Evidence from the Accounting for Interest Costs Issue.	Part of study was to identify economic determinants to lobbying behaviour. Examined submissions on the FASB DM on SFAS 34 by 44 entities.	Capital structure of a firm may influence lobbying position, as well as firm size, debt/equity ratio, and management compensation plans.

1985	Australia	Coombes R J and Stokes D J	Standard Setters' Responsiveness to Submissions on Exposure Drafts: Australian Evidence	Submission analysis of 20 issues from 7 promulgations between AAS 10–18 to examine alignment and dissonance of 6 responder groups relative to AARF 1979 - 1985	AARF demonstrated responsiveness to submissions; no one responder group more highly aligned; may be affected by observations being during period which led to the emergence of the ASRB
1985	Journal of Accounting Research. 23(2): 619-632.	Kelly, L	Corporate Management Lobbying on FAS No. 8: Some Further Evidence.	Compared firm characteristics of 55 lobbying and 140 non-lobbying corporates for SFAS 8, December 1974.	Lobbyists had lower management ownership %; no significant relationship between income effects, leverage and lobbying.
1986	Accounting Review. 61(1): 76-90.	King, R D. & O'Keefe, T B	Lobbying Activities and Insider Trading.	SFAS 19: Studied submission content and insider trading positions of 17 firms around exposure draft release date; compared with non-lobbyists.	Lobbying activities were correlated with wealth impacts; trading activities paralleled lobbying position.
1987	Journal of Accounting & Public Policy. 6(1): 35-57.	Francis, J R	Lobbying Against Proposed Accounting Standards: The Case of Employers' Pension Accounting.	Statistical analysis of lobbying activities; sampled 218 lobbying firms and 582 non-lobbying firms.	Lobbying is size-related for cost-benefit reasons. Adverse financial statement effects are cross-sectionally independent of firm size
1989	Accounting Review. 64(1): 137-151.	Deakin, E B	Rational Economic Behavior and Lobbying on Accounting Issues: Evidence from the Oil and Gas Industry.	Studied characteristics of 27 lobbying Corporates and 67 Non-lobbyists on SFAS 19 in 1977.	Developed a predictive model for likelihood of lobbying behaviour based on firm characteristics.
1989	Due Process and Participation at the FASB-A Study of the Comment Period.	Mezias, S J & Chung S		Analysis of comment letters on 30 SFAS's by content and sources; United States 1973 – 1987	All constituency groups tended to oppose, rather than support, alternatives. Impact inconclusive.
1991	Accounting Horizons. 5(1): 29-41.	Gorton, D E	The SEC Decision Not to Support SFAS 19: A Case Study of the Effect of Lobbying on Standard Setting.	To assess impact of lobbying on SEC's decision on oil and gas company reporting by analysis of written comments, and oral interviews with key participants	SEC public hearing on Dec 1977 was not only a response to lobbying; also needed to reduce industry in-fighting and public session extended scope of leadership and authority of SEC
1991.	Journal of Applied Business Research. 7(4): 67-70.	Buckmaster, D Durkee, D & Stiner, F M	A Note on the Reliability of Accounting Lobbying Studies.	To examine inter-rater reliability in content analysis	Studied 4 raters undertaking content analysis on 8 issues Extreme caution should be exercised in making inferences from content-analysis

1992	Acct. Horizons 6(2): 47-58	Tandy, P R & Wilburn, N L	Constituent Participation in Standard-Setting: The FASB's First 100 Statements	Analysis of levels of response, constituent groups, types of standards over 1973 – 1988; 100 FASB statements.	Type of standard affected response level. Participation increased after EITF established.
1992	Pacific Accounting Review 4 (1): 97–114.	Keenan, M	Interest Group Lobbying on Accounting Standards: Some international evidence for a unifying hypothesis.	To propose a unifying hypothesis for the explanation of interest group lobbying; derived hypothetical lobbying positions for audit firms and property investment company lobbying; tested against actual submissions	The standard observance cost reduction hypothesis was largely supported by this analysis
1993	Journal of Accounting, Auditing & Finance. 8(3): 277-287.	Ndubizu, G A. Choi, Y C & Jain, R	Corporate lobbying strategy and pension accounting deliberations: An empirical analysis.	To study lobbying on FAS 87. Matched sample of lobbying/non-lobbying firms.	Indicated that lobbying is motivated by cost-benefit factors, and affected by expected financial statement effect.
1995	Accounting Horizons. 9(1):27-41	Schalow, C M	Participation choice: The exposure draft for post retirement benefits other than pensions.	To examine motivation behind participation in due process on SFAS 106. Analysed firm size, impact of proposals, and submissions.	Participation in due process driven by size, impact and disagreement with proposals. Leverage not found significant.
1995	Journal of Accounting, Auditing & Finance. 10:555-564	Saemann, G R	The Accounting Standard-Setting Due Process, Corporate Consensus and FASB Responsiveness: Employers' Accounting for Pensions	Random sample of 80 corporate respondents to FAS 87 (159 filed letters) and analysis of lobbying position.	FASB is influenced by magnitude of corporate opposition; FASB made to alignment changes, but the shifts towards consensus may have multiple causes.
1996	Accounting Horizons 10(3): 92 - 111	Tandy P R & Wilburn, N L	The Academic Community's participation in Standard-Setting	Study of respondents over 1973 – 1992 from SFAS 1 – 117 comment letters. Survey of academics (151 participants) and a matched non-participant group.	Identified motivational and cost benefit issues which affected academic participation in due process. Response rate has been stable but low (3.7% of ED comments).
1996	Accounting Horizons. 10(2): 149-179	Johnson L T & Swieringa R J	Anatomy of an Agenda Decision: Statement No. 115.	To describe the processes and events leading to FASB decisions on SFAS 115, 1990 – 1995.	Board was under pressure to undertake project, and it altered the FASB's approach to other agenda issues.
1997	Research in Accounting Regulation 11: 125-144	Saemann, G	Comment letters as indicators of overall corporate manager preferences: employers' accounting for pensions	To determine if comment letters were representative of corporate sector, and to examine firm characteristics of lobbying entities. Examined firm size, pension plan size and status of 107 entities; 32% filed letters to FASB.	Comment letters do not necessarily focus on the most widely opposed issues. Larger companies tend to be active lobbyists, and have different accounting preferences to smaller entities.

1998	Abacus, Sept 34 (2): 141-161	Mozes, H A	The FASB's Conceptual Framework and Political Support: The Lesson from Employee stock options	To provide analysis of accounting for SOs; to examine support provided by the CF. Discussion of FAS 123 and role of the Conceptual Framework.	Advocated that two reasons why the CF couldn't give the required authority to SO project: alternative models possible, and CF does not emphasise relevance more than reliability
1999	Abacus, Feb 35 (1): 1-28	Saemann, G	An examination of comment letters filed in US Financial Accounting Standard-Setting Process by Institutional Interest Groups	To examine views of four influential lobbying groups in submission letters on twenty FASs.	FASB decisions aligned most closely with user and CA groups. User groups tended to oppose any requirements associated with an increase in volatility.