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Discussion of

“Are Voluntary Disclosures that Disavow the Reliability of Mandated Fair Value Information Informative or Opportunistic?”

Blacconiere, Frederickson, Johnson, and Lewis identify an interesting disclosure and add to our understanding of firm disclosure of option expense. The disclosure is more nuanced than is suggested by the term disavowal. Some disclosures are weak, almost tautological “not necessarily ... reliable” statements, whereas others are straightforward statements about the “subjective nature” of the inputs to the option valuation model. The “not necessarily ... reliable” language largely disappears after SFAS 123R, while stronger language persists. A striking finding in BFJL is lack of opportunism in disavowals, but I suggest that it is preliminary to conclude that there is no opportunism.

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NOTE TO ELSEVIER EDITOR: PLEASE NOTE PAGE REFERENCES TO BLACCONIERE, ET AL IN THE TEXT, AND PLEASE CHANGE THEM TO REFLECT JOURNAL PAGE NUMBERS.

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1. Introduction

In an interesting paper, Blacconiere, Frederickson, Johnson, and Lewis (BFJL, 2011) study voluntary firm disclosures that “disavow” the reliability of estimates of option expense. As they define it, a disavowal is a disclosure that questions the reliability of the option expense estimate. As an example, BFJL provide a disavowal disclosure from Intel’s 2001 annual report in which Intel concludes that option pricing models “do not necessarily provide a reliable single measure of the fair value of employee stock options.” Much prior research shows that managers manipulate option values disclosed in proxy statements (Murphy, 1996; Yermack, 1998; Baker, 1999), and manipulate option expense disclosed in 10-K footnotes (Aboody et al. 2006; Hodder et al. 2006; Bartov et al. 2007). Given this evidence that managers manipulate numeric option expense estimates, it is interesting to consider whether managers use verbal reliability disavowals opportunistically to mitigate shareholder perceptions of option compensation. I compliment the authors for identifying a new and interesting angle that extends our knowledge of the highly-researched SFAS 123 setting. More important, this study adds to recent research such as Li (2010) that considers managers’ joint choice of numeric and written disclosure. The BFJL study suggests the importance of considering how managers jointly choose their disclosure strategies for numeric and written disclosures.

Although BFJL have some interesting findings of a positive correlation between lobbying against SFAS 123 and disavowing, the main thrust of BFJL is to examine whether disavowals are opportunistic or informative disclosures. To do this, they use properties of managers’ volatility estimates as proxies for the reliability of the option value estimate, and conduct three tests. The first test examines whether disavowals are positively associated with proxies for opportunism and/or ex ante proxies for difficulty in forecasting volatility. In the second test, they

examine volatility forecast bias for disavowal firms. Biased volatility forecasts suggest opportunism, and therefore opportunistic disavowals. Similar to the first set of tests, the third set of tests correlates disavowals with difficulty in forecasting volatility. If disavowals are informative, firms with disavowals should exhibit greater forecast difficulty. Overall, the results of the tests are consistent with disavowals being informative, and BFJL find little evidence consistent with opportunism.

In the remainder of my discussion, I concentrate on three aspects of BFJL that I find intriguing. First, the disavowal disclosure itself is interesting. One approach to understanding verbal disclosure is to take big sweeps through annual report texts and to computer-code patterns in the language into summary measures (e.g., Core, 2001; Li, 2011). This approach likely misses texture that can be gained through a “close reading,” as in BFJL’s examination of the stock option footnote and their discovery of the disavowal disclosure. In the next section, I take a close look at the disavowal disclosure language, and suggest that the disclosure is not a model of transparency. The phrasing “not necessarily ... reliable” appears common to most of the disavowals, and while it does raise a question about reliability, it is a weak question. Similar to saying “may not be reliable,” saying “not necessarily reliable” instead of “not reliable” converts a strong claim to a claim that is always true. Given the weakness of the question about reliability, it is perhaps surprising that more companies do not raise the question – only about 12% of BFJL’s sample disavow. Related to this, it seems puzzling that the disavowals in BFJL seem largely to stop with the adoption of SFAS 123R, and I examine this in Section 3. Here I find that “not necessarily ... reliable” does seem to vanish, but other phrasing suggesting lack of reliability, including stronger phrasing such as “highly subjective assumptions,” persists.

Finally, most puzzling is the lack of findings on opportunism, and I examine this in Section 4. Ex ante, it seems plausible that managers have incentives to manage option expense downward: managers bear costs if shareholders and outsiders perceive their pay to be excessive, higher option expense suggests lower profitability, and unlike most other accruals, if option estimates are downward-biased, they will not be adjusted upward in a subsequent period (Aboody et al., 2006). BJFL's findings seem especially puzzling given that the disavowal disclosure in many cases seems non-transparent and not particularly informative. As BFJL suggest, part of the reason for the lack of findings on opportunism may be that the volatility estimate is a weak proxy for manipulation of option value.¹ However, as I discuss below, I suspect that the lack of findings on opportunism ~~may~~ also relates to how opportunistic managers play the expanded {bias or not, disavow or not} strategy. I conjecture that if managers have biased an option estimate, they will not also disavow (in part to avoid calling attention to the bias). Conversely, if managers have disavowed, they will not also bias (again, to avoid calling attention to the bias). If this conjecture is correct, there will a negative correlation between opportunism in disavowals and opportunism in option estimates, and as I illustrate in Section 4, BFJL's tests will not find evidence of opportunism in disavowals, even when opportunism exists.²

2. The disavowal disclosure

Consider the disavowal disclosure from Intel's 2001 annual report that BFJL report at the start of their paper. The disclosure consists of three sentences, which I paraphrase as follows:

¹ There are a number of observable ex ante and ex post benchmark volatility benchmarks, and these benchmarks likely constrain managers' ability to manipulate volatility estimates. Evidence in Aboody et al (2006) is consistent with this conjecture.

² BFJL conduct their tests under an alternative assumption that when managers disavow, they will also bias, and if managers play this strategy, BFJL's tests can detect opportunism.

1. The Black-Scholes model was developed for estimating the fair value of traded options, not employee options.
2. It requires highly subjective assumptions.
3. It does not necessarily provide a reliable single measure of the fair value of employee stock options.

If accounting information is reliable, it is “reasonably free from error and bias and faithfully represents what it purports to represent” (FASB Concepts Statement 2, p. 6). Another way of saying this is that information is reliable if it is representationally faithful and verifiable. The first sentence of Intel’s disavowal disclosure states that the Black-Scholes model was developed for traded options, not employee options, and this statement is re-emphasized in the third sentence. With these statements, Intel seems to saying that the Black-Scholes model is not a representationally faithful model of employee option expense. The second sentence notes that option valuation models require the use of highly subjective assumptions. Subjective here is in contrast to the objective input needed for a calculation to be verifiable. “Objective accounting information is free of measurer bias” (Storey and Storey, 1998, p. 111). If an input is subjective, it is not objective, and therefore not verifiable and not reliable. Thus, the first sentence questions representational faithfulness, the second sentence questions verifiability, and the third sentence concludes that in the absence of these characteristics of reliability, options pricing models are not necessarily reliable. Accordingly, the three sentences seem to make the following three points:

1. Employee option valuation models are not representationally faithful.
2. The required inputs are subjective, and therefore not verifiable.
3. Conclusion: Employee option valuation models are not necessarily reliable.

It is important to note that Intel's disclosure, and many others like it that often appear in financial reports, is not a model of transparency. The concluding phrase "not necessarily ... reliable" roughly means "may not be reliable," and is a much weaker and more indirect statement than "not reliable." It is not plain English. Similar to adding "may not be," adding "not necessarily" to a statement converts the claim to something that is always true, but is a very weak claim. The use of indirect, weak language such as "not necessarily" and "may not be" is common to many financial disclosures such as disclosures of risk factors, use of estimates, and future results, and SOC expense disavowals are not unique in this regard. However, the word "disavowal" seems too strong a description for the weak statement "not necessarily ... reliable." A better term might be "question" (as BFJL use in defining a disavowal as a disclosure that "explicitly questions the reliability of the SOC estimate", p. 8).

The most straightforward statement is: "require the use of highly subjective assumptions." This statement seems a straightforward warning to the reader that the option estimates are not verifiable. However, in Intel's disclosure, and in many other disavowal disclosures, this transparent statement is then followed by a half-truth. Management singles out volatility as an example of a subjective assumption, and no doubt there is more subjectivity in selecting a volatility parameter than there is in selecting the risk-free rate or the expected dividend. However, as BFJL rely upon in their empirical work, there are a variety of observable ex ante and ex post measures of volatility that outsiders can use to benchmark management's volatility estimate. In contrast, estimating the expected life of the options seems more subjective, in part because outsiders have little ability to benchmark it (there are no market proxies for expected life comparable to implied volatility for expected volatility), and in part because

forecasting volatility is a more studied and more tractable problem than forecasting option life. If a firm wanted to single out a subjective parameter, it would be option life, not volatility.

On the other hand, it is important to note that there are limits to managers' subjectivity. While managers must estimate volatility and expected life, they must use a methodology that is applied consistently each period. Both SFAS 123 and 123R describe various methodologies management can apply. For example, management might use implied volatility based on traded options to estimate volatility. The auditors, and audit committee, will make sure management's approach is applied consistently each fiscal period. Management cannot not simply pull these estimates out of thin air. Once management has chosen a method, the auditors will insure that the same approach is applied consistently over time.

3. What happened to disavowals after 123R implementation?

The discussion in section 2 suggests that at least three types of language are associated with disavowal disclosures: (1) a suggestion that the option pricing model is not representationally faithful; (2) a statement about the "subjective" nature of the inputs to the option valuation model; (3) and concluding language that suggests the expense is "not necessarily ... reliable." In this section, I attempt to shed light on the evolution of the disclosures.

I conduct searches for this language across all 10-K's in the WRDS SEC access platform.³ To generate a sample with restrictions similar to BFJL, I restrict my sample to (1) firms on Execucomp; (2) firms with CEO tenure and total pay; (3) firms that made option grants to one or more executives in a fiscal year; (4) firms for which at least 12 months of trading data is available on CRSP; and (5) firms with non-missing Compustat data on the identity of the

³ The advantage of the WRDS SEC access platform is that it generates a SAS dataset with 10-K dates and firm IDs; a disadvantage is that the searches take several days to run. I thank Rabih Moussawi for his excellent help with SAS programs and with other issues in accessing the WRDS SEC access platform.

firms' auditors. The second column of Table 1 shows that this procedure generates a sample of 1,384 observations in 2001 as compared to 1,341 in BFJL. This difference in sample size may occur because of additional sample restrictions in BFJL. BFJL use ~~a constant~~ a sample selected starting in 2001, and the ~~sample size is design results in~~ decreases in observations over time as firms drop because acquisition or distress. I do not impose this selection, and my sample increases in numbers from 2001 to 2003, but then decreases over time as fewer firms use options.

The third column of Table 1 shows the results of a search on the phrase “not necessarily provide a reliable single measure.” BFJL classify a firm-year as “having a disavowal if the firm includes a statement in that year’s SOC footnote that explicitly questions the reliability of the SOC estimate or the resulting pro forma income” (p. 8). This seems to indicate that their search concentrates on the third sentence of the Intel example above that includes the word “reliable.” My single search term “not necessarily provide a reliable single measure” produces percentages comparable to BFJL. For example, I find 12.2% (6.4%) reliability questions in 2001 (2005) as compared to 14.6% (8.4%) in BFJL. This suggests that most of the disavowals in BFJL’s sample contain the “not necessarily ... reliable” language.

The fourth column of the table reports results for a search that looks for the words “traded options” within 10 words of the words “no vesting restrictions.” This search returns option disclosures that suggest that employee option valuation models are not representationally faithful. The fifth column of the table reports results for a search that looks for the stem “subjective” within 20 words of the stem “option.” This search returns option disclosures that emphasize the non-verifiability of option inputs using references to “subjective assumptions,” “highly subjective assumptions,” “subjective inputs,” etc.⁴ The more straightforward “traded

⁴ These search terms also yields some inappropriate results, such as “options awarded subjectively,” and I inspect for and remove these by hand.

options...no vesting restrictions” and the stronger “subjective” language is about as frequent ~~than~~ as the “not necessarily ... reliable” language from 1996 to 2005. For example, I find 12.0% (9.9%) uses of the subjective language in 2001 (2005). The final column shows the percentage of firms that use at least one of the types of language associated with the disavowal disclosure. Interestingly, while the “not necessarily ... reliable” language essentially disappears after 123R, ~~consistent with BFJL’s findings,~~ dropping to less than 1% of the sample in 2009, which is consistent with BFJL’s findings. In contrast, but the other two types of language continues, although ~~less frequent~~ also at a decreasing rate: the percentage of firms using one or more types of disavowal language ~~dis~~ rops to about 89.49% in 2009.⁵

In summary, consistent with BFJL, the concluding language “not necessarily ... reliable” does seem to vanish, but other types of disavowal language persists, including stronger phrasing such as “highly subjective assumptions.”

4. Little evidence of opportunism?

It seems well established that some managers manipulate disclosure in general, and that some managers manipulate option disclosures in particular. Much prior literature predicts and finds that there is a positive association between opportunism and bias in reported option estimates. So, as noted above, it seems puzzling that BFJL find little evidence of opportunism in disavowal disclosures.

In this section, I illustrate that the unique nature of the option expense and disavowal disclosure strategy may make it difficult to find evidence of opportunism even if opportunism is

⁵ In untabulated results, I find that, as in BFJL, Ernst and Young (E&Y) clients use the disavowal language quite differently than do the clients of other audit firms. 28.7% (4.6%) of E&Y (non- E&Y) clients use the language “not necessarily ... reliable” in the 1996 to 2005 pre-123R period, and this percentage drops to 2.3% (0.8%) post-123R. For E&Y clients, there is a significant decrease post 123R in the percentage of firms that use one or more types of disavowal language (from 35.0% to 12.0%), while the clients of other auditors show an increase (from 7.4% to 9.1%).

present. To do this, I construct the example summarized in Table 2. The example assumes that: (1) managers wish to minimize the personal costs of option disclosure; (2) half of the managers are informative, and the other half are opportunistic (as shown in Column 2); (3) 10% of the managers make disavowals (roughly consistent with about 12% of BFJL's sample making disavowals); (4) half of the disavowals are made by informative managers, and the other half are made by opportunistic managers; and (5) the percentage of firms (10%) with reliability concern~~difficulties~~ (shown in Column 3) is equal to the percentage of managers who make disavowals (10%).

The prior literature considers two strategies: the manager can report truthfully or bias their reported option expense. The possibility of a disavowal adds a new dimension to these strategies – in addition, the manager can choose whether to disavow or not. For a manager who wishes to be informative, the additional possibility of disavowing does not expand his strategy set – his goal is to maximize the informativeness of the option disclosure, and he will report option parameters truthfully. This strategy is shown in the two first rows of the table. If the informative manager sees no reliability difficulty (Column 3), he does not disavow (strategy 1A). If he sees a reliability difficulty, he disavows (strategy 1B). For a manager who is opportunistic, however, the availability of the disavowal expands the strategy set to ~~become~~–{bias or not, disavow or not}. An opportunistic manager's broad goal is to minimize shareholder perceptions of option expense, and he will choose the pair {bias or not, disavow or not} that minimizes shareholder perceptions. He may accomplish this by biasing option parameters and/or by convincing shareholders to give the expense less weight because it is not reliable. For an opportunistic manager, then, there are three strategies. First, he can bias disclosure and disavow

(strategy 2). Second, he can bias disclosure and not disavow (strategy 3). Third and finally, he can choose not to bias disclosure but to disavow (strategy 4).

With the set-up in the first five columns in the Table, consider a traditional experimental design such as Aboody et al. (2006) that examines the association between opportunism and bias in option parameters. Essentially, this is a regression of Bias (Column 5) on Manager Type (Column 1). So long as some of the opportunistic managers bias option estimates (i.e., they do not all play strategy 4), it is easy to see that there is a positive association between opportunism and bias.

When the opportunism choice is two-dimensional, {bias or not, disavow or not}, whether one can find an association between opportunism and disavowals depends on what strategies the opportunistic managers choose. Given the assumptions above, it is easy to see that 45% of managers will be informative and make no disavowal (strategy 1A), and that 5% of managers will be informative and make a disavowal (strategy 1B). It is more difficult to ~~think~~ through identify what strategies the opportunistic managers will play. BFJL make the following assumption about opportunistic managers' choices:

We assume that a firm's various SOC disclosures reflect the same managerial motives. Accordingly, if disavowals are opportunistic, disavowal managers' volatility estimates also reflect opportunism and thus are downward biased. (p. 3)

This means that if a manager is disavowing opportunistically (that is, claims reliability difficulty where there is no difficulty), BFJL assume that the managers will also bias option estimates, that is, play strategy 2. Under the assumption that 5% of the opportunistic managers disavow, 5% of managers play strategy 2 (as shown in Column 7). The BFJL assumption further suggests that no managers will play strategy 4, and the remaining 45% will play strategy 3.⁶ If managers are

⁶ Note that strategy 3 is in fact opportunistic – the manager knows that his option estimate is unreliable (since he biased it), so the lack of a disavowal is opportunistic.

distributed as shown in Column (7), BFJL's tests, in particular the tests in Table 4, will find opportunism. BFJL's test in Table 4 amounts to testing whether Bias (column 5) is non-zero for the disavowal firms (strategies 1B and 2). Since half of the disavowal managers are opportunistic, and are biasing their option estimates, this test will detect opportunism. So if in fact managers who used disavowals opportunistically also biased their option expense estimates, the BFJL tests would find opportunism.

Is the assumption that opportunistic managers pair opportunistic disavowals with biased estimates the only plausible strategy? If a manager biases an estimate and then also disavows that estimate, is his disavowal opportunistic? In other words, when the manager disavows after biasing an estimate, his disavowal is informative (not opportunistic) in that the estimate is in fact unreliable because the manager has biased it. Disavowing following a biased estimate seems also a questionable strategy because the disavowal is an unusual disclosure, and may have the effect of calling attention to the bias. On the other hand, the disavowal may provide cover if the estimate is later discovered to be biased.

Strategy 4 also seems ~~also~~ to be a plausible place to locate the 5% opportunistic disavowals – see Column (8). The disavowal is in fact opportunistic (the manager is saying something is unreliable when in fact it is not). Also, the manager is not calling attention to himself by in addition biasing the disclosure.

Suppose that instead of Strategy 2 managers play Strategy 4 as shown in Column 8. With this change, none of the BFJL tests will detect opportunism. This is easy to see for BFJL's test in Table 4, which tests whether Bias (column 5) is non-zero for the disavowal firms (strategies 1B and 4). Here, by assumption, half of the disavowal managers are opportunistic, and are using disavowals in an opportunistic manner, but they are unbiased. ~~So~~ So this test does not detect

opportunism. Now consider a univariate version of the test in BFJL's Table 3 that correlates the choice to disavow with proxies for opportunism. This is a regression of Disavow (Column 6) on Manager Type (Column 1). By the assumptions in the table, the same proportion, 5%/50%, of both the informative and opportunistic managers disavow, so there is no association between opportunism and disavowals. But the test in BFJL's Table 3 is multivariate, and also contains proxies for when option estimates are likely to be less reliable. Essentially, this test is a regression of Disavow (column 6) on Manager Type (column 1) and on Reliability Difficulty (Column 3). In my example, however, the same proportion, 5%/50%, of both the informative and opportunistic managers disavow have Reliability Difficulty, so Reliability Difficulty is uncorrelated with Opportunism. ~~That means that~~Hence, including a control for Reliability Difficulty in the regression does not change the zero coefficient on opportunism, and the Table 3 tests in this example will therefore not detect opportunism.

It is useful to consider whether one could design a test to detect opportunism if the opportunistic disavowers claimed reliability difficulty when there is none (strategy 4). In this case, if one considered disavowers only, there should be a predictable relation between a proxy for opportunism and a proxy for "bias in disavowal." For example, the unsigned forecast errors in BFJL Table 5 panel C could be used as a proxy for "bias in disavowal." If these forecast errors were small, this would suggest a disavowal when there was no reliability difficulty. However, the test may be weak because it would be conducted on the disavowers only, and the proxies for opportunism and for bias in disavowal may be noisy. In addition, if some managers played strategy 2 while others played strategy 4, both this test and BFJL's tests in Table 4 could be weak.

In conclusion, BFJL's inference that disavowals are not opportunistic relies on their assumption that if opportunistic managers disavow, they bias option estimates as well. I suggest an alternative assumption that also seems plausible. Under this assumption, I construct an example that shows many managers are opportunistic, and opportunistic managers use disavowals in an opportunistic manner, but the BFJL tests will not detect opportunism. The sensitivity of inference highlights the difficulties researchers face once they examine managers with more than one dimension to their disclosure strategies: To develop powerful tests, researchers need to ~~anticipate exactly~~ specify the full set of ~~which~~ strategies that managers can play and to recognize that these tests are in fact testing joint hypotheses.

5. Conclusion

BFJL identify a very interesting disclosure and add to our understanding of firm disclosure of option expense. In this discussion, I suggest that the disclosure is more nuanced than is suggested by the term disavowal. Some of the disclosures are the weak, almost tautological “not necessarily ... reliable” whereas others are more straightforward statements about the “subjective nature” of the inputs to the option valuation model. Consistent with findings in BFJL, the “not necessarily ... reliable” language largely disappears after SFAS 123R, while other, stronger language persists. One of the most striking findings in BFJL is lack of opportunism in disavowals, but I suggest that it is preliminary to conclude that there is no opportunism.

Even if we knew that the disavowals were non-opportunistic, and even if the disclosures themselves were completely straightforward and transparent, it is not clear how useful they are to readers of financial statements. A straightforward statement that option expense is reliable or is not reliable gives the reader some qualitative sense about whether measurement error in the expense is relatively low or high. ~~But~~ where is the line drawn between low and high error? ~~and~~

Why not ~~could we not have~~ degrees of reliability rather than a ~~bifurcation~~ high/low split? Instead of a reliability assessment, it seems that perhaps a more useful disclosure would be more detail on how the estimates were constructed. In other words, instead of saying whether the estimate is subjective (verifiable) or not, why not create more verifiability by detailing how the estimate was computed? For example, in its 2007 stock option footnote, Intel gives the following detail on its volatility estimate: “We use implied volatility based on freely traded options in the open market, as we believe implied volatility is more reflective of market conditions and a better indicator of expected volatility than historical volatility.” On the other hand, in the same footnote, Intel, a large, sophisticated and long-time user of stock options, claims not to know how to estimate the expected life of its options: “Due to significant differences in the vesting terms and contractual life of current option grants compared to the majority of our historical grants, management does not believe that our historical share option exercise data provides us with sufficient evidence to estimate expected term.” So for those like BFJL who are willing to dig into the verbiage of option disclosures, there seem to be continuing opportunities for examining and understanding what managers are saying about the precision of their disclosures and for further understanding managers’ disclosure motives.

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Table 1**Evolution of language “Not necessarily ... reliable,” “traded options ... no vesting restrictions,” “subjective” in firms’ stock option disclosures**

Table summarizes searches of a sample of 10-Ks from the WRDS SEC access platform. Sample is firms on Execucomp that have CEO tenure and total pay, made option grants to one or more executives in a fiscal year, had at least 12 months of trading data is available on CRSP, and had non-missing Compustat data on the identity of the firms’ auditors. The third, fourth, and fifth columns shows the percentage of the sample with language “not necessarily provide a reliable single measure,” “traded options” w/10 words of “no vesting restrictions,” and with the stem “subjective” w/20 words of “option.” “One or more” indicates the use of one more types of disavowal language.

Year	N	Not necessarily ... reliable	Traded options ... no vesting restrictions	Subjective	One or more
1996	1,140	7.5%	8.3%	8.4%	9.6%
1997	1,243	12.6%	12.8%	13.4%	15.4%
1998	1,360	11.3%	11.5%	11.9%	14.1%
1999	1,354	11.6%	10.3%	11.4%	13.7%
2000	1,351	12.3%	10.6%	11.9%	14.1%
2001	1,384	12.2%	10.6%	12.0%	14.7%
2002	1,405	11.3%	10.7%	12.3%	15.4%
2003	1,410	11.1%	11.1%	12.7%	16.2%
2004	1,339	10.3%	11.3%	12.3%	16.3%
2005	1,290	6.4%	9.1%	9.9%	13.6%
2006	1,205	1.7%	5.5%	7.2%	11.0%
2007	1,226	1.2%	4.6%	7.1%	10.4%
2008	1,200	1.1%	5.0%	6.7%	9.9%
2009	1,115	0.6%	4.1%	5.6%	8.4%
Periods:					
Pre-123R 1996-2005	13,276	10.7%	10.7%	11.7%	14.3%
Post-123R 2006-2009	4,746	1.2%*	4.8%*	6.7%*	9.9%*

* Indicates language percentage is significantly lower in years after 123R than before.

Table 2

Example: Distribution of informative and opportunistic managers and summary of disclosure strategies

						Fraction of Managers Playing Strategy	
(1) Manager Type	(2) Fraction of Managers	(3) Reliability Difficulty?	(4) Strategy	(5) Bias Option Expense?	(6) Disavow?	(7) BFJL Assumption	(8) Alternative Assumption
Informative	50%	0%	1A	No	No	45%	45%
Informative		5%	1B	No	Yes	5%	5%
Opportunistic	50%	0%	2	Yes	Yes	5%	0%
Opportunistic		5%	3	Yes	No	45%	45%
Opportunistic		0%	4	No	Yes	0%	5%