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A Theoretical Examination of the Market Reaction to Auditors' Qualifications

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1. *Introduction*

In this paper we establish conditions under which audit qualifications arise in equilibrium and study the relation between litigation exposure and audit-qualifications.[1] We also use our model of audit qualification to re-examine the documented market's reaction to a qualified opinion and the appropriate empirical specification to test for such a reaction.[2]

We distinguish between qualified audit opinions that are ex post *avoidable* and ex post *unavoidable.* The former arises from a disagreement with an auditor that can be resolved by making a reporting change. Examples include qualifications for asset realization, timing of revenue recognition, amount of reserves for future losses, and *GAAP* compliance. In contrast, to escape an ex post unavoidable qualification, a manager would have had to engage in an economic transaction *before* the proposed auditor's report is discussed. Ex post unavoidable qualifications

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[1] We use the phrase "qualified opinion" to represent any nonstandard ("nonclean") opinion. Under the current format of audit opinion (*SAS No. 58*), there is a distinction between a modified opinion (which includes the old *subject to* qualification) and a qualified opinion. We do not distinguish between the two.

[2] This research has documented, in general, a weak negative reaction to the issuance of qualified audit opinions (see, e.g., Chow and Rice [1982*a*], Elliott [1982], and Dodd et al. [1984]). An exception is Dopuch, Holthausen, and Leftwich [1986] who documented a significant negative reaction to media disclosure of *subject to* qualifications.

include those for future financing, going-concern, and unquantifiable uncertainties.[3] For the remainder of the paper, we suppress the label ex post.

While one would expect a negative market reaction to unavoidable qualifications, this is not the case for avoidable qualifications. A rational manager will accept a qualified opinion *only* if he finds this option more attractive than changing the report. Thus, the market reaction to avoidable audit qualifications is not immediately clear.

In this paper, we focus on avoidable qualifications. We present and analyze an equilibrium model in which a manager rationally accepts a qualified audit report because doing so enables him to convey credibly favorable private information that will increase the market value of the firm. As is clear from the signaling literature, for a signal to be informative it should be differentially costly across firm types. Indeed, the decision to accept a qualified opinion could very well result in negative consequences for the manager and the firm. If investors later sue the firm and/or its manager for financial misrepresentation, the presence of a qualified opinion could put the manager in a weaker position (relative to a case where he had revised his report to address the auditor's concerns). The benefit from accepting a qualified opinion is that the resulting firm valuation and the manager's payoff are higher than they would have been had the manager changed his report to avoid a qualification.

In Proposition 1, we show there exist equilibria where the possibility of qualified opinions allows separation between firms with favorable and unfavorable private information. Based on this model, we revisit the empirical literature which documents the market reaction to qualified audit opinions. In Propositions 2 and 3, we show that the market reaction to an avoidable qualified opinion can be either positive or negative, weak or strong, depending on the prevailing equilibrium. Thus, the documented weak negative market reaction could be a consequence of the prevailing equilibrium, rather than a consequence of research design (see Dodd et al. [1984]).

In recent past, there has been frequent discussion and debate regarding the appropriate level of damage awards in cases of disclosure-related litigation. Naturally, the litigation exposure a manager faces influences his decision to accept a qualified opinion. In Proposition 4, we consider how changes in damages affect the overall incidence of audit qualifica-

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[3] Consider the case of future financing. It might be argued that, had the manager tried "harder" to secure financing, he might have been successful, and the issue of audit qualification would not have arisen. However, by the time the auditor presents his audit findings, a manager is unlikely to be able to arrange new financing. It is also clear that the manager cannot avoid the qualification by changing his proposed report. For these reasons we refer to such a qualification as "ex post unavoidable." In practice, however, the nature of certain qualifications is ambiguous; classifying them requires a case-by-case analysis.

tions. We find that in any equilibrium involving at least some separation between types, increasing damages increases the inclination of managers with favorable private information to accept a qualified opinion.

For the most part, auditing research has ignored the sequential nature of the audit relationship. Decision-theoretic models of auditing (e.g., Kinney [1975]) study the auditor's accept–reject decision treating the client as a nonstrategic player.[4] Another part of the literature involves signaling models in which a mechanistic auditor provides information about a client (see, e.g., Titman and Trueman [1986] and Datar, Feltham, and Hughes [1991]). These models do not consider the interaction between the firm and its auditor. A third strand is the strategic auditing literature in which a utility-maximizing auditor takes into account an auditee's action choices when making an accept–reject decision (examples include Fellingham and Newman [1985], Melumad and Thoman [1990], and Shibano [1990]). However, in the strategic auditing literature, a manager cannot avoid a qualification by agreeing to change his report (action). In these models, the auditor's report cannot be used as a signaling device, because the models assume that an auditor's objection is always communicated to the market. As a practical matter, however, management may often have an opportunity to revise its financial statements in response to an auditor's objection.

In contrast to this earlier literature, the manager in our model responds strategically to a proposed qualification either by accepting the qualification, or changing his report and thereby avoiding the qualification. The auditor privately conveys to the manager his disagreement with the manager's proposed report, and a qualification is issued only if the manager refuses to change his report.

Our study is related to Antle and Nalebuff's [1991] negotiation model, in which a client–auditor disagreement results in an extended audit that fully reveals the firm's correct financial position. Their model does not allow, however, for the possibility of sustained disagreement in the form of a qualified opinion.

Our study is also related to Teoh's [1988; 1992] research on auditor switches. In addition to the different issues studied, there are three modeling differences which distinguish our research. First, in Teoh's model, an auditor switch might affect future financial statements, but not this period's statements. In our model, the manager's response to a proposed qualified opinion affects the current period's report. Second, in Teoh's model, a qualified audit opinion is always bad news, because it is issued whenever the auditor's findings are below a certain threshold level; the firm *cannot* avoid this qualification. A key ingredient in our model is the

[4] Kinney discusses possible "client adjustments" but never incorporates them into his model.

avoidability of a qualified opinion. Third, in Teoh's model (as well as in other strategic auditing models), a qualified opinion imposes an exogenous cost. In our model, the cost (or benefit) of qualification is endogenous, based on the prevailing equilibrium market valuation and expected damages (conditional on the qualified opinion).

Section 2 introduces the model. Section 3 provides an analysis of the market reaction to a qualified audit opinion and the effects of changes in managers' damages. Section 4 concludes the paper.

2. *The Model*

We consider a stylized two-period model where a firm owns an asset whose value at the end of the second period can be either high (H) or low (L). Without loss of generality, we set $L = 0$. There are two types of firms, "good" (G) and "bad" (B), with proportions δ and $1 - \delta$, respectively. A firm's type, which is private information to its manager, indicates its probability of having the high value realized in the second period. A good (bad) firm would have the high value realized with probability P_G (P_B), where $P_G > P_B$.

As one element of the required financial disclosure, the firm reports at the end of the first period the value of its asset as either high or low. Auditing is mandatory. After the auditor conducts an audit and informs the manager of the intended audit report, the manager can revise his report to avoid a qualified opinion. Only the final audited report is observable by the market. We denote an unqualified high value report by *UH* and a qualified high value report by *QH*.

The audit technology is imperfect; when the audited firm's type is good (bad), the audit findings indicate with probability μ_G (μ_B) that the asset's value is H; $\mu_G > \mu_B$. To keep the model simple, we assume the auditor's findings provide no new information to the manager (relaxing this assumption would not qualitatively affect the results; see Melumad, Wolfson, and Ziv [1994]). We refer to the difference $\mu_G - \mu_B$ as the *auditor's informativeness* (see also Amir and Ziv [1997]). Auditors are assumed to be "effective" in the sense that they perform the necessary audit procedures and truthfully report their findings (see Melumad and Thoman [1990]).

We assume that the manager is concerned about the short-term valuation of the firm, e.g., he might have an equity position in the firm, a portion of which he needs to liquidate in the near future; alternatively, the firm might need to issue equity in the interim (see Hughes and Schwartz [1988] for discussion).[5] The manager chooses a report j, where $j \in \{QH, L\}$, when the manager faces an auditor's objection to a high report, and $j \in \{UH, L\}$, when the auditor does not object to a high report.

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[5] We suppress the manager's concern about the firm's value at the end of the second period because in our setting he cannot affect the terminal asset value.

The manager's objective is to maximize his portion θ_M ($1 \geq \theta_M > 0$) of the firm's market value at the end of period 1, MV_j, minus his expected personal cost.[6] Investors then value the firm based on all the information in the financial report.

If the second-period realized value is low and the firm has issued a high report (qualified or unqualified), investors sue the manager for financial misrepresentation.[7] In reality, most cases are settled out of court. To keep matters simple, we do not model the process of settling out of court, but make the implicit assumption that any settlement process would reflect the parties' expectations regarding the litigation outcome (see Cooter and Rubinfeld [1989]). We let D_j, $D_j \geq 0$, $j \in \{QH, UH\}$, represent the monetary equivalence of the manager's personal cost (like out-of-pocket damages, punishment, or reputation loss) associated with losing the case in court, if the parties go to court.[8] We allow, but do not require, the manager's personal cost to be a function of the report j. We let η_{ij} represent the probability that a manager of a type-i firm, who has issued a report j, would lose the case in court, in case the parties go to court. We assume that a manager of a bad-type firm has a higher probability of losing a case in court, i.e., $\eta_{Bj} \geq \eta_{Gj}$.[9] The above assumptions imply that reporting high (either qualified or unqualified) involves (weakly) higher expected manager's personal cost compared with reporting low. Expression (1) summarizes the manager's payoff function, given his reporting decision:

$$\theta_M MV_j - (1 - P_i)\eta_{ij} D_j. \tag{1}$$

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[6] We can think of θ_M as the manager's percentage ownership, or the coefficient of his bonus, tied to the firm's value.

[7] A less restrictive approach would incorporate investors' decision to sue the manager as a function of the cost of litigation and expected benefits. We stress, however, that the qualitative results of this model would continue to hold as long as litigation is not prohibitively costly. In the latter case, the only prevailing equilibrium would be a pooling one where all managers adopt the same strategy. We also simplified our analysis by assuming that investors sue the manager, but not the auditor. In our setting, however, there is no reason to sue the auditor, because auditors are assumed to be nonstrategic and "effective." In a more general setting that allows for strategic auditors and includes litigation against auditors, suing the auditor would be a meaningful action choice. Again, the main insights of our analysis will remain intact.

[8] Note the distinction we make between the manager's cost and damage award. In practice, managers are often insured and may not have to pay damages out of their own pockets. However, even a fully insured manager incurs personal costs when he settles or loses a case (e.g., a reputation loss). Also, if the case goes to court, an insurance company will not pay all or some of the awarded damages if the manager is convicted.

[9] We assume the existence of a court system with an imperfect verification technology. Courts investigate the appropriateness of a high report in light of the manager's information at the time of disclosure. If the courts rule that a high report was inappropriate, they award damages to the plaintiff. The probability of winning a suit in court is a function of the true type and the report. For a related model that incorporates the court system, see Melumad and Thoman [1990].

The market value, MV_j, is a function of the ensuing equilibrium. Investors, in valuing a firm, take into account their expectations regarding future litigation (or settlement) and the corresponding damage collections. Specifically, we denote the investors' damage collections, when they prevail in court, by C_{UH} (C_{QH}), in the case of an unqualified (qualified) high report. We also assume that D_j is larger than $\theta_M C_j$ (i.e., the manager's personal costs exceed his own share of the damage collection), but we do not impose any other particular relation between C_j and D_j.[10]

The interesting situations to study involve managers providing their auditor with a high report.[11] These include situations where the auditor has accepted the high report (and therefore the manager may report *UH*) and situations where the auditor has objected to the high report (so the manager must report either *QH* or *L*). Each subset includes both good-type and bad-type firms. For simplicity, we assume that a manager of a good-type firm, whose auditor does not object to a high report, issues an (unqualified) high report, *UH*.[12]

We examine the subsets of qualified and unqualified high reports separately; given a high report, investors can infer whether the auditor has objected to that report and thus they can distinguish between the two subsets. We first consider firms which cannot issue an unqualified high report.

PROPOSITION 1.1. Consider the set of firms facing an auditor's objection to a high report. There are three, possibly overlapping, classes of equilibrium. In any equilibrium involving (possibly partial) separation, some managers rationally choose qualified reports.

(1) *Pooling equilibrium*—Both firm types (good and bad) issue the same report (either low or qualified high).
(2) *Perfectly separating equilibrium*—All good firms issue a qualified high report and all bad firms issue a low report.
(3) (*i*) *Partially separating equilibrium*—All good firms issue a qualified high report, while bad firms randomize by issuing a qualified high report with probability β and a low report with probability $1 - \beta$.
(*ii*) *Partially separating equilibrium*—Good firms randomize by issuing a qualified high report with probability α and a low report with probability $1 - \alpha$. All bad firms report low.

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[10] One could argue that the two variables are positively correlated. In Melumad and Ziv [1995] we study a special case of the current setting, where $D_j = \theta_j C_j$, and obtain similar results. In the Corollary to Propositions 4.1 and 4.2 we examine the impact on our comparative statics of allowing positive correlation between D_j and C_j.

[11] The (redundant) strategy of submitting a high report to the auditor and then reporting *L* irrespective of his response is equivalent to submitting an *L* report (see Appendix A).

[12] We can show that if we relax this simplifying assumption, either qualifications never arise (in which case, the research question is moot!) or our results remain qualitatively the same.

In table 1 we present the parameters supporting each equilibrium class and the resulting expected payoffs.

Proof. See Appendix A.

The intuition behind these equilibria is standard in the signaling literature. Since the expected cost of a qualified auditor's opinion for a good-type manager is lower than for a bad-type manager, a good-type manager will be more inclined to accept a qualified opinion than a bad-type manager.

We next consider firms whose auditor does not object to a high report.

PROPOSITION 1.2. Consider the set of firms that can issue an unqualified high report. Then, for any set of parameters, there is a *unique* equilibrium that belongs to one of the following three classes:

(1) *Pooling equilibrium*—For relatively small levels of D_{UH}, both firm types (good and bad) issue an unqualified high report.
(2) *Perfectly separating equilibrium*—For relatively high levels of D_{UH}, all good firms issue an unqualified high report and all bad firms issue a low report.
(3) *Partially separating equilibrium*—For intermediate levels of D_{UH}, all good firms issue an unqualified high report. Bad firms randomize by issuing an unqualified high report with probability $\hat{\beta}$ and issue a low report with probability $1 - \hat{\beta}$.

Proposition 1.2 implies that the pooling equilibrium class where both firm types issue an L report and the partially separating equilibrium subclass (*ii*) of Proposition 1.1 do not exist for firms which can issue an unqualified high report. This is a consequence of our assumption that a manager of a good-type firm would report UH whenever possible.

3. *Analysis*

We first address the issue of market valuation and then examine how different damage levels affect managers' tendency to issue qualified reports. Teoh [1992] has established that the market reaction to the issuance of an *unavoidable* qualified audit opinion is necessarily negative. The case of an *avoidable* qualified opinion raises two issues of market value. The first is the comparison of market value *prior to* and *after* the issuance of a qualified opinion, holding everything else constant. We refer to this difference as the *market reaction* to a qualified opinion. The second issue is the comparison of market valuations under alternative courses of action. An immediate observation regarding the latter comparison is the following.

OBSERVATION 1. If an *avoidable* qualified opinion is observed in equilibrium, it necessarily involves a higher market value than the value under the alternative of issuing a low report; i.e., $MV_{QH} \geq MV_L$.

The nature of the market reaction to an avoidable qualified audit opinion is not immediately clear. As we show below, it depends on the

TABLE 1

Equilibrium Payoffs for Firms Facing an Auditor's Objection to a High Report[a]

Equilibrium Class[b]	Good Type's Payoff	Bad Type's Payoff
Pooling		
$\alpha = \beta = 0$[c]	$\frac{\delta(1-\mu_G)P_G + (1-\delta)(1-\mu_B)P_B}{\delta(1-\mu_G) + (1-\delta)(1-\mu_B)}\theta_M H$	$\frac{\delta(1-\mu_G)P_G + (1-\delta)(1-\mu_B)P_B}{\delta(1-\mu_G) + (1-\delta)(1-\mu_B)}\theta_M H$
$\alpha = \beta = 1$[d]	$\frac{\delta(1-\mu_G)P_G + (1-\delta)(1-\mu_B)P_B}{\delta(1-\mu_G) + (1-\delta)(1-\mu_B)}\theta_M H -$ $\theta_M D_{QH}\frac{\delta(1-\mu_G)(1-P_G)\eta_{GQH} + (1-\delta)(1-\mu_B)(1-P_B)\eta_{BQH}}{\delta(1-\mu_G) + (1-\delta)(1-\mu_B)} -$ $(1-P_G)\eta_{GQH}D_{QH}$	$\frac{\delta(1-\mu_G)P_G + (1-\delta)(1-\mu_B)P_B}{\delta(1-\mu_G) + (1-\delta)(1-\mu_B)}\theta_M H -$ $\theta_M D_{QH}\frac{\delta(1-\mu_G)(1-P_G)\eta_{GQH} + (1-\delta)(1-\mu_B)(1-P_B)\eta_{BQH}}{\delta(1-\mu_G) + (1-\delta)(1-\mu_B)} -$ $(1-P_B)\eta_{BQH}D_{QH}$
Perfect Separation		
$\alpha = 1, \beta = 0$[e]	$\theta_M P_G H - (1-P_G)\eta_{GQH}(D_{QH} - \theta_M C_{QH})$	$\theta_M P_B H$
Partial Separation		
(*i*) $\alpha = 1, \beta = \tilde{\beta}$[f]	$\theta_M P_B H + [(1-P_B)\eta_{BQH} - (1-P_G)\eta_{GQH}]D_{QH}$	$\theta_M P_B H$
(*ii*) $1-\alpha = 1-\tilde{\alpha}, \beta = 0$[g]	$\theta_M P_G H - (1-P_G)\eta_{GQH}(D_{QH} - \theta_M C_{QH})$	$\theta_M P_G H - (1-P_G)\eta_{GQH}(D_{QH} - \theta_M C_{QH})$

[a]All values in table 1 are calculated for the case where $\hat{\beta} = 1$, i.e., all bad-type firms report *UH* whenever possible.
[b]The variable α (β) is the proportion of managers of good-type (bad-type) firms who issue a qualified high report.
[c]This equilibrium exists for all D_{QH} and is unique for $D_{QH} \geq \dfrac{\theta_M (P_G - P_B) H + \theta_M (1 - P_G) \eta_{GQH} C_{QH}}{(1 - P_G) \eta_{GQH}}$.

[d]This equilibrium exists for $D_{QH} \leq \dfrac{\theta_M \delta (1 - \mu_G) (P_G - P_B) H + \theta_M C_{QH} [\delta (1 - \mu_G) (1 - P_G) \eta_{GQH} + (1 - \delta) (1 - \mu_B) (1 - P_B) \eta_{BQH}]}{(1 - P_B) \eta_{BQH} [\delta (1 - \mu_G) + (1 - \delta) (1 - \mu_B)]}$.

[e]This equilibrium exists for $\dfrac{\theta_M (P_G - P_B) H + \theta_M (1 - P_G) \eta_{GQH} C_{QH}}{(1 - P_G) \eta_{GQH}} \leq D_{QH} \leq \dfrac{\theta_M (P_G - P_B) H + \theta_M (1 - P_G) \eta_{GQH} C_{QH}}{(1 - P_G) \eta_{GQH}}$.

[f]$\tilde{\beta} \equiv \dfrac{\delta (1 - \mu_G) [\theta_M (P_G - P_B) H + \theta_M \eta_{GQH} (1 - P_G) C_{QH} - \eta_{BQH} (1 - P_B) D_{QH}]}{(1 - \delta) (1 - \mu_B) (1 - P_B) \eta_{BQH} (D_{QH} - \theta_M C_{QH})}$. This equilibrium exists for

$$\frac{\theta_M \delta (1 - \mu_G) (P_G - P_B) H + C_{QH} \theta_M [\delta (1 - \mu_G) (1 - P_G) \eta_{GQH} + (1 - \delta) (1 - \mu_B) (1 - P_B) \eta_{BQH}]}{(1 - P_B) \eta_{BQH} [\delta (1 - \mu_G) + (1 - \delta) (1 - \mu_B)]} \leq D_{QH} \leq \frac{\theta_M (P_G - P_B) H + \theta_M \eta_{GQH} (1 - P_G) C_{QH}}{(1 - P_B) \eta_{BQH}}.$$

[g]$1 - \tilde{\alpha} \equiv \dfrac{(1 - \delta) (1 - \mu_B) [\theta_M H (P_G - P_B) - (1 - P_G) \eta_{GQH} (D_{QH} - \theta_M C_{QH})]}{\delta (1 - \mu_G) (1 - P_G) \eta_{GQH} (D_{QH} - \theta_M C_{QH})}$. This equilibrium exists for

$$\frac{(1 - \delta) (1 - \mu_B) \theta_M (P_G - P_B) H + \theta_M C_{QH} (1 - P_G) \eta_{GQH} [\delta (1 - \mu_G) + (1 - \delta) (1 - \mu_B)]}{(1 - P_G) \eta_{GQH} [\delta (1 - \mu_G) + (1 - \delta) (1 - \mu_B)]} \leq D_{QH} \leq \frac{\theta_M (P_G - P_B) H + (1 - P_G) \eta_{GQH} \theta_M C_{QH}}{(1 - P_G) \eta_{GQH}}.$$

prevailing equilibrium and the parameter values. To see that, we separately analyze two components of market value: expectations regarding future cash flows from operations and expectations regarding damage collections in case of litigation.

PROPOSITION 2. The change in market value of a firm's future operating cash flows in response to an avoidable qualified audit opinion is: (1) positive for the fully separating equilibrium and the partially separating subclass (*ii*) equilibrium; (2) negative for the pooling equilibrium in which both firm types report *QH*; and (3) either positive or negative for the partial separating subclass (*i*) equilibrium. When an equilibrium involves relatively many (few) bad-type firms issuing a qualified high report, the change in market value is negative (positive). These results also describe the changes in *overall* market value when the level of damage collections is sufficiently small.

The intuition behind the proposition is that a firm facing unfavorable auditor findings cannot issue an unqualified high report. Because financial statements are issued only after certain unobservable events have taken place (i.e., the manager has learned the firm's type, the auditor has responded to a proposed report, and the manager has chosen the final report), it is impossible to isolate and document the market reaction to a single event. An observed market reaction to an avoidable audit qualification is a combination of a negative reaction to an auditor's objection to a high report and a positive reaction to a firm's reporting decision. The latter reaction is positive because the percentage of good firms among those who elect, in equilibrium, to issue a qualified high report is higher than the percentage of good firms among those who are facing a qualified opinion (as established in Proposition 1.1).

Incorporating investors' expected damage collections increases the market value of firms issuing a high report, including those with qualified opinions. In some cases, the negative changes in parts (2) and (3) of Proposition 2 are reversed. Specifically, the reaction to an avoidable qualified audit opinion would be positive (for any equilibrium) when either the expected damage collections resulting from a qualified opinion significantly exceed that corresponding to an unqualified high report, i.e, $C_{UH} << C_{QH}$, or when firms are similar, i.e., $P_G - P_B$ is relatively small. In these cases, the difference in damage collections could dominate the cash flow effect, turning a negative market reaction into a positive one.

As indicated below, there are cases where the cash flow component of the market reaction alone (and thus the overall market reaction) is unambiguously positive.

COROLLARY TO PROPOSITION 2. If the auditor is relatively uninformative (i.e., the difference $\mu_G - \mu_B$ is sufficiently small) and the equilibrium involves some firms reporting low, the market reaction to avoidable qualified audit opinions is unambiguously positive.

Intuitively, when the auditor is relatively uninformative, the positive reaction to the manager's decision dominates the negative reaction to the auditor's findings.

Elliott [1982] and Dodd et al. [1984] document a weak negative market reaction to qualified audit opinions. Dopuch, Holthausen, and Leftwich [1986] identify a significant negative reaction to media disclosures of audit qualifications. The explanations offered for the weak results in the first two studies include: (*i*) problems in identifying the announcement date; (*ii*) misspecification of market expectations; and (*iii*) inability to control for alternative concurrent disclosures (see Dodd et al. [1984]).

Given the earlier observation that the reaction to an *unavoidable* qualified opinion is necessarily negative, we believe that these research design considerations are likely explanations for the documented weak negative reaction to unavoidable qualifications. On the other hand, for *avoidable* qualifications, Proposition 2 demonstrated that the market reaction is negative in some cases and positive in others. This suggests that, even if all other research design concerns are addressed, predicting the market reaction requires a specification of the prevailing equilibrium and the parameter supporting it.

Returning to the empirical evidence, we note that both Elliott and Dodd et al. singled out cases of asset realization, which often constitute avoidable qualifications, and cases of going concern, which often constitute unavoidable qualifications. Some of their results seem consistent with our analysis. For example, Elliott [1982, p. 630] found that the market reaction during weeks −4 to +1 to going-concern qualifications was more negative than the reaction to asset realization qualifications. In Dodd et al. [1984, pp. 20–21] the market reaction during days −2 to +2 and during days +1 to +5 to asset realization qualifications was less negative than the reaction to going-concern qualifications. Dopuch, Holthausen, and Leftwich [1986], who documented a significant negative market reaction for an aggregated sample, found that more than 25% of their firms showed a positive market reaction to a media disclosure of a qualified opinion.[13] This result seems consistent with our explanation.[14] Similarly, we suspect that the samples used by the other studies also involved some firms with positive market reactions.

Prior research has measured market reaction in various ways. Dodd et al. [1984] measured the market reaction to a qualified opinion relative to all firms in the market (i.e., they used abnormal returns). In our model of avoidable qualifications, the benchmark used by Dodd et al. amounts to comparing the change in market value of a firm with a qualified opinion to the change in the weighted average market value (which in our model is identically zero). Proposition 2 used this benchmark in predicting the market reaction. Elliott [1982, p. 624] matched each qualified-opinion firm with an "industry member whose standardized forecast

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[13] The significant negative market reaction found by Dopuch, Holthausen, and Leftwich [1986] could be explained if for some reason (one that is unclear to us), the media disclosure sample contained more firms with unavoidable qualifications.

[14] A competing explanation for the positive market reaction is that bad information was available earlier and the report contains relatively favorable information.

error of EPS value in the year the sample firm received a [subject to] opinion was close to that of the sample company." In our model of avoidable qualifications where all firms are ex ante identical, this benchmark amounts to comparing the changes in market values of firms with qualified and unqualified high reports. Using the Elliott benchmark, we obtain a result similar to that of Proposition 2.

PROPOSITION 3. (1) Assume that the prevailing equilibrium for firms whose auditors do not object to a high report involves some bad firms issuing an unqualified high report. Compare the change in market value of a firm's future operating cash flows between a firm with a qualified high report and a matched firm with an unqualified high report. This difference is positive for the fully separating and partially separating subclass (*ii*) equilibria, and negative for the pooling equilibria where both firm types report *QH*. For the partially separating subclass (*i*) equilibria, the difference could be either positive or negative. When an equilibrium involves relatively many (few) bad-type firms issuing a qualified high report, the market reaction is negative (positive). (2) If the prevailing equilibrium for firms whose auditor does not object to a high report involves all bad-type firms reporting low, then the above difference is negative for the pooling equilibria where both types report *QH* and for the partially separating subclass (*i*) equilibria, and is zero for the perfect separating and partially separating subclass (*ii*) equilibria.

Comparing the Dodd et al. and Elliott benchmarks (Propositions 2 and 3), we conclude that for unavoidable audit qualifications, the Elliott benchmark always implies a stronger negative (or a weaker positive) market reaction than the Dodd et al. benchmark. This is a direct consequence of the auditor's informativeness, which implies that the relative frequency of good firms in the pool of firms with an unqualified high report is higher than that of good firms in the entire population.

One would expect that a manager's litigation exposure would influence his decision to accept a qualified opinion. We now study the effect of increasing the level of D_j on the incidence of audit qualifications. For simplicity, we confine attention to cases in which a bad-type firm issues a high report whenever it passes an audit without a qualification (i.e., $\hat{\beta} = 1$). In general, changes in D_j affect both the players' reporting strategy in the partially separating equilibria (Proposition 4.1) and their expected payoffs (Proposition 4.2).

PROPOSITION 4.1. For the parameters supporting the partially separating equilibria, an increase in D_{QH} implies an increase (decrease) in the number of firms issuing a qualified high report when subclass (*ii*) (subclass (*i*)) prevails. An increase in D_{UH} implies a decrease in the number of firms doing so.

PROPOSITION 4.2. (1) An increase in D_{QH} implies: (*a*) The expected payoff for a manager of a bad-type firm decreases. In the pooling equilibrium (where all types issue a qualified high report) and in the partially separating subclass (*ii*) equilibrium, this decrease is strict. (*b*) The ex-

pected payoff for a manager of a good-type firm may either increase (in the partially separating equilibrium subclass (*i*)), or decrease (in the separating, the partially separating subclass (*ii*) equilibria, and in the pooling equilibrium where all types issue a qualified high report). (2) An increase in D_{UH} yields identical results to those in part (1) of the proposition.

Most of the comparative statics in Proposition 4 are intuitive, so we discuss only the less immediate results. Under the partially separating subclass (*ii*) equilibrium, when D_{QH} increases, the number of firms issuing qualified reports increases because the expected payoff from issuing qualified high reports (and thereby being identified as a good type) decreases. In this equilibrium, managers of good-type firms are indifferent between reporting qualified high and reporting low, so the expected payoff from reporting low decreases as well. This is sustained by having fewer good firms reporting low, so the proportion of bad firms in this population increases, and the market values of firms reporting low, MV_L, consequently decrease.

When the prevailing equilibrium is the partially separating subclass (*i*), the expected payoff for the manager of a good-type firm increases in D_{QH}. Under this equilibrium, managers of bad-type firms randomize between reporting qualified high and reporting low. The increase in D_{QH} implies that fewer bad firms report qualified high, which in turn increases the expected payoff from reporting qualified high, MV_{QH}. Since the increase in market value is exactly enough to compensate a manager of a bad-type firm for his additional risk, and a manager of a good-type firm is less likely to incur D_{QH}, the increase in MV_{QH} dominates the increase in the expected damages.

Propositions 4.1 and 4.2 considered the impact of changes in the level of the manager's cost, D_j, while leaving the level of damages collected by investors, C_j, unchanged.[15] However, the two variables might be positively correlated. In such case, we obtain the following.

COROLLARY TO PROPOSITIONS 4.1 and 4.2. Assume that $D_j = \gamma C_j$, and recall our earlier assumption that $D_j \geq \theta_M C_j$. Then, the results of Propositions 4.1 and 4.2 remain intact, with one exception. Under the pooling equilibrium where all managers issue a qualified high report, the expected payoff to the manager of a good-type firm may either increase or decrease as D_j increases.[16]

Intuitively, in the pooling equilibrium (where all firms report qualified high), an increase in damages implies an increase in the market value, MV_{QH}. If a bad-type firm is likely to have a low realization (i.e., a low P_B), and there are many bad firms in the population (i.e., a small δ), then for

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[15] Think, for example, of a case where legislators increase the severity of personal penalties but do not change the amount of damages awarded to investors.

[16] We can generalize this result to all cases of positive correlation between D_j and C_j where the net cost to a manager of a good-type firm increases in D_j, i.e., cases where the term $D_j - \theta_M C_j$ is increasing in D_j.

a manager of a good-type firm, the increase in his share of the firm's market value, due to the increase in investors' expected damage collections, sometimes dominates his expected personal cost.

4. *Conclusions*

In this paper we present an equilibrium model where managers rationally accept a qualified auditor's opinion rather than change their financial reports and avoid a qualification. We analyze the market reaction to audit qualifications and then use our results to provide a possible explanation for the inconclusive empirical evidence in the literature. We demonstrate that, depending on the prevailing equilibrium, it is possible that the market reaction to qualified audits could be positive, because the observed market reaction to an avoidable qualification is a combination of a negative reaction to the auditor's findings and a positive reaction to the firm's reporting decision.

In our setting, accepting a qualified auditor's opinion enables a manager to convey credibly his private information and his disagreement with the auditor to the market. Clearly, other means of signaling exist, in particular, an auditor switch. In fact, as documented by Chow and Rice [1982*b*], there is a statistical relation between receiving a qualified audit opinion and auditor switching. A natural extension would be to allow a two-dimensional action choice for a firm facing an auditor's objection to its proposed report: (*i*) accept/avoid a qualification and (*ii*) replace/retain an auditor.

APPENDIX A
Highlights of Proofs

We first present the general terms for firms' market value given the firm's audited report, as a function of the prevailing equilibrium (defined by α, β, $\hat{\beta}$). For ease of exposition, we present our analysis assuming that all firms provide their auditors with a high report, including those who end up reporting low irrespective of the auditor's response. This assumption has no impact on our result; all market value expressions derived below would remain the same if we were to explicitly consider managers who provided their auditor with a low report. We can show that the additional terms in market value expressions, representing the new subset of firms, are offset by the effects of the revised randomization parameters.

$$MV_{QH} = \frac{[\alpha\delta(1-\mu_G)P_G + \beta(1-\delta)(1-\mu_B)P_B]}{\alpha\delta(1-\mu_G) + \beta(1-\delta)(1-\mu_B)} H +$$

$$\frac{[\alpha\delta(1-\mu_G)\eta_{GQH}(1-P_G) + \beta(1-\delta)(1-\mu_B)\eta_{BQH}(1-P_B)]}{\alpha\delta(1-\mu_G) + \beta(1-\delta)(1-\mu_B)} C_{QH}.$$

$$MV_{UH} = \frac{[\delta\mu_G P_G + \hat{\beta}(1-\delta)\mu_B P_B]}{\delta\mu_G + \hat{\beta}(1-\delta)\mu_B} H +$$

$$\frac{[\delta\mu_G \eta_{GUH}(1-P_G) + \hat{\beta}(1-\delta)\mu_B \eta_{BUH}(1-P_B)]}{\delta\mu_G + \hat{\beta}(1-\delta)\mu_B} C_{UH}.$$

$$MV_L =$$

$$\frac{[(1-\alpha)\delta(1-\mu_G)P_G + (1-\beta)(1-\delta)(1-\mu_B)P_B + (1-\hat{\beta})(1-\delta)\mu_B P_B]}{(1-\alpha)\delta(1-\mu_G) + (1-\beta)(1-\delta)(1-\mu_B) + (1-\hat{\beta})(1-\delta)\mu_B} H.$$

The weighted average market value equals:

$$MV = [\delta P_G + (1-\delta)P_B]H + [\delta\mu_G\eta_{GUH}(1-P_G) + \hat{\beta}(1-\delta)\mu_B\eta_{BUH}(1-P_B)]C_{UH} + [\alpha\delta(1-\mu_G)\eta_{GQH}(1-P_G) + \beta(1-\delta)(1-\mu_B)\eta_{BQH}(1-P_B)]C_{QH}.$$

Note that the aggregate ex ante and ex post market values are equal: the only uncertainty resolution occurs with respect to individual firms, while the population distribution is fixed.

Proposition 1.1

The following two claims are used in the construction of the equilibrium.

CLAIM 1. If $\alpha = 0$, then $\beta = 0$.

Proof. The objective function in (1) combined with $\alpha = 0$ implies $\theta_M MV_L \geq \theta_M MV_{QH} - (1 - P_G)\eta_{GQH}D_{QH}$. Further, since $P_G > P_B$ and $\eta_{GQH} \leq \eta_{BQH}$, then $\theta_M MV_{QH} - (1 - P_B)\eta_{BQH}D_{QH} < \theta_M MV_{QH} - (1 - P_G)\eta_{GQH}D_{QH} \leq \theta_M MV_L$. Thus, $\beta = 0$.

CLAIM 2. If $\beta > 0$, then $\alpha = 1$.

Proof. The objective function in (1) and $\beta > 0$ imply $\theta_M MV_{QH} - (1 - P_B)\eta_{BQH}D_{QH} \geq \theta_M MV_L$. Further, since $P_G > P_B$ and $\eta_{GQH} \leq \eta_{BQH}$, then $\theta_M MV_{QH} - (1 - P_G)\eta_{GQH}D_{QH} > \theta_M MV_{QH} - (1 - P_B)\eta_{BQH}D_{QH} \geq \theta_M MV_L$. Thus, $\alpha = 1$.

The above claims restrict the feasible equilibria to the following equilibrium classes:

(1)	Pooling:	$\alpha = \beta = 0$, and $\alpha = \beta = 1$.
(2)	Perfect separation:	$\alpha = 1$, $\beta = 0$.
(3)	Partial separation:	$\alpha = 1$, $0 < \beta < 1$ (subclass (*i*)), and $0 < \alpha < 1$, $\beta = 0$ (subclass (*ii*)).

Next, we find market values for each of the above cases, utilizing the fact that when either α or β is interior, the manager is indifferent between the two reports. The payoffs for the different settings and the set

of parameters supporting each equilibrium class under the assumption that $\hat{\beta} = 1$ (defined in Proposition 1.2) are given in table 1.

Proposition 1.2

The proof is similar to that of Proposition 1.1 with the following changes. MV_{QH} is replaced by MV_{UH}, η_{iQH} is replaced by η_{iUH}, and $\hat{\alpha} = 1$ by assumption.

Observation 1

Assume first $\hat{\beta} = 1$, i.e., any firm that can report *UH* does so. Algebraic manipulation of the cash flow component of the difference $MV_{QH} - MV_L$ reveals that its sign is a function of the difference between the randomization parameters, $\alpha - \beta$, which is always positive, given Claims 1 and 2. The second term of MV_{QH}, representing the effect of damage collections, increases the difference $MV_{QH} - MV_L$ even further. When $\hat{\beta} < 1$, observe that MV_L is decreasing in $\hat{\beta}$ (more bad-type firms in the pool), so the same result emerges.

Proposition 2

Using only the cash flow components of a firm's market value, we can show that, $MV_{QH} - MV = \dfrac{H\delta(1-\delta)(P_G - P_B)[\alpha(1-\mu_G) - \beta(1-\mu_B)]}{\alpha\delta(1-\mu_G) + \beta(1-\delta)(1-\mu_B)}$.

Observe that the cash flow component of the term MV is independent of the prevailing equilibrium. The sign of the above difference is determined by the sign of $\alpha(1-\mu_G) - \beta(1-\mu_B)$, which is positive either when $\alpha = 1, \beta = 0$ (perfect separation), or when $0 < \alpha < 1, \beta = 0$ (partial separation subclass (*ii*)), and negative when $\alpha = \beta = 1$ (pooling). When $\alpha = 1$, and $0 < \beta < 1$ (partial separation subclass (*i*)), the difference can have either sign. However, for $\beta < \beta^*$, where $\beta^* = \dfrac{\alpha(1-\mu_G)}{(1-\mu_B)}$, the market response is positive, while for $\beta > \beta^*$, the market response is negative. Observe that when $\alpha = \beta$ the market response is negative, due to the auditor's informativeness.

Proposition 3

The proof is similar to that of Proposition 2. Algebraic manipulation of the cash flow component of the difference $MV_{QH} - MV_{UH}$ reveals that its sign is equal to the sign of $\hat{\beta}\alpha(1-\mu_G)\mu_B - \beta(1-\mu_B)\mu_G$. The result immediately follows. Also, we find a $\beta^{**} = \dfrac{\alpha(1-\mu_G)\mu_B}{\hat{\beta}(1-\mu_B)\mu_G} = \dfrac{\beta^*\mu_B}{\hat{\beta}\mu_G}$,

such that for $\beta < \beta^{**}$ the market response is positive, while for $\beta > \beta^{**}$ the market response is negative. Observe that when $\hat{\beta} = 1$, then $\beta^{**} < \beta^{*}$.

Proposition 4.1

In subclass (*i*), the randomization parameter for a manager of a good-type firm, α, equals 1 and is not affected by changes in D_{QH}. Also, the randomization parameter for a manager of a bad-type firm, β, equals $\dfrac{\delta(1-\mu_G)\,[\theta_M(P_G-P_B)\,H+\theta_M\eta_{GQH}(1-P_G)\,C_{QH}-\eta_{BQH}(1-P_B)\,D_{QH}]}{(1-\delta)\,(1-\mu_B)\,(1-P_B)\,\eta_{BQH}(D_{QH}-\theta_M C_{QH})}$.

It is readily verified that $\dfrac{\partial\beta}{\partial D_{QH}} < 0$.

In subclass (*ii*), all bad firms issue a qualified high report, i.e., the randomization parameter for a manager of a bad-type firm, β, equals 1 and is not affected by changes in D_{QH}. Also, the randomization parameter for a manager of a good-type firm is such that $1 - \alpha$ equals $\dfrac{(1-\delta)\,(1-\mu_B)\,[\theta_M H(P_G-P_B)-(1-P_G)\,\eta_{GQH}(D_{QH}-\theta_M C_{QH})]}{\delta(1-\mu_G)\,(1-P_G)\,\eta_{GQH}(D_{QH}-\theta_M C_{QH})}$. It is readily verified that $\dfrac{\partial\alpha}{\partial D_{QH}} > 0$.

Proposition 4.2

BAD TYPE. Inspecting table 1, D_{QH} affects the manager's payoffs either when all firms issue a qualified high report, i.e., $\alpha = \beta = 1$, or when only good firms issue a qualified high report, i.e., $0 < \alpha < 1$. In both cases, an increase in D_{QH} decreases the payoff of a manager of a bad-type firm.

GOOD TYPE. When all good-type firms and some bad-type firms issue a qualified high, i.e., when $\alpha = 1$, and $0 < \beta < 1$, the payoff for a manager of a good-type firm is $\theta_M P_B H + [(1-P_B)\eta_{BQH} - (1-P_G)\eta_{GQH}]D_{QH}$; this payoff is increasing in D_{QH}.

In all other cases, the payoff for a manager of a good-type firm is decreasing in D_{QH}.

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