An Analytical Model Of Audits In Disclosure Of Pro Forma Earnings

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ABSTRACT

Firms have discretion on financial reporting under Generally Accepted Accounting Principles or GAAP. The proliferation in recent years of earnings metrics that deviate from GAAP figures confounds investors' ability to compare firm financial performance. Non-GAAP (or pro forma) figures usually do not include certain balance sheet or income statement items that are required under GAAP. Regulators and accounting standard-setting body are concerned that pro forma financial measures have been used by management to mislead investors by overstating or smoothing earnings or to meet Wall Street earnings expectations. On the other hand, management asserts that by excluding certain nonrecurring and noncash items, pro forma earnings are more relevant in measuring firm performance. Indeed, prior empirical studies provide evidence that certain pro forma measures may have incremental information content over GAAP earnings. Pro forma earnings are typically unaudited and the quality of disclosures accompanying such measures varies across firms. This paper develops an analytical (mathematical) model to examine whether firms will exhibit higher credibility through auditor selection when disclosing pro forma earnings. This study extends prior empirical literature by providing an analytical perspective on the importance of attestation performed by auditors regarding pro forma earnings. The model in this study suggests that managers who possess superior information than shareholders in an asymmetric information setting and expect high future earnings are more likely to engage large auditors when disclosing pro forma earnings. As such, the model may explain the voluntary disclosure of accounting information by managers in capital markets.

Keywords: Analytical Model; Pro Forma Earnings; Audits

INTRODUCTION

Recent empirical studies suggest that non-GAAP (Generally Accepted Accounting Principles) or pro forma earnings may proxy for a firm's ongoing profitability and are useful in firm valuation. Management determines pro forma earnings by excluding some items from income determined under GAAP (Barth, Gow & Taylor, 2012; Baumker, Biggs, McVay & Pierce, 2014; Curtis, McVay & Whipple, 2014; Doyle, Jennings & Soliman, 2013; Huang & Skantz, 2016; Isidro & Marques, 2015).

U.S. firms have discretion to a certain extent on financial reporting under GAAP. The proliferation in recent years of earnings metrics that deviate from GAAP figures confounds investors' ability to compare firm financial performance. Pro forma figures typically do not include some balance sheet or income statement items that are required under GAAP. These excluded items are usually non-cash or non-recurring costs such as impairment on assets, restructuring charges, and amortization of intangibles. Financial statements based on GAAP, by contrast, show accruals and one-time or non-recurring costs in measuring and assessing firm performance. Companies used varied adjustments to calculate pro forma earnings. The absence of consistency in how companies calculate pro forma earnings is a major concern. The proliferation of pro forma measures attracts the attention of various stakeholders in financial reporting, including investors, regulators, standard-setters, auditors, and the media (Chen, Krishnan & Pevzner, 2012; Cormier, Lapointe-Antunes & Magnanl, 2011; Dutta, Caplan & Marcinko, 2014.

Regulators and accounting standard-setting body are concerned that pro forma financial measures have been used by management to mislead investors by overstating or smoothing earnings or to meet Wall Street earnings expectations. The practice can hurt the relevance and reliability of financial reporting. The tradeoff between relevance and reliability in accounting measurement is a main concern when firms disclose pro forma performance measures (Cormier et al.

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2011; Dutta et al. 2014). On the other hand, management asserts that by excluding certain nonrecurring and noncash items, pro forma earnings are more relevant in firm valuation. It is also not surprising that pro forma earnings tend to be higher than GAAP earnings and the difference between the two measures is in most cases highly significant. Consequently, the practice allows management to portray company performance more favorably when compared to GAAP figures (Isidro & Marques, 2015).

Indeed, prior empirical studies provide evidence that certain pro forma measures may have incremental information content over GAAP earnings. Pro forma earnings are perceived as more permanent than GAAP earnings because they exclude charges that are unlikely to recur in the future. As such, pro forma measures can provide useful information to evaluate a firm's future performance or to assess a firm's future cash flows and thus provide more value-relevant information than GAAP measures (Baumker et al. 2014; Curtis et al. 2014). Additionally, pro forma earnings or other measures are typically unaudited and the quality of disclosures accompanying such measures varies across firms. Prior empirical studies also suggest that investors may benefit from increased consistency in reporting pro forma measures, enhanced transparency in their computation, and assurance provision. Because pro forma figures may be disclosed by companies to manage investors' perceptions, the credibility of the disclosure must be inferred in the capital markets through observable firm attributes (Bierstaker, Monahan & Peters, 2013; Chen et al. 2012;).

This paper develops an analytical model to examine whether firms engaging with differential attribute of auditors will be perceived as providing more credible disclosure of pro forma accounting earnings. This study extends prior empirical literature by providing a mathematical modeling framework on the importance of attestation performed by auditors regarding pro forma measures. Analytical model is adopted in this study because the model can provide insights into settings involving strategic interactions of managers, shareholders, and auditors in an asymmetric information setting.

The following describes the economic environment of the model, development of the model structures, results and implications of the model, and suggested empirical testing of the analytical results.

THE MODEL

The basic structure of the model is that the manager of a firm selects an observable but costly act to signal the future earnings prospect of the firm to uninformed shareholders in the capital market. The underlying structure is the existence of information asymmetry in which the manager has better information about the firm's future earnings than shareholders. The manager in the model is motivated to disclose superior information of earnings prospect by selecting an auditor in attesting pro forma earnings.

The economic environment embodied in the model consists of:

a. The manager has better knowledge about the firm's future earnings prospect in an asymmetric information setting.
b. The compensation scheme for the manager is designed by the shareholders to motivate the manager in disclosing assessment of the firm's earnings through voluntary disclosure of pro forma earnings.
c. The manager's compensations depend on both the current market value of the firm and actual earnings realized in the future by the firm.
d. The manager reveals the superior information by selecting an auditor who attests to the firm's disclosure of pro forma earnings.
e. Auditors have differential exposure to losses in litigation initiated by shareholders when they believe that they are misled by misrepresentations in the financial statements in the case of lower than expected future earnings realized by the firm. Larger audit firms such as the Big 4 have more resources and thus will assume a larger share of the loss in case of litigation. The various size of the auditor as selected by managers is therefore a signal to indicate the magnitude of the higher or lower expected earnings than pro forma earnings disclosed.
f. Larger audit firms or auditors charge a higher audit fee to reflect their higher share of the loss in litigation against them and managers of the firms.

At the beginning of a single period with two consumption points, the manager selects an auditor to attest to the pro forma earnings so as to maximize the manager's expected utility. This action is observed by the shareholders and share price is determined conditional on selection of auditor by the manager. At the end of the period, the firm's earnings figure is revealed to the manager, auditor, and shareholders.

The manager compensation scheme M is represented by:

$$M = \alpha_0 \, V_0(K_A) + \begin{cases} \alpha_1 X & \text{if } X \geq PF_1 \\ 0 & \text{if } PF_1 > X \geq PF_2 \\ -P & \text{if } PF_2 > X \end{cases}$$

where

α_0	= Proportion of the firm received by the manager at beginning of the period.
α_1	= Proportion of the firm that the manager receives at end of the period.
$V_0(K_A)$	= Current value of the firm which is dependent on auditor A selected by the manager.
K_A	= Audit fee (on a per hour basis) charged by the auditor selected.
X	= The firm's earnings.
$X \sim N(\mu, \sigma^2)$	= Earnings are assumed to be normally distributed.
PF_1	= Pro forma earnings threshold above which realized earnings figure is classified as "good" and a bonus is awarded to the manager.
PF_2	= Pro forma earnings threshold below which realized earnings figure is classified as "bad" and a penalty or punitive payment P is imposed on the manager through litigation by shareholders.

Utility function of the manager's consumptions C_0 and C_1 over the beginning and the end of the period respectively is represented by a negative exponential (denoted by "exp") function which includes ϕ, the risk tolerance level in the manager's consumption C_1 at the end of the period.

$$U(C_0, C_1) = U(C_0) - \exp(-\Phi C_1)$$

There are A number of auditors in the market and each auditor sets the audit fee per hour K_A according to the auditor's size S_A. The loss L_A incurred by an auditor due to litigation by shareholders when realized earnings figure is "bad" is expressed as:

$$L_{A=} \begin{cases} 0 & \text{if } PF_2 \leq X \\ R(S_A) & \text{if } PF_2 > X \end{cases}$$

The loss function L_A of the auditor is dependent on the size S_A of the auditor because deep pocket is typically associated with large auditors and hence a large auditor is more able to pay for shareholders' losses in case of litigation. The number of an auditor's clients increases as the auditor's size increases. It follows that the probability of litigation will go up at an increasing rate due to a larger fraction of bad earnings firms that are among the auditor's clients.

The loss function of the auditor therefore increases with size because there is an increase in the chance or probability of litigations associated with the auditor's ability to recover losses and its larger proportion of clients that report bad earnings. Furthermore, the loss function's rate of change increases with the auditor size due to a drastic increase in the number of clients that report bad earnings (which means that the probability of litigation also increases).

Thus, the conditions hold:

$$\frac{dR(S_A)}{dS_A} > 0 \text{ and } \frac{d^2R(S_A)}{dS_A^2} > 0$$

To complete an audit of the pro forma earnings, an auditor of any size requires H number of billing hours.

To establish the manager's expected utility maximization equation, at the beginning of the period the manager is endowed with $\hat{C}$ consumption units and the manager invests the excess units (such as the bonus received) in risk-free assets which generate return of R_f. The total investment in the risk-free asset by the manager is denoted by F.

Thus, the maximization of expected utility of the manager subject to the budget constraint is formulated as:

$$Maximize\ E[U(C_0, C_1)] = Maximize\ \{EU(C_0) + EU[-\exp(-\Phi C_1)]\}$$
$$\{K_A, F\} \qquad\qquad\qquad \{K_A, F\}$$

Subject to $C_0 + F = \hat{C} + \alpha_0 V_0(K_A)$

where C_0 is the manager's consumption at the beginning of the period and C_1 is the consumption at the end of the period. C_1 is equal to:

$$C_1 = FR_F + \begin{cases} (\alpha_0 + \alpha_1)X & if\ X \geq PF_1 \\ \alpha_0 X & if\ PF_1 > X \geq PF_2 \\ \alpha_0 X - P & if\ PF_2 > X \end{cases}$$

The budget constraint (in the subject to) is rearranged as:

$$C_0 = \hat{C} + \alpha_0 V_0(K_A) - F$$

The maximization problem is therefore written as:

$$Maximize\ T = U_1\big[\hat{C} + \alpha_0 V_0(K_A) - F\big]$$
$$\{K_A, F\}$$
$$- \quad -\int_{PF_1}^{\infty} \exp\{-\phi[FR_f + (\alpha_0 + \alpha_1)X]\}f(X)dX$$

$$- \quad -\int_{PF_2}^{PF_1} \exp\{-\phi[FR_f + \alpha_0 X]\}f(X)dX$$

$$- \quad -\int_{-\infty}^{PF_2} \exp\{-\phi[FR_f + \alpha_0 X - P]\}f(X)dX$$

The above maximization equation can be simplified to:

$$Maximize\ T = U_1\big[\hat{C} + \alpha_0 V_0(K_A) - F\big]$$
$$\{K_A, F\}$$
$$- \quad -\exp\{-\phi FR_f\}\int_{PF_1}^{\infty} \exp\{-\phi(\alpha_0 + \alpha_1)X\}f(X)dX$$

$$-\exp\{-\phi FR_f\}\int_{PF_2}^{PF_1} \exp\{-\phi\alpha_0 X\}f(X)dX$$

$$+\big[\exp\{\phi FR_f\} - \exp\{-\phi(FR_f - P)\}\big]\int_{-\infty}^{PF_2} \exp\{-\phi\alpha_0 X\}f(X)dX$$

In deriving the formal model, a few known properties of the normal distribution are adopted:

Defining $N(W) = \int_{-\infty}^{W} \frac{1}{\sqrt{2x}}\exp\{-\frac{W^2}{2}\}$ then $\int_{-\infty}^{a} f(x)dx = N[\frac{a-\mu}{\sigma}]$

if   (i) $f(x) = \int_{-\infty}^{a} \frac{1}{\sqrt{2\mu}\sigma} \exp - \{\frac{(X-\mu)^2}{2\sigma^2}\}$

     (ii) $\int_{a}^{\infty} f(x)dx = N[\frac{-a+\mu}{\sigma}]$

     (iii) $\int_{a}^{\infty} \exp\{-\phi x\}\, f(x)dx = \exp\left\{-\phi\mu + \frac{1}{2}\phi^2\sigma^2\right\} N\left[\frac{-a+\mu}{\sigma} - \phi\sigma\right]$

$$= \exp\{\frac{\phi^2\sigma^2}{2} - \phi\mu\}N[\frac{-a+\mu-\phi\sigma^2}{\sigma}]$$

$$= \exp\{\frac{\phi^2\sigma^2}{2} - \phi\mu\}N[\frac{-a+\mu}{\sigma} - \phi\sigma]$$

Because earnings as indicated are normally distributed, $X \sim N(\mu, \sigma^2)$, the maximization equation can now be expressed as follows:

$$\text{Maximize } T = U_1\left[\hat{C} + \alpha_0 V_0(K_A) - F\right]$$
$$\{K_A, F\}$$

$$- \exp\{-\phi FR_f\} \exp\{Z1\}N\left[\frac{-PF_1+\mu}{\sigma}\right] - \phi(\alpha_0 + \alpha_1)\sigma$$

$$- \exp\{-\phi FR_f\} \exp\{Z2\}N\left[\frac{-PF_1+\mu}{\sigma}\right] + \phi\,\alpha_0\sigma$$

$$- \exp\{-\phi FR_f\} \left[\exp\{\phi P\} - 1\right] \exp\{Z2\}N[\frac{PF_2-\mu}{\sigma}] + \phi\alpha_0\sigma$$

where

$$Z1 = -\phi(\alpha_0 + \alpha_1)\mu + \frac{1}{2}\phi^2(\alpha_0 + \alpha_1)^2\sigma^2$$

$$Z2 = -\phi\alpha_0\mu + \frac{1}{2}\phi^2\alpha_0^2\sigma^2$$

Defining $Z = \exp\{Z1\}N\frac{-PF_1+\mu}{\sigma} - \phi(\alpha_0 + \alpha_1)\sigma$

$$+ \exp\{Z2\}N[\frac{PF_1-\mu}{\sigma} + \phi\alpha_0\sigma]$$

$$+ [\exp\{\phi P\} - 1]\exp\{Z2\}N\left[\frac{PF_2-\mu}{\sigma} + \phi\alpha_0\sigma\right]$$

The maximization problem becomes:

$$\text{Maximize } T = U_1\left[\hat{C} + \alpha_0 V_0(K_A) - F\right] - \exp\{-\phi FR_f\}Z$$
$$\{K_A, F\}$$

Given that the manager selects auditor A, the firm's current value is determined by its discounted earnings with a discount rate D. The market value of the firm $V_0(K_A)$ is thus derived from the following valuation model (recall that H is the number of billing hours required by the auditor):

$$V_0(K_A) = \frac{E(X|K_A) + [R(S_A) + P]\text{Probabiliy}(X \le PF_2|K_A)}{1+D} - K_A H$$

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Equilibrium in signaling can be attained, after the issuance of the manager's signal, when shareholders determine the firm's market value unambiguously (i.e., there is no noise in the signal). Therefore, it implies that at equilibrium:

$$E(X|K_A) = \mu$$

The above valuation model then becomes:

$$V_0(K_A) = \frac{\mu + [R(S_A) + P] \, N[\frac{PF_2 - \mu}{\sigma}]}{1+D} - K_A H$$

Substitute the above valuation model equation into the maximization problem above:

$$\text{Maximize } T = U_1[\hat{C} + \alpha_0 V_0(K_A) - F] - exp\{-\phi FR_f\}Z$$
$$\{K_A, F\}$$

and the T (the maximization problem) is then differentiated with respect to K_A gives:

$$\frac{\partial T}{\partial K_A} = \frac{\partial U_1(C)}{\partial C} \, \alpha_0 \{ \frac{1}{1+D} \frac{\partial R(S_A)}{\partial K_A} N \left[\frac{PF_2 - \mu}{\sigma} \right] - H \}$$

The optimal value K_A^* wich maximizes the above equation $\frac{\partial T}{\partial K_A}$ is solved:

$$\frac{\partial R(S_A^*)}{\partial K_A^*} = H(1+D) \frac{1}{N[\frac{PF_2 - \mu}{\sigma}]}$$

This optimal value of K_A^* in auditor selection implies that the incremental dollar paid to the auditor is equal to the incremental earnings accrued to the firm from the auditor selection in the case that the realized earnings fall below the threshold, PF_2, of bad earnings performance.

The above equation, $\frac{\partial R(S_A^*)}{\partial K_A^*}$, which provides the optimal value of K_A^* is differentiated with respect to μ to gain insight into the optimal selection of an auditor by the manager:

$$\frac{d^2 R(S_A^*)}{d(K_A^*)^2} \frac{dK_A^*}{d\mu} = H(1+D) \frac{-1}{N[\frac{PF_2 - \mu}{\sigma}]^2} \frac{-\mu}{\sigma}$$

which gives

$$\frac{dK_A^*}{d\mu} = H(1+D) \frac{\mu}{\sigma} \frac{1}{N[\frac{PF_2 - \mu}{\sigma}]^2} \frac{d^2 R(S_A^*)}{d(K_A^*)^2}$$

Only the sign of the last term, $\frac{d^2 R(S_A^*)}{d(K_A^*)^2}$ in the above equation needs to be determined because all other terms in the equation are positive in sign.

The term $\frac{d^2 R(S_A^*)}{d(K_A^*)^2}$ is rewritten as:

$$\frac{d^2 R(S_A^*)}{d(K_A^*)^2} = \frac{d^2 R(S_A)}{dS_A^2} \frac{dS_A^2}{dK_A} + \frac{dR(S_A)}{dS_A} \frac{d^2(S_A)}{dK_A^2}$$

Note that the following relationship holds from previous discussion:

$$\frac{dR(S_A)}{dS_A} > 0 \text{ and } \frac{d^2R(S_A)}{dS_A^2} > 0 \text{ and } \mu > 0$$

$\frac{d^2(S_A)}{dK_A^2}$ is now proved to be greater than zero from the following derivation:

The auditor determines the billing K_A in order to recover for possible losses in a litigation. K_A increases with the size of the auditor. It therefore follows that the rate of change in the billing decreases with size because a large auditor is more diversified with a broad base of clients and hence, the less the auditor is required to increase the billing rate.

Following the above reasoning, it follows that $\frac{d^2K_A}{dS_A^2} < 0$ and the derivative of the inverse function has a positive sign: $\frac{d^2(S_A)}{dK_A^2} > 0$.

Therefore, for the equation $\quad \frac{dK_A^*}{d\mu} = H(1+D)\frac{\mu}{\sigma}\frac{1}{N[\frac{PF2-\mu}{\sigma}]^2}\frac{d^2R(S_A^*)}{d(K_A^*)^2}$

it implies that $\frac{dK_A^*}{d\mu}$ must have a positive sign. That is,

$$\frac{dK_A^*}{d\mu} > 0$$

A similar derivation is applied for H (number of billing hours required by the auditor) and yields:

$$\frac{d^2R(S_A^*)}{d(K_A^*)^2}\frac{dK_A^*}{dH} = (1+D)\frac{1}{N[\frac{PF2-\mu}{\sigma}]}$$

and $\frac{dK_A^*}{dH}$ the optimal value is solved as:

$$\frac{dK_A^*}{dH} = (1+D)\frac{1}{N[\frac{PF2-\mu}{\sigma}]}\frac{1}{\frac{d^2R(S_A^*)}{d(K_A^*)^2}}$$

Following the same argument as for $\frac{d^2R(S_A^*)}{d(K_A^*)^2}$ gives the sign for $\frac{dK_A^*}{dH}$:

$$\frac{dK_A^*}{dH} > 0$$

The next section discusses the derived comparative statics of the model: $\frac{dK_A^*}{d\mu} > 0$ and $\frac{dK_A^*}{dH} > 0$ and the implications of the model with respect to the signaling effect of auditor selection by a firm's manager when voluntarily disclosing pro forma earnings.

IMPLICATIONS OF THE MODEL

The model in this study shows that the selection of an auditor allows a firm manager to signal high accounting earnings of the firm when voluntarily disclosing pro forma earnings information. The implication from the comparative statics of the model is that manager will engage with a larger auditor when the manager expects higher future earnings when disclosing pro forma earnings. Selecting a large auditor would allow the shareholders to recover their losses from the auditor in case of subsequent bad realized earnings. However, the manager does not benefit directly from the recovery of losses and the manager is interested in only providing a signal of high expectation of future earnings to the shareholders through the selection of a large auditor. Furthermore, a larger audit fee is needed to engage a large auditor.

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Consequently, a manager will pay a larger audit fee only because the manager intends to signal a higher expectation of future earnings of the firm to the capital market participants.

The model suggests that a manager who possesses superior information than shareholders in an asymmetric information setting and expects high future earnings is more likely to engage an auditor when the manager discloses pro forma measures such as accounting earnings. As such, the model may explain the voluntary disclosure of accounting information observed in the capital market. The model also shows that the selection of an auditor by manager of a firm to attest pro forma information may strengthen the credibility in both the content of the disclosure as well as the signal itself when disclosing pro forma earnings. This indicates that the disclosure itself can convey meaningful information in firm valuation and the magnitude of such disclosure is significant in relation to the manager's expectations about future earnings prospect of the firm.

To empirically verify the results of the model, a researcher can partition firms according to expected (and subsequent realized) earnings or cash flows. Then the frequency of voluntary disclosure of pro forma earnings or other accounting measures is examined to test whether firms with high expected earnings are engaged with large auditors than firms with auditors smaller in size. That is, three variables can be examined and controlled for in an empirical study: the disclosure frequency of pro forma metrics, the size of the auditors engaged with the firms, and magnitude of the future realized earnings.

CONCLUSION

U.S. firms have discretion on financial reporting under Generally Accepted Accounting Principles or GAAP. The proliferation in recent years of earnings metrics that deviate from GAAP figures confounds investors' ability to compare firm financial performance. Non-GAAP (or pro forma) figures usually do not include certain balance sheet or income statement items that are required under GAAP. Regulators and accounting standard-setting body are concerned that pro forma financial measures have been used by management to mislead investors by overstating or smoothing earnings or to meet Wall Street earnings expectations. On the other hand, management asserts that by excluding certain nonrecurring and noncash items, pro forma earnings are more relevant in measuring firm performance. Indeed, prior empirical studies provide evidence that certain pro forma measures may have incremental information content over GAAP earnings. However, pro forma earnings are typically unaudited and the quality of disclosures accompanying such measures varies across firms.

This study adopts a mathematical modeling approach to examine whether firms exhibit higher credibility through auditor selection when disclosing pro forma earnings. The model in this study shows that the selection of an auditor allows a firm manager to signal high accounting earnings for the firm when voluntarily disclosing pro forma earnings information. The analytical results also suggest that a manager who possesses superior information than shareholders in an asymmetric information setting and expects high future earnings is more likely to engage an auditor when the manager discloses pro forma accounting earnings. This study extends prior empirical literature by providing a different perspective on the importance of attestation performed by auditors regarding pro forma earnings. Analytical model is adopted in this study because the model can provide insights into settings involving strategic interactions of managers, shareholders, and auditors in an asymmetric information setting.

AUTHOR BIOGRAPHY

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REFERENCES

Barth, M., Gow, I., & Taylor, D. (2012). Why Do Pro forma and Street Earnings Not Reflect Changes in GAAP? Evidence from SFAS 123R. Review of Accounting Studies, 17, 526–562.

Baumker, M., Biggs, P., McVay, S., & Pierce, J. (2014). The Disclosure of Non-GAAP Earnings Following Regulation G: An Analysis of Transitory Gains. Accounting Horizons, 28, 77–92.

Bierstaker, J., Monahan, T., & Peters, M. (2013). Going Concern Designations and GAAP versus Non-GAAP Earnings Metrics.

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Issues in Accounting Education, 28, 77–92.

Chen, L., Krishnan, G., & Pevzner, M. (2012). Pro forma Disclosures, Audit Fees, and Auditor Resignations. Journal of Accounting & Public Policy, 31, 237–257.

Cormier, D., Lapointe-Antunes, P., & Magnanl, M. (2011). Revisiting the Relevance and Reliability of Non-GAAP Reporting. Contemporary Accounting Research, 28, 1585–1609.

Curtis, A., McVay, S., & Whipple, B. (2014). The Disclosure of Non-GAAP Earnings Information in the Presence of Transitory Gains. The Accounting Review, 89, 933–958.

Doyle, J., Jennings, J., & Soliman, M. (2013). Do Managers Define Non-GAAP Earnings to Meet or Beat Analyst Forecasts? Journal of Accounting & Economics, 56, 40–56.

Dutta, S., Caplan, D., & Marcinko, D. (2014). Growing Pains at Groupon. Issues in Accounting Education, 29, 229–245.

Huang, Q. & Skantz, T. (2016). The Informativeness of Pro forma and Street Earnings: An Examination of Information Asymmetry Around Earnings Announcements. Review of Accounting Studies, 21, 198–250.

Isidro, H. & Marques, A, (2015). The Role of Institutional and Economic Factors in the Strategic Use of Non-GAAP Disclosures to Beat Earnings Benchmarks. European Accounting Review, 24, 95–128.

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