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# **The Impact of Earnings Management on the Extent of Disclosure and True Financial Performance: Evidence from Listed Firms in Hong Kong**

## **Abstract**

This paper challenges the notion that seeking to increase disclosure may not necessarily improve firm performance. Using Hong Kong listed firms subject to increase the extent of disclosure, this paper shows that the net benefit of disclosure is contingent on conditions such as the quality and integrity of a firm's information. We demonstrate that a nonlinear relation exists between disclosure and firm performance when measured performance is adjusted for the impact of earnings management, over the period from 2006 to 2013. The results of our study show that corporate disclosure is likely to result in benefits, but after an optimum level, increasing disclosure reduces true firm performance. This optimum level also falls when differences between other firm's monitoring environments (e.g., independent boards) are in place. These results indicate that intense monitoring of CEOs offsets the advantage of additional corporate disclosure

## **Introduction**

A CEO as the most senior corporate officer need to consider his interaction when exercising discretion. In corporate disclosure, a great deal of CEO discretion goes into the construction of disclosing information to inform the market about CEO performance and firm's activities - information that is intended to keep the CEO disciplined. In literature, CEOs, however, are hypothesized to affect firm-enlarging actions that yield greater job security and compensation for themselves, especially when their interest is not aligned with the interests of outsiders. When these two lines of discussion are considered together, CEOs may prefer the less informative disclosure regime and the quality of information (such as completeness, accuracy, reliability, precision and timeliness) that CEOs are prepared to provide may not be of a quality expected by outsiders. This issue has involved Asian corporate transparency models that were criticized as being relatively inefficient in maintaining fairness and integrity in the stock markets during the East Asian crisis (Stiglitz, 1998; Harvey & Roper, 1999; Greenspan, 1999). Therefore, seeking greater corporate transparency is increasingly important to solving the issue and improving the informativeness of disclosure regime. In the Hong Kong stock exchange (HKSE), public-policy discussions on corporate disclosure, view increasing the amount of disclosure as the key to achieving the desired step-change in transparency (Gul & Leung, 2004; Ho & Wong, 2001). Firms responsible for this change often describe increasing the amount of disclosure as providing the information required for enhanced transparency. Therefore, if increased disclosure is good, it is reasonable to ask why owners as outsiders were reluctant to increase the extent of disclosure before regulatory requirements. What is the downside to increasing the amount of information disclosed?

Transparent information environment makes a firm more attractive to all investors. It improves coordination between firms and investors with respect to capital investment decisions and builds a climate of trust that can increase the value of a firm. If CEOs do not disclose any information, investors would lower their views on firm value. As a result, CEOs have incentives to disclose their information to distinguish themselves from CEOs with less favourable information to have a good career reputation (Beyer et al. 2010). Equally, information can improve the ability of shareholders and boards to monitor their CEOs consistently, an ability that may result in a loss of employment for the CEOs. In order to have greater job security and reputation, CEOs must direct their efforts toward increasing firms' stock prices.

In contrast to prior studies believe that career concerns, due to disclosure, increase worthwhile activities in companies, this study argues that CEOs' activities to achieve greater job security and reputation may be cumbersome and ungainly with the possibility of misrepresentation. In this view, the career concerns can give CEOs an incentive to distort information coming from their firms as an exaggerated effort to increase the share price. For example, Hermalin and Weisbach (2012) believe that the career concerns induce the CEO to divert effort to manipulate information about his ability. In line with this, Hirst, Koonce and Venkatarman (2007) indicate that incredible information has increased substantially after the regulatory reforms related to corporate information and corporate governance<sup>1</sup>. Brennan (1999) finds that the management of target firms in takeovers is more likely to disclose information during contested takeover bids to show that their shares are undervalued. Existing research has also indicated that increasing corporate disclosure may result in costs in terms of the distortion caused by career concerns (CEO actions aimed at signal distortion). For example, Hermalin and Weisbach (2012) believe that the career concerns potentially affect the motivation of CEOs to engage in value-reducing activities intended to make reporting appear adequate<sup>2</sup>. Therefore, CEO career concerns may generate additional asymmetric information costs and agency costs for shareholders, which would lead to deconstructing the equilibrium climate of trust. While, outsiders and CEOs have opposing preferences regarding the increase of disclosure, one would expect that the opposing preference may capture some of the disclosure benefit via greater compensation. Goldman and Slezak (2006) and Holmstrom (1999) show that opposing preference increases CEOs' tendency to have greater compensation given the career concerns they face. This tendency to increase compensation comes at a time of public outrage following scandal or financial crisis, which makes it politically infeasible to raise executive compensation immediately. So, it could have exacerbated the incentives for CEOs to window dress financial statements as a way to increase compensation. The use of earnings management to temporarily boost or reduce reported income is one mechanism for increase CEO compensation, which in turn influences operating performance (Cornett et al. 2008). This study plans to investigate how disclosure influences shareholders' interest, that is, maximizes

shareholders' economic self-interest. Common firm performance as measured by accounting data is subject to a potential endogeneity bias through the assumptions concerning earnings managements (e.g., depreciation, amortization, and accruals) due to increased risk to CEOs' careers implicit in disclosure levels. Therefore, we examine true performance as the dependent variable to assess whether the increasing amount of disclosure is related to firm performance when the reported firm performance is deprived of the effects of earnings management. According to the corporate governance literature, the amount of misrepresentation is also affected by other CEO' monitoring factors such as independent board (Ferreira et al. 2011; Armstrong et al. 2014). Therefore, our empirical analysis examines both the average effect of disclosure on true firm performance as well as the interacting effect of independent board on the impact of disclosure. In addition, we contemplate the possibility of a nonlinear relationship between disclosure and true firm performance.

To address any remaining endogeneity issue, we conduct a dynamic panel generalized method of moments (GMM) as suggested by Wintoki, Linck and Netter, (2012), which proves to be a valid methodology. As in earlier studies, this study finds evidence that the extent of disclosure is positively related to firm performance while, adjusting for the impact of earnings management dramatically decreases the impact of disclosure on true firm performance. Our empirical evidence also supports a quadratic relationship between the extent of disclosure and true firm performance. These results are consistent with previous theoretical literature arguing that there is an optimal level of disclosure and that, CEOs' costly and counterproductive efforts

to distort information dominates beyond the optimal level. Consequently, attempts to mandate levels beyond this optimum decrease profits.

Furthermore, our results show that the positive relationship between the extent of disclosure and true firm performance is stronger in firms where more independent directors are on the board. In nonlinear model, however, the optimum level between interaction of the extent of disclosure with independent board and true performance is lower than the optimum level between the extent of disclosure and true performance. These findings tend to reinforce the message that the benefits of improved monitoring do not flow wholly to shareholders, and companies in a different monitoring environment have a different optimal level for the extent of disclosure. The remainder of this paper is organized as follows. The literature and related issues are discussed in the next section, followed by an introduction to the models adopted for our firm

performance measures, the control variables used within our dependent variables, and a description of the data and the research methodology adopted for the study. The penultimate section presents the empirical results of our study, which are followed in the final section by the concluding remarks drawn from this research.

### **Dependent Variable**

ROA is defined as operating income divided by company's total assets at the beginning of the fiscal year; ROE is the ratio of net income divided by equity at the beginning of the fiscal year. To obtain a performance measure that is relatively free of manipulation, we need to strip away the impact of potential strategic choices concerning depreciation, amortization, and accruals (Cornett et al. 2008). Following Cornett et al. (2008); Bartov, Gul and Tsui (2001), and Dechow, Sloan and Sweeney (1995), we use modified Jones' (1991) model to measure discretionary accruals that is recognized as the most powerful for detecting earnings management among other models. Discretionary accruals as a portion of the book value of assets, are calculated as:

$$\text{Discretionary Accruals} = \text{Total Accruals} - (1 + \_ \text{sale} - \_ \text{Receivables} + \text{PPE}) \quad (1)$$

where PPE denotes property, plant, equipment and receivables variables in an attempt to capture the extent to which a change in sales is in fact due to aggressive recognition of questionable sales. Total accruals can be computed from successive balance sheet data or from the statement of cash flows. Cornett et al. (2008) argue that the cash flow statement is preferred in the presence of non-articulation events such as mergers and acquisitions resulting in changes to the balance sheet that do not flow through the income statement. We therefore calculate total accruals as earnings before extraordinary items and discontinued operations minus operating cash flows from continuing operations.

### **Model**

In this section, our objective is to specify an appropriate functional form for the relationship between the disclosure and the measurements of firm performance, which will allow us to test our research questions. We use dynamic panel data model. True firm performance is denoted by TFP and disclosure is represented by DI. LEV, FS, CE and FG are the rest of the explanatory variables in the model. Following Cornett et al. (2008), Fang et al. (2009), and Black and Kim (2012), we assume a linear parametric form for all of the explanatory variables by estimating Model (1):

$$\text{TFP}_{it} = \alpha + \gamma \text{TFP}_{it-1} + \beta \text{DI}_{it} + \delta_1 \text{LEV}_{it} + \delta_2 \text{FS}_{it} + \delta_3 \text{CE}_{it} + \delta_4 \text{FA}_{it} + \varepsilon_{it} \quad , (2)$$

where TFP is measured by Adj-ROA and Adj-ROE. The Adj-ROA denotes the return minus discretionary accruals on the asset ratio; Adj-ROE represents the net income minus discretionary accruals on equity; DI denotes our disclosure score. Lev stands for firm leverage; FS is the firm size; CE stands for the capital expenditure; FA is the firm's age; and  $\varepsilon$  is an error term.

To model the relationship between firm performance measurements and disclosure and determine the breakpoints of disclosure when firm performance measurements change directions, we specify Model (2) as follows:

$$TFP_{it} = \alpha + \gamma TFP_{it-1} + \beta_1 DI_{it} + \beta_2 DI_{it}^2 + \delta_1 LEV_{it} + \delta_2 FS_{it} + \delta_3 CE_{it} + \delta_4 FA_{it} + \varepsilon_{it} \quad (3)$$

In this model, the firm performance measurements are regressed against disclosure and its square. The quadratic relation proposed in the second Model presents one breakpoint that can be optimally derived by differentiating value with respect to disclosure. The breakpoint in the quadratic relationship is calculated by the expected signs of the coefficients on the disclosure variables ( $\beta_1$  and  $\beta_2$ ), letting  $\partial TFP / \partial DI = 0$ , and solving for DI:

$$TFP = \alpha + \beta_1 DI + \beta_2 DI^2$$

$$\partial TFP / \partial DI = \beta_1 + 2\beta_2 DI = 0 \quad (4)$$

Then, DI breakpoint =  $-(\beta_1 / 2\beta_2)$

Because the disclosure variable cannot take negative values, the DI breakpoint must be equal to or greater than zero (DI breakpoint  $\geq 0$ ). This leads to the condition that  $\beta_1$  and  $\beta_2$  present opposite signs. In order to evaluate whether independent board interacts the effect of disclosure of firm performance measures, "IB\*DI, IB\*DI<sup>2</sup> and IB" are added to the Model:

$$TFP_{it} = \alpha + \gamma TFP_{it-1} + \beta_1 DI_{it} + \beta_2 DI_{it}^2 + \beta_3 IB_{it} * DI_{it} + \beta_4 IB_{it} * DI_{it}^2 + \delta_1 IB_{it} + \delta_2 LEV_{it} + \delta_3 FS_{it} + \delta_4 CE_{it} + \delta_5 FA_{it} + \varepsilon_{it} \quad (5)$$

where IB stands for the proportion of independent directors on board.

### Estimation Method

An important point of our methodology is that we carefully control for the endogenous relationships between disclosure and true firm performance. The large number of studies represented mainly by Demsetz and Lehn (1985), Hermalin and Weisbach (1988), Smith and Watts (1992), Bizjak, Brickley and Coles (1993), Bhagat and Black (1999), Core and Guay (1999), Denis and Sarin (1999), and Coles et al. (2008) noted that endogeneity is a serious concern when carrying out any empirical estimation in firm performance. These researchers indicate that the values of any of our variables, in turn, are determined by firm performance. In addition, the current values of explanatory variables are likely to depend on past values of themselves. Thus, neglecting this source of endogeneity can have serious consequences for inference.

We use arguments, building on prior research, which show that dynamic endogeneity is of concern in disclosure and firm performance. For example, Chen et al. (2013) and Akerlof (1970) suggests that high value firms should have greater incentives to engage in voluntary disclosure in next year because doing so helps to lower their cost of capital and avoid a price discount in a market for lemons. To alleviate biases that may arise in this context, we estimate a model using a dynamic panel estimator that controls for three potential sources of endogeneity: (1) unobservable heterogeneity, which arises if there are unobservable factors that affect both the dependent and explanatory variables, (2) simultaneity, which arises if the independent variables are a function of the dependent variable or expected values of the dependent variable, and (3)

dynamic endogeneity, which arises if a firm's current actions will affect its control environment, which will in turn affect its future actions.

To test our Models, first, we circumvent the potential problems associated with the effect of simultaneity by using instrumental variables. GMM uses information on a firm's history as valid instruments for the current form of firm performance, disclosure, and other explanatory variables on firm characteristics. Several authors (e.g., Wintoki, Linck & Netter, 2012; and Pathan & Faff, 2013) provide strong evidence that the instruments associated with a dynamic GMM approach are valid and powerful. Second, this study uses a dynamic fixed-effects panel model in our standard regression specifications to produce consistent parameter estimates that are robust to unobservable heterogeneity. Driscoll and Kraay (1998) show that ignoring cross-sectional dependence when estimating panel models can lead to severely biased statistical inference. Third we adopt a dynamic panel GMM specification procedure that is robust to 'dynamic endogeneity' that refers to the manner in which a firm's current performance affects both its future performance and disclosure.

Overall, the GMM estimator is more appropriate to use in this area of study for three reasons: first, the GMM approach alleviates the problem of slow-moving disclosure index over time, which could render fixed effects techniques ineffective (Coles, Lemmon & Meschke, 2012). Second, when the dynamic relation between the variable of interest and the explanatory variables is the case, the non-dynamic fixed-effects estimators are biased. Third, given the dynamic nature of the relation between disclosure and performance, the instruments associated with a dynamic GMM approach are valid and powerful, using information on a firm's history as instruments for current firm characteristics (Wintoki, Linck & Netter, 2012).

## **. Result**

### **5.1. Descriptive Statistics**

Table 1 presents the definition and summary statistics of each variable we use in our study. The variables are defined and discussed below. The average firm has an Adj-ROE of 0.287. The median Adj-ROE fraction is 0.071. Adj-ROA has a similar distribution with a mean (median) of 0.036 (0.075) and a standard deviation of 0.078. The mean value of disclosure is 0.787, suggesting that firms disclose most of our predicted scores. The average of independent boards is 0.538, indicating that about half of our board members are independent. Mean (median) leverage is 0.538 (0.563). The median firm in our sample has sales of 2.8 billion US dollars. The average proportion of capital expenditure over sales is 0.087. The average age of the firms is 28.803. The means and medians in Table 1 suggest that all variables closely follow a normal Distribution.

Table 2 presents the Pearson and Spearman rank of correlations between the true firm performance measures, firm performance measure, disclosure measure and all control variables used in our baseline specifications. Pearson correlations are reported above the main diagonal and Spearman correlations are reported below the diagonal. As can be deduced from Table 2 Pearson and Spearman correlation coefficients indicate a significant relation between DI and true performance measurements, at a p-value of 0.000. In addition, DI has significantly positive Pearson (Spearman) correlations with two firm performance measures: ROE and ROA. This result suggests that firms with high disclosure tend to have better firm performance. We also check for multicollinearity statistically by calculating the condition index, which is the square root of the maximum eigenvalue divided by the minimum eigenvalue. If this index is more than 30, the variable has a severe multicollinearity problem (Gujarati, 2004). We find that multicollinearity is of no concern, thus permitting the use of regression analysis.

### **5.2 Relation between Disclosure and True Firm Performance**

Table 3 demonstrates the relationship between disclosure and true firm performance. The

lower panel of Table 3 includes the post-estimation tests for autocorrelation and instrument validity. AR (1) and AR (2) are Arellano and Bond (1991) tests for first-order and second-order autocorrelation in the first difference errors. When regression errors are independent and identically distributed, the first difference errors are by definition auto-correlated. For each of the Models reported in Table 3, the AR (1) and AR (2) tests show no evidence of autocorrelation at conventional levels of significance. In addition, several formal tests, including Hansen-J test of over-identification has been conducted to confirm the validity of the system GMM estimator used in our study. As presented in the last row of Table 3, the Hansen-J test yield the p-value (above 10%), suggesting that instrumental variables employed in our system GMM are valid. Therefore, these post estimation results indicate that the dynamic model is a reasonably good specification for a true firm performance model.

Model (1) uses a linear specification. Model (2) attempts to capture the nonlinear relationship between disclosure and performance by including the square term of disclosure,  $DI_2$ , as a regressor whereas; Model (3) provides evidence of the interacting role played by the proportion of independent directors on board.

The results from the Model (1) indicate a positive and statistically significant relationship between Adj-ROA and true firm performance while the Adj-ROE shows no significant differences. This supports the conjecture that disclosure is value increasing. Results in Model (2) show a positive relationship for Adj-ROA with disclosure and a negative relationship between Adj-ROA and the squared term of disclosure, respectively. The expected sign of the coefficients on the variables  $DI$  and  $DI_2$  confirm the nonlinear relationship between Adj-ROA and disclosure. According to these results, the maximum Adj-ROA is attained at  $Adj-ROA = -B_1/2B_2 = -1.559 / (2 * -.856) = 91.1\%$ . In particular, the results show that the disclosure – Adj-ROA curve slopes upward until disclosure reaches the level of 91.1%; it then slopes downward. These results suggest that changes to disclosure requirements, while directly beneficial to owners, also carry indirect costs. It supports the notion that career concerns for CEO in a greater level of disclosure capture some of the disclosure benefit via greater earnings management. As such, the optimal level of disclosure could be less than maximal disclosure. Going beyond that level would reduce firm value. This result is consistent with the Hermalin and Weisbach (2012) model, which argues that the greater level of disclosure affects CEOs adversely, which has a detrimental effect on shareholder value. To better interpret the turning point, Fig. 1 plots the inverted U-shaped curve, which illustrates 91.1% as the level where disclosure turns from a positive into a negative effect on profitability. While a positive relationship exists between disclosure and Adj-ROA, the relationship between disclosure and Adj-ROE is not significant, nor are the curvilinear terms. The last Model of Table 3 shows the estimation results of the interaction terms. The positive and negative coefficient of the interaction terms of Adj-ROA and its square ( $\beta_3 = 2.833$  and  $\beta_4 = -1.636$ ) support nonlinear relationship between disclosure and true firm performance. These results indicate that there are statistically significant differences between dependent and independent boards even when the specification accommodates the possibility of a nonlinear relation between Adj-ROA and disclosure. Therefore, these results show that the maximum Adj-ROA is attained at  $Adj-ROA = -2.833 / (2 * -1.636) = 86.5\%$ . Consequently, there can exist a point beyond which additional disclosure decreases firm value. This result allows us to conclude that the optimal level of disclosure drops in firms with a high proportion of independent directors on the board. It can indicate that the role of an independent board for CEO monitoring parallels the monitoring role of disclosure in firms to increase CEO career concerns. Therefore, disclosure is more likely to have a detrimental effect on shareholder value in greater level of board independence. It also confirms the important role of an independent board as an interacting variable when analysing the effect of disclosure on firm performance. The coefficient of the relationship between disclosure and Adj-ROE is not significant even in this case. Coefficients on the control variables in Table 3 are generally consistent with those in Cornett et al. (2008). The coefficients on firm size are all positive, indicating that large firms have greater true firm performance. Similarly, the coefficients on capital expenditure are also positive, and statistically

significant. The firm's age term is generally positive, but significant in only one regression. The leverage term is mostly negative, and statistically significant at 10% or better, implying that leverage reduces true firm performance.

### 5.3 Relation between Disclosure and Firm Performance

Table 4 presents the regression results of firm financial performance as a function of disclosure variables. In this Table, we treat reported performance, ROA and ROE, as the dependent variables. Like previous studies, our empirical evidence supports a significant positive relationship between disclosure and firm performance measurements (ROA and ROE). In stark contrast to the results in Table 3 for reported true firm performance, a nonlinear (inverted U-shaped)

relationship disappears in Table 4 using common firm performance. The coefficients of the interaction term with independent board and its square are both statically significant and positive. These results indicated that there is not a nonlinear relationship between common firm performance and disclosure when more independent directors are on the board. Overall, this implies that true firm performance, calculated from earnings free of the effects of managers' choices for depreciation, amortization, and accruals, is less responsive to the monitoring variables. The patterns of other variables are largely consistent with the results of Table 3. For example, firm size, firm age and capital expenditure increase firm performance while leverage reduces firm performance.

### Conclusion

We examine both the reasoning and data behind the conventional wisdom that more disclosure is not always better. Although we believe that the contribution of prior studies to the examination of linear relationships between disclosure and performance is a very important one, we continue at the point they suggest with attention to the potential non-linearities of this relation. In fact, our study speaks to the call by Hermalin and Weisbach (2012) for a better understanding of the consequence of disclosure and to the appeal in McConnell (2003) for more research on the role of outside directors. This study shows that once the likely impact of earnings management is removed from the firm performance estimates, the relation between performance and disclosure becomes nonlinear, implying that the optimal level of disclosure is less than maximal. Our evidence casts doubt on the idea that more disclosure is not free; attempts to mandate levels beyond this optimum would reduce profits.

CEOs are responsible for choosing and supplying the disclosure regime; the existence and magnitude of the disclosure effect depend on CEOs who inherently conflict with stakeholders. A more accurate analysis reveals that when disclosure is too high, firm performance decreases. This reduction stems from the fact that disclosure enables the shareholders and boards to learn about CEO quality, thus additional career risk to which the CEO is exposed. Therefore, greater disclosure exacerbates existing agency problems and asymmetric information with the possibility of misrepresentation, which tends to increase earnings management due to the increased career risks that CEOs face. Our results suggest that the choice of the disclosure level creates a trade-off between acquiring information about the company and detrimental activities by CEOs. This trade-off determines the inverted U-shaped relation found between disclosure and firm performance when discretionary accruals are removed from measured firm performance. In addition, we argue that misrepresentation differs in firms depending on the CEO monitoring and certain classes of firms with more independent directors on the board are unlikely to enjoy the greater level of disclosure.



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