

PROFESSIONAL EDUCATION BACKGROUND AND EARNINGS MANAGEMENT OF CHAIRMEN AND SENIOR MANAGERS

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ABSTRACT

In this study, we investigated how chairmen of the board (COBs) and senior managers, who have professional education background, implement earnings management based on their professional knowledge. The empirical results showed that, regardless of whether COBs are concurrently holding positions as chief executive officers (CEOs), varying degrees of earnings management were exercised as they applied their professional education background and adopted discretionary accruals (DAs) or manipulating operating cash flows. Because DAs demonstrate self-reverse effect as accounting principles, they should be used cautiously and conservatively to manage earnings. COBs and senior managers are individuals who manage earnings. When COBs have accounting background and concurrently hold CEO positions, they exhibit the highest degree of earnings management. Directors and external investors must pay additional attention when COBs concurrently serve as CEOs, because this enables them to manipulate the financial statements of companies based on their professional knowledge.

JEL: M1, M14

KEYWORDS: Earnings Management, Discretionary Accrual (DA), Real Earnings Management (REM), Professional Education Background

INTRODUCTION

Fierce global business competitions have produced larger organizations. These organizations are in urgent demand for educated professionals for company management. Berle and Means (1932) proposed a concept on the separation of ownership and management and indicated that shareholders no longer operate their companies in most leading US companies; instead, these companies are controlled by internal senior managers. In addition, Jensen and Meckling (1976) indicated that when company ownership and management diverge, managers (operators) may use their personal positions for perquisite consumption or suboptimal investment decisions to maximize personal utility. The main function of financial statements is to provide credible information for investors deciding on investment combinations. However, generally accepted accounting principles grant senior managers certain degrees of judgment and discretion to increase information usefulness. Hence, managers manipulate the earnings reports through choice accounting principles for their personal benefits, which include maintaining share prices or contract specifications (Healy and Wahlen, 1999). Companies may simultaneously adopt various earnings management techniques to generate profits. In 2001, several false financial statements were revealed in the United States. These incidents involved Enron, WorldCom, and Xerox, which affected the US capital market, and struck market investors' confidence in the financial statements of companies. A series of financial malpractices has successively emerged in Taiwan. Some examples include the 2004 Procomp and 2007 Rebar–Eastern cases. To strengthen corporate governance mechanisms, the Taiwanese government

recently promoted various reform policies to ameliorate existent flaws, fulfill authoritative responsibilities, and protect the equities of shareholders. Of the various corporate governance reform programs, the greatest attention is placed on enhancing the structures of board of directors. The board of directors not only guides company operation strategies but also acts as the key internal mechanism that supervises the top management in opportunistic behaviors. Therefore, the board of directors plays crucial and pivotal roles in corporate governance. Jensen and Meckling (1976) emphasized that adding external directors restrain and supervise the opportunistic behaviors of other directors because external directors are not at stake (directly or indirectly) with the company, often have independent statuses, and value personal reputation. They provide professional opinions on decisions as well as independent and impartial supervisory functions (Fama, 1980). Klein (2002) indicated that external directors strengthen the competence of the board of directors. When the board of directors consists of large proportions of external directors, companies are unlikely to be engaged in earnings management. Holland (1973) indicated that the professional knowledge and work style of a person are developed from his or her education background. Specifically, individuals apply their attained knowledge and reflect them in work performance. In contrast to ordinary external directors, finance and accounting specialists demonstrate high supervision efficiencies (DeZoort and Salterio, 2001). However, when compared with other members of the board, chairmen of the board (COBs) often have superiority during decision-making processes (Kakabadse et al., 2006; Balta et al., 2010).

When COBs concurrently serve as chief executive officer (CEO), they acquire increased decision-making authority and control. This centralization of authority reduces the supervision effects of the board (Booth et al., 2002) and the quality of financial statements (Kamarudin et al., 2012). CEOs play pivotal roles in organizational decisions (Berle and Means, 1932; Galbraith, 1967; Mason, 1958). Several studies have indicated that CEOs frequently conduct earnings management behaviors for their personal benefits (Healy, 1985; DeAngelo, 1986; Dechow et al., 1995; DeAngelo et al., 1994), which indirectly harms company values (Roychowdhury, 2006) and misguides external investors toward making irrational decisions. Specifically, when CEOs have a professional education background, they apply their professional knowledge to achieve their expected targets (Funke, 2001; Koyuncu et al., 2010). However, when COBs concurrently serve as CEOs, they secure true decision-making authority. Therefore, we determined whether professionally educated directors and CEOs (specifically with an accounting background) apply their professional knowledge to work performance and decision making as well as how professionally educated COBs who are and are not concurrently holding CEO positions use their professional knowledge to influence earnings management. The subsequent sections of this paper are listed as follows: Section 2 introduces literature review and hypotheses; Section 3 presents empirical model and methods; Section 4 provides results and analysis; and Section 5 offers conclusion and recommendations.

LITERATURE REVIEWS AND HYPOTHESES

Agency Problem and Earnings Management

The topic of corporate governance constantly receives considerable attention in globalizing economies. Watts and Zimmerman (1986) indicated that when ownership and management diverge, CEOs have greater access to quality information than do corporate shareholders. To maximize personal benefits, these individuals may become motivated to provide biased information and generate behaviors that result in the deadweight loss of companies, thereby impairing corporate values. Leuz et al. (2003) asserted that CEOs can leverage the asymmetry between internal and external company information without exposing the true financial conditions. Thereby, CEOs can practice earnings management and conceal the misappropriated company benefits on financial statements. Lang et al. (2006) and Leuz (2006) have indicated that centralized corporate ownerships are highly related to earnings management. In addition to accessing personal benefits, CEOs manipulate earnings management to avoid replacements. This is because CEO replacements are often related to prior underperformance. In addition to CEOs, owners are tempted to manipulate company earnings. For example, Bhojraj et al. (2009) found that, through real earnings

management (REM), companies direct financial analysts to disclose short-term optimism and allure increased external investors. Njah and Jarboui (2013) indicated that companies manipulate earnings as soon as the year before mergers and acquisitions to merge and acquire other cross-shareholding institutions. Therefore, owners and operators are both motivated to manipulate earnings. Schipper (1989) divided the earnings management of companies into two methods. First, is to adopt accrual-based earnings management, through increased revenue and reduced expenditure in accrual-based accounting. The other is manipulating operating cash flows (OCFs) to change earning levels, which is known as real economic activity-based earnings management (hereinafter referred to as REM). Researchers have primarily focused on the aspect of accrual-based earnings management (Healy and Wahlen, 1999). Until Roychowdhury (2006) developed the REM model, recent earnings management studies have mainly focused on REMs in which companies manipulate the timing and quantities of real operational activities to adjust earnings (Cohen and Zarowin, 2010; Gupta et al., 2010). In this study, earnings management involved manipulating accrual items (accrual-based) and changing earning levels through operating cash flows (REM).

Professionally Trained Directors

Directors are typically regarded as individuals who have professional knowledge, experience, and abilities; they use their professional skills and previous experiences to provide companies and senior managers with various assistance and recommendations, thereby increasing the quality of decisions and supervision of the board. Spence (1973) showed that educational attainment and work quality are significantly positively correlated and are frequently regarded as indicators of knowledge and basic competence in operations management (Hambrick and Mason, 1984). The professional competence of board members is crucial in providing companies with recommendations and consultation support. For example, when board members have a finance and accounting-related background, they can directly assess and supervise CEOs from the financing perspective and determine whether these CEOs are engaged in earnings management behaviors (Bhagat and Black, 1999). DeZoort and Salterio (2001) found that directors who specialize in finance and accounting are apt at proposing recommendations for financial statement-related problems or practicing supervisor rights for preventing major financial misstatements and earnings manipulations by CEOs. Xie et al. (2003) indicated that companies comprise large proportions of external directors who have management backgrounds and that instances of earnings management behaviors are rare. Defond, et al. (2005) investigated the characteristic change of board and corporate governance relationships under the Sarbanes–Oxley Act. They determined that markets responded positively when finance experts were appointed to audit committees. However, these markets demonstrated no reaction when financial experts who did not specialize in accounting were appointed, suggesting that investors tended to trust the financial conditions of companies reported by finance experts who were accounting experts. In addition, Lai and Tam (2007) showed that external directors who have a finance and accounting or law background increased the supervisory functions of auditors.

Fama and Jensen (1983) indicated that the board of directors is considered to play key roles in corporate governance when companies supervise CEOs. However, authority becomes centralized when COBs concurrently serve as CEOs, which exacerbates conflicts of interests and wanes investors' expectations in the supervision efficiency of the board of directors (Booth et al., 2002). Studies have indicated that, in addition to CEOs, companies practice earnings management for taxation (Zimmerman, 1983; Erickson et al., 2004), marketing (Bhojraj et al., 2009), and mergers and acquisitions (Njah and Jarboui, 2013), showing that both CEOs and companies are motivated to manipulate earnings. In contrast to other board members, COBs are often pivotal figures during decision-making processes. Therefore, the decision-making authority among board members cannot be considered equal (Kakabadse et al., 2006; Balta et al., 2010). Authority is centralized when COBs concurrently hold CEO positions. Consequently, external directors cannot optimize supervision efficiencies (Shivdasani and Yermack, 1999; Adams et al., 2005). Other studies have indicated that when COBs concurrently serve as CEOs, they have excess decision-making authority and high control over CEOs, which impairs the supervision of the board of directors and subsequently reduces

the quality of financial statements (Boone et al., 2007; Kamarudin et al., 2012; Arena and Alves-Braga, 2013). In summary, directors who have a professional education background are likely to demonstrate improved supervision effects on CEOs. However, when COBs concurrently serve as CEOs, authority is centralized, thereby impairing the supervision effects of the board of directors. Professionally educated COBs may manipulate financial statements for personal benefits. We inferred that COBs who have a professional education background present various supervision effects. COBs have a business and accounting background influence the earnings management plans of companies. Therefore, the following hypotheses were formulated:

H1: COBs who have a professional education background significantly influence the earnings management of companies.

H1-1: COBs who have a business background are significantly positively correlated with the earnings management of companies.

H1-2: COBs who have an accounting background are significantly positively correlated with the earnings management of companies.

Professionally Trained Senior Managers

In highly competitive environments, corporations prefer hiring professionally knowledgeable and competent managers for sustainable operations. The influence of senior managers on corporate management cannot be disregarded. This management includes guiding and controlling organizational decisions (Berle and Means, 1932; Galbraith, 1967; Mason, 1958). Hitt and Tyler (1991) compiled the qualities of CEOs and assessed whether these qualities affect their decisions. The results showed that varying professional education backgrounds granted CEOs various problem-solving abilities, thereby influencing their decisions. This is because varying professional education backgrounds provided CEOs with different management qualities (Bertrand and Schoar, 2003). Moreover, CEOs vary in professional competence. They adopt different methods to achieve the anticipated targets and exert distinctive influences on their companies (Frank and Goyal, 2009). People's professional knowledge and work style derive from their education background. People apply this knowledge to elevate their work performance (Holland, 1973). Therefore, professionally educated managers apply their professional knowledge to achieve expected goals (Funke, 2001; Koyuncu et al., 2010). For example, Gottesman and Morey (2006) indicated that CEOs that have a management education background exhibited superior fund performance to those without a management education background. Lin and Lee (2008) indicated that accounting performance was significantly positively correlated with management teams that had business background qualities. Jiang et al. (2010) investigated whether chief corporate financial officers (CFOs) manipulate earnings when tempted by stock dividends. The authors indicated that CFOs often have professional knowledge about finance and accounting and are responsible for preparing the financial statements of companies. Therefore, compared with CEOs, earnings manipulations by CFOs are more frequent because of the incentives of dividends. The aforementioned studies have shown that, in contrast to senior managers from other backgrounds, those who have professional finance and accounting knowledge are more likely to practice earnings management and reach the expected earnings levels based on their professional knowledge. In this study, we inferred that professionally educated senior managers present varying operational decisions, which influence the earnings management of companies. The following hypotheses were established:

H2: Professionally educated senior managers significantly influence the earnings management of companies.

H2-1: Senior managers who have a business background are significantly positively correlated with the earnings management of companies.

H2-2: Senior managers who have an accounting background are significantly positively correlated with the earnings management of companies.

DATA AND METHODOLOGY

In this study, accrual-based earnings management (based on discretionary accrual; DA) and REM (based on sales revenue, production cost, and operating cash flow) were used as the dependent variables to investigate whether the business and accounting background of COBs and CEOs affect earnings management.

Data

The research were obtained annual data from the *Taiwan Economic Journal* database and comprised listed and over-the-counter companies in Taiwan from 2008 to 2012. A total of 6,239 entries of observations were initially obtained. Through eliminating the financial, insurance and security industries of abnormal financial structures, public utilities (2,065 entries), and incomplete data during the 4-year period (1,543 entries), the final samples comprised 3,318 entries of observations. Influence of the Business and Accounting Background of Chairmen and Senior Managers on Discretionary Accrual Discretionary accruals have been estimated to assess the degrees of companies' earnings management and measure earnings quality. Dechow et al. (1995) assessed the power for detecting earnings management by using the modified Jones model generated optimal results and has been extensively used in subsequent studies as the most common model for estimating DA techniques. High DAs represent high degrees of earnings management and low earnings quality. In this study, the modified Jones model was used to calculate DA and investigate the correlation between DA and the professional education background of COBs and senior managers. The empirical model was constructed as follows: Relationship between the Business Background of COBs and DA:

$$DA = \beta_0 + \beta_1 PMBA_{board} + \beta_2 BIG_4 + \beta_3 LEV + \beta_4 ACCRUALS + \beta_5 OCF + \beta_6 SIZE + \varepsilon \quad (1)$$

Relationship between the Accounting Background of COBs and DA:

$$DA = \beta_0 + \beta_1 ACC_{board} + \beta_2 BIG_4 + \beta_3 LEV + \beta_4 ACCRUALS + \beta_5 OCF + \beta_6 SIZE + \varepsilon \quad (2)$$

Relationship between the Business Background of Senior Managers and DA:

$$DA = \beta_0 + \beta_1 PMBA_{ceo} + \beta_2 BIG_4 + \beta_3 LEV + \beta_4 ACCRUALS + \beta_5 OCF + \beta_6 SIZE + \varepsilon \quad (3)$$

Relationship between the Accounting Background of Senior Managers and DA:

$$DA = \beta_0 + \beta_1 ACC_{ceo} + \beta_2 BIG_4 + \beta_3 LEV + \beta_4 ACCRUALS + \beta_5 OCF + \beta_6 SIZE + \varepsilon \quad (4)$$

Influence of the Business and Accounting Background of Chairmen and Senior Managers on Real Earnings Management According to the method proposed by Roychowdhury (2006) and Cohen et al. (2008), the degrees of REM through operating cash flow were calculated to investigate the influence of the professional education background of COBs and senior managers on REM. The empirical model is shown as follows:

Correlations between the Business Background of COBs and REM:

$$REM = \beta_0 + \beta_1 PMBA_{board} + \beta_2 BIG_4 + \beta_3 LEV + \beta_4 ACCRUALS + \beta_5 OCF + \beta_6 SIZE + \varepsilon \quad (5)$$

Correlations between the Accounting Background of COBs and REM:

$$REM = \beta_0 + \beta_1 ACC_{board} + \beta_2 BIG_4 + \beta_3 LEV + \beta_4 ACCRUALS + \beta_5 OCF + \beta_6 SIZE + \varepsilon \quad (6)$$

Correlations between the Business Background of Senior Managers and REM:

$$REM = \beta_0 + \beta_1 PMBA_{ceo} + \beta_2 BIG_4 + \beta_3 LEV + \beta_4 ACCRUALS + \beta_5 OCF + \beta_6 SIZE + \varepsilon \quad (7)$$

Correlations between the Accounting Background of Senior Managers and REM:

$$REM = \beta_0 + \beta_1 ACC_{ceo} + \beta_2 BIG_4 + \beta_3 LEV + \beta_4 ACCRUALS + \beta_5 OCF + \beta_6 SIZE + \varepsilon \quad (8)$$

Where, DA =the discretionary accruals; REM =the earning management based on operating cash flow; $PMBA_{board}$ =1 if COBs have a business background, otherwise=0; ACC_{board} =1 if COBs have an accounting background, otherwise=0; $PMBA_{ceo}$ =1 if senior managers have a business background, otherwise=0; ACC_{ceo} =1 if senior managers have an accounting background, otherwise=0; BIG_4 =1 if audited by the big four firms, otherwise=0; LEV =the debt ratio, OCF = cash flow from operations, $ACCRUALS$ = total accruals, $SIZE$ =natural logarithm of total assets; ε =error term.

Dependent Variables

Discretionary Accruals (DA): Dechow et al. (1995) stated that authorities can manipulate earnings when recognizing receivables and inappropriate to regard all changes in credit sales as nonresidual items in the Jones model. Therefore, Dechow et al. (1995) considered changes in receivables as items of DA and included these changes in estimating DA items. This estimation method is similar to the Jones model. The modified Jones model comprises the following terms:

$$TA_{it} / A_{it-1} = \beta_0 [1 / A_{it-1}] + \beta_1 [\Delta REV_{it} / A_{it-1}] + \beta_2 [PPE_{it} / A_{it-1}] + \varepsilon_{it} \quad (9)$$

$$DA_{it} = TA_{it} / A_{it-1} - \left[\hat{\beta}_0 (1 / A_{it-1}) + \hat{\beta}_1 ((\Delta REV_{it} - \Delta REC_{it}) / A_{it-1}) + \hat{\beta}_2 (PPE_{it} / A_{it-1}) \right] \quad (10)$$

Where, TA =total accruals; DA =the discretionary accruals; A =the total assets; ΔREV =change in net revenue; ΔREC =change in receivables; PPE =gross property, plant, and equipment; ε =error term. Real Earnings Management (REM): According to methods adopted by Roychowdhury (2006) and Cohen et al. (2008), we calculated the three aspects of abnormal OCF (below average industry standards), abnormal PROD (above average industry standards), and abnormal discretionary expense (DISEXP; below average industry standards) as indicators for measuring real earnings management (REM). Abnormal OCF:

$$OCF_{it} / A_{it-1} = \alpha_0 + \alpha_1 [1 / A_{it-1}] + \alpha_2 [S_{it} / A_{it-1}] + \alpha_3 [\Delta S_{it} / A_{it-1}] + \varepsilon_{it} \quad (11)$$

Abnormal PROD:

$$PROD_{it} / A_{it-1} = \alpha_0 + \alpha_1 [1 / A_{it-1}] + \alpha_2 [S_{it} / A_{it-1}] + \alpha_3 [\Delta S_{it} / A_{it-1}] + \alpha_4 [\Delta S_{it-1} / A_{it-1}] + \varepsilon_{it} \quad (12)$$

In this study, DISEXP was defined as the sum of advertising, research and development, and operating costs, which were used to estimate abnormal DISEXP.

$$DISEXP_{it} / A_{it-1} = \alpha_0 + \alpha_1 [1 / A_{it-1}] + \alpha_2 [S_{it-1} / A_{it-1}] + \varepsilon_{it} \quad (13)$$

Where, OCF = abnormal cash flow from operations; $PROD$ = abnormal production costs; $DISEXP$ = abnormal discretionary expenses; A =total assets; S =sales revenues; ΔS =change in revenues; ε =error term.

According to the methods adopted by Zang (2007) and Cohen and Zarowin (2010), we multiplied $PROD$ by -1 and added the product to OCF and $DISEXP$, thereby integrating the three variable criteria into a single comprehensive REM indicator as the measuring variable.

Independent Variables

COBs with a business background ($PMBA_{board}$): According to Carpenter and Fredrickson (2001) and Lin and Lee (2008), business backgrounds comprised education in management and finance and a master's degree in business administration (including executive master's business administration). COBs with an accounting background (ACC_{board}): This followed similar methods for categorizing $PMBA_{board}$. COBs who graduated from accounting departments or held accountant-related certifications were distinguished. Senior managers with a business background ($PMBA_{ceo}$): Various companies have differing titles for managers. CEOs are typically entitled as general manger (GMs), vice GMs, associates, managers, CFOs, and directors of accounting. The business background of managers was categorized using similar methods adopted for categorizing COBs. All company managers who have a business background were included. Senior managers with an accounting background (ACC_{ceo}): In addition, managers who graduated from accounting departments or had accountant-related certifications were subsequently distinguished from those with a business background. All four variables were dummy variables that equaled 1 when each specified condition was fulfilled and 0 otherwise.

Control Variables

Big 4 (BIG_4): DeAngelo (1981) claimed that larger accounting firms contribute to better audit quality. Other studies subsequently indicated that large firms have high constraints on the freedom of authorities in earnings management. For example, Becker et al. (1998) distinguished the accounting firms audited by Big 6 and non-Big 6 and indicated that those audited by non-Big 6 exhibited comparatively higher abnormal accruals, suggesting that the choices of accountants affect clients' earnings management behaviors. Chi et al. (2011) deduced a connection between audit experts and high-quality earnings management, indicating that audit experts are highly knowledgeable of industry characteristics. Therefore, when earnings management becomes constrained through DAs, they incline toward increased REM. However, Hamida et al. (2012) indicated that auditors have three motives for participating in or conniving in the earnings management behaviors of clients. These motives comprise stakeholders' pressure, altruism, and opportunism. Defond and Huang (2004) used the degrees of earnings management of audited financial statements to measure the influence of audit quality on economic results and the correlation between audit qualities and accounting firms. The empirical results revealed that, in the Taiwanese market, audit quality was irrelevant to accounting firms but affected strictly by certified accountants.

Specifically, no direct correlation was observed between the Big Four and whether companies engaged in earnings management. In summary, the signs of the Big 4 variable and DA and REM were not predicted in this study. This variable was a dummy variable that equaled 1 when the company was audited one of the Big 4 auditors and 0 otherwise. Debt Ratio (LEV): Press and Weintrop (1990) maintained that debt ratios influence whether companies engage in earnings management. They indicated that high-debt ratio companies are increasingly likely to violate debt covenants. To prevent this, companies of high debt ratios manipulate earnings to polish financial statements. However, DeAngelo et al. (1994) indicated that high debt ratios are related to financial difficulties. Companies renegotiate debt covenants when encountering financial difficulties. To strive for contract renegotiation and alleviate financial burden, companies manipulate financial statements to reduce earnings. Therefore, in this study, the signs of debt ratios, DAs, and REMs were not predicted.

Total Accrual (ACCRUALS): Francis et al. (1999) and Becker et al. (1998) have indicated that companies tend to exhibit high manipulated DAs when they have high total accrual items. Accruals self-reverse, which means that accruals from previous periods may reverse in the subsequent periods. To prevent this from occurring, accounting policies from previous periods must be subsequently implemented, which results in highly positive abnormal accruals in previous and successive accounting periods (Beneish, 1997). Therefore, the signs of total accruals, DAs, and REMs were not predicted. *Operating Cash Flow (OCF)*: Dechow et al. (1996) indicated that accrual items refer to the difference between accrual and cash bases. The number of DAs reduces inconsistencies between incomes and expenses in OCFs; therefore, OCF and the number of DAs are negatively correlated. In addition, Frankel and Rose (2002) stated that the manipulation of DAs for earnings management declined when OCFs increased. In summary, we predicted a negative correlation between *OCF* and *DA*. *Company Size (SIZE)*: Barth et al. (1998) proposed that when company size can be used as the proxy variable for other economic effects (i.e., persistence of earnings), they influence company earnings. Large company sizes aggravate agency problems. Therefore, company size and earnings management are negatively correlated. However, Watts and Zimmerman (1986) found that companies that exhibit high profitability tends to receive government and investor attentions. Therefore, we considered that, in large companies, authorities formulate comparatively strict regulations to protect investors and increase the transparency of financial statements. To protect reputation, manipulative earnings management behaviors are relatively rare in large companies. However, brokerages often provide financial prediction for large companies. To achieve the predicted financial targets, managers become increasingly performance-driven and are likely to engage in earnings management to achieve earnings targets and share price. Because company size can be adopted as an alternative measure for various missing variables, the company size variable was added to control differences between company values and sizes. Various studies have provided differing opinions; therefore, the sign of company sizes was not predicted in this study. In addition, a natural logarithm was applied to total assets as a measured variable.

RESULTS AND DISCUSSION

Descriptive Statistics

To assess whether COBs and senior managers manipulated DAs or REMs to increase or suppress company earnings, we did not obtain the absolute values of DAs. The average *DA* and *REM* were -0.002 and 0.005, respectively (shown in Panel A, Table 1), indicating that the companies potentially used DAs or REMs to manipulate earnings. $PMBA_{board}$ and ACC_{board} yielded averages of 0.37 and 0.02, respectively, suggesting that accounting background was rare among COBs. $PMBA_{ceo}$ and ACC_{ceo} yielded averages of 0.45 and 0.12, respectively, indicating that both business and accounting background among senior managers were more common than among COBs. BIG_4 yielded an average of 0.90, suggesting that 90% of the listed and over-the-counter companies in Taiwan had their financial statements audited by the Big4 auditors.

The one-way analysis of variance test results for the two subsamples of COBs who were and were not concurrently serving as CEOs are shown in Panel B of Table 1. The table shows that the COBs concurrently serving as CEOs yielded 985 entries, where the COBs not concurrently serving as CEOs yielded 2,333 entries. The means of $PMBA_{board}$ for COBs (COBs with a business background) who were and were not concurrently serving as CEOs were 0.35 and 0.37, respectively ($t = -1.16$). The results failed to reach significance. Average ACC_{board} for COBs (with an accounting background) who were and were not concurrently serving as CEOs were 0.01 and 0.02, respectively ($t = -2.01$). The results reached significance and indicated that the accounting background of the COBs affected their decisions. Regarding the professional education background of senior managers, when COBs were and were not concurrently serving as CEOs, $PMBA_{ceo}$ yielded averages of 0.44 and 0.45, respectively ($t = -1.15$), and the results failed to reach significance. The medians for ACC_{ceo} were 0.08 and 0.91, respectively ($z = -1.98$). The results indicated that the accounting background of senior managers influenced their decisions. Regarding the control variables, BIG_4 yielded averages of 0.89 and 0.91 for companies audited and not audited by the Big Four,

respectively ($t = -2.29$). The results reached significance and showed that whether the Big Four audited companies in which COBs were concurrently and not concurrently serving as CEOs yielded varying results. Furthermore, when the COBs were and were not concurrently serving as CEOs, the averages for *LEV*, *OCF*, and *SIZE* were 0.01 and 0.02 ($t = -2.67$; reached significance), 0.05 and 0.07 ($t = -5.07$; reached significance), and 14.93 and 15.38 ($t = -8.90$; reached significance), respectively. The overall data revealed that whether COBs concurrently served as CEOs influenced company decisions.

Table 1: Summary Statistics

Panel A						n=3,318
Variables	Mean	Std. Dev.	Max	Min	Median	
<i>DA</i>	-0.002	0.094	0.934	-0.730	-0.002	
<i>REM</i>	0.005	0.256	1.033	-1.095	0.031	
<i>PMBA_{board}</i>	0.370	0.482	1.000	0.000	0.000	
<i>ACC_{board}</i>	0.020	0.135	1.000	0.000	0.000	
<i>PMBA_{ceo}</i>	0.449	0.224	1.000	0.000	1.000	
<i>ACC_{ceo}</i>	0.122	0.142	1.000	0.000	1.000	
<i>BIG₄</i>	0.900	0.294	1.000	0.000	1.000	
<i>LEV</i>	0.201	0.127	0.998	-0.614	0.007	
<i>ACCRUALS</i>	0.459	0.322	2.744	-0.064	0.387	
<i>OCF</i>	0.068	0.118	0.522	-0.859	0.062	
<i>SIZE</i>	15.250	1.399	20.668	10.747	15.041	

Panel B: Subsamples of COBs Were and Were Not Concurrently CEO						
Variables	COBs Were Concurrently CEO (n=985)		COBs Were Not Concurrently CEO (n=2,333)		Test of Differences in Means and Median	
	Mean	Median	Mean	Median	Mean (t-Value)	Median (z-Value)
<i>PMBA_{board}</i>	0.350	0.000	0.370	0.000	-1.155	-1.149
<i>ACC_{board}</i>	0.010	0.000	0.020	0.000	-2.008	-1.197
<i>PMBA_{ceo}</i>	0.442	0.429	0.452	0.429	-1.154	-0.711
<i>ACC_{ceo}</i>	0.117	0.083	0.124	0.909	-1.358	-1.975
<i>BIG₄</i>	0.890	1.000	0.910	1.000	-2.289	-2.400
<i>LEV</i>	0.011	0.005	0.024	0.009	-2.670	-1.958
<i>ACCRUALS</i>	0.451	0.402	0.462	0.376	-0.928	-0.408
<i>OCF</i>	0.053	0.049	0.074	0.067	-5.073	-5.100
<i>SIZE</i>	14.935	14.869	15.384	15.130	-8.893	-7.638

This table shows descriptive statistics. The variable Definitions are: *DA*=the discretionary accruals; *REM*= the earning management based on operating cash flow; *PMBA_{board}*=1 if COBs have a business background, otherwise=0; *ACC_{board}*=1 if COBs have an accounting background, otherwise=0; *PMBA_{ceo}*=1 if senior managers have a business background, otherwise=0; *ACC_{ceo}*=1 if senior managers have an accounting background, otherwise=0; *BIG₄*=1 if audited by the big four firms, otherwise=0; *LEV*=the debt ratio, *OCF*= cash flow from operations, *ACCRUALS*= total accruals, *SIZE*=natural logarithm of total assets. ***, ** and * indicate significance at the 1, 5 and 10 percent levels respectively.

The correlations of *DA* and *ACC_{board}* and *PMBA_{ceo}* and *ACC_{ceo}* were significantly positively correlated. *REM* was significantly negatively correlated with *BIG₄* but significantly positively correlated with all other variables. The maximum variance inflation factor among each variable was 1.27 (not shown in table), indicating that collinearity was not pronounced.

Results Analysis

The linear regression model was used to assess H1-1, H1-2, H2-1, and H2-2. In addition to distinguishing whether the COBs were concurrently serving CEO positions, the professional education background of the COBs and senior managers were divided into business and accounting backgrounds to investigate the effects on DA-based and OCF-based earnings management. Professional Education Background of Chairmen and Discretionary Accrual-Based Earnings Management The influence of education background for the COBs concurrently not holding CEO positions on DA is shown in Panel A of Table 2. Model (1) revealed that *PMBA_{board}* and *DA* were significantly negatively correlated (*PMBA_{board}*, $\beta = -0.009$, $p < 0.05$), indicating that when the COBs were not concurrently serving as CEOs, their business background induced their inverse manipulation of earnings. Model (2) demonstrated the influence of the COB's accounting background on DA. *ACC_{board}* and *DA* were significantly positively correlated (*ACC_{board}*, $\beta = 0.027$, $p < 0.10$).

We deduced that the professional knowledge and skills in finance and accounting of the COBs with an accounting background promoted their ability in upward earnings manipulation. The influence of business background for the COBs concurrently serving as CEOs on DA is shown in Model (3), Panel B of Table 2. Under this condition, the sign of $PMBA_{board}$ and DA were negative but failed to attain significance. The influence of the accounting background of the COBs is shown in Model (4). The empirical results indicated that ACC_{board} and DA were significantly negatively correlated ($ACC_{board}, \beta = -0.066, p < 0.05$), suggesting that the natural conservative characteristic, which is inherent to finance and accounting personnel, of the COBs who had an accounting background and concurrently served as CEOs contributed to their steady operating methods and inclination for downward earnings management.

Regarding the control variables, BIG_4 and DA presented significant positive correlations in all four models. As mentioned, the earnings management behaviors of companies in the Taiwanese audit market are strictly individually influenced by personal certified accountants and show no direct association with the accounting firms. In addition, DAs self-reverse, and accountants may connive with certified clients to certain degrees of earnings management. LEV was positively significant in Models (1) and (2) and negatively significant in Models (3) and (4). $ACCURLS$ was negatively significant in Models (1) and (2) and positively significant in Models (3) and (4). As mentioned, companies implement earnings management based on various reasons. OCF and DA were significantly negatively correlated in all four models, verifying that when OCF was high, the manipulable DA items for achieving earnings management decreased.

Table 2: Professional Education Background of Chairmen and Discretionary Accrual-Based Earnings Management

Panel A: COBs Were Not Concurrently Serving as CEO						
	COBs with a Business Background			COBs with an Accounting Background		
	Model (1)---Eq.(1)			Model (2)---Eq.(2)		
	Coefficient		p-value	Coefficient		p-value
Intercept	0.042		0.069	0.036		0.122
$PMBA_{board}$	-0.009		0.047 *			
ACC_{board}				0.027		0.059
BIG_4	0.014		0.063	0.014		0.067
LEV	0.025		0.083	0.024		0.094
$ACCURLS$	-0.036		0.000 **	-0.035		0.000 **
OCF	-0.537		0.000 **	-0.533		0.000 **
$SIZE$	0.000		0.846	0.000		0.766
Adj R ²	0.405			0.405		
F-Statistic	269.110			269.010		
p-value	0.000			0.000		
Panel B: COBs Were Concurrently Serving as CEO						
	COBs with a Business Background			COBs with an Accounting Background		
	Model (3)---Eq.(1)			Model (4)---Eq.(2)		
	Coefficient		p-value	Coefficient		p-value
Intercept	-0.167		0.000 **	-0.168		0.000 **
$PMBA_{board}$	-0.001		0.834			
ACC_{board}				-0.066		0.016 *
BIG_4	0.017		0.068	0.016		0.084
LEV	-0.232		0.000 **	-0.236		0.000 **
$ACCURLS$	0.021		0.056	0.020		0.064
OCF	-0.314		0.000 **	-0.316		0.000 **
$SIZE$	0.011		0.000 **	0.011		0.000 **
Adj R ²	0.154			0.159		
F-Statistic	31.160			32.300		
p-value	0.000			0.000		

This table reports the estimated parameters of the professional education background of chairmen and discretionary accrual-based earnings management. ***, ** and * indicate significance at the 1, 5 and 10 percent levels respectively.

Professional Education Background of Senior Managers and Discretionary Accrual-Based Earnings Management Table 3 shows the relationship of educated senior managers and DA. Regardless of whether the COBs were concurrently serving as CEOs, the signs of $PMBA_{ceo}$ and DA were both positive but failed

to reach significance in Models (5) and (7). ACC_{ceo} and DA were significantly positively correlated in Models (6) and (8) ($\beta=0.02, p<0.05$; $\beta=0.03, p<0.05$). Other resulting of control variables were similar to those shown in Table 2. DAs self-reverse when accounting principles are applied. The results presented in Tables 2 and 3 show that the COBs and managers with a business background managed earnings cautiously. Despite the presence of earnings management behaviors, they adopted conservative methods and were inclined toward downward earnings management. However, when the COBs and senior managers had an accounting background and COBs concurrently served as CEOs, the COBs presented steady company operation and noticeable downward earnings management behaviors. The CEOs who had professional finance and accounting knowledge were more advantageous compared with those who had a business background. These CEOs may use this advantage to increase company earnings, manipulate COBs to rationalize their behaviors, and achieve the purpose of polishing financial statements.

Table 3: Professional Education Background of Senior Managers and Discretionary Accrual- Based Earnings Management

Panel A: COBs Were Not Concurrently Serving as CEO				
	Senior Managers with a Business Background Model (5)---Eq.(3)		Senior Managers with an Accounting Background Model (6)---Eq.(4)	
	Coefficient	p-value	Coefficient	p-value
Intercept	0.049	0.017 *	0.045	0.028 *
$PMBA_{ceo}$	0.008	0.245		
ACC_{ceo}			0.021	0.050 *
BIG_4	0.014	0.017 *	0.014	0.016 *
LEV	-0.030	0.016 *	-0.030	0.015 *
$ACCURLS$	-0.028	0.000 **	-0.028	0.000 **
OCF	-0.492	0.000 **	-0.492	0.000 **
$SIZE$	0.014	0.017 *	-0.001	0.541
$Adj R^2$	0.343		0.342	
F-Statistic	276.080		276.710	
p-value	0.000		0.000	
Panel B: COBs Were Concurrently Serving as CEO				
	Senior Managers with a Business Background Model (7)---Eq.(3)		Senior Managers with an Accounting Background Model (8)---Eq.(4)	
	Coefficient	p-value	Coefficient	p-value
Intercept	-0.137	0.000 **	-0.142	0.000 **
$PMBA_{ceo}$	0.009	0.338		
ACC_{ceo}			0.027	0.050 *
BIG_4	0.016	0.017 *	0.017	0.013 *
LEV	-0.221	0.000 **	-0.220	0.000 **
$ACCURLS$	0.005	0.518	0.006	0.531
OCF	-0.297	0.000 **	-0.298	0.000 **
$SIZE$	0.009	0.000 **	0.009	0.000 **
$Adj R^2$	0.140		0.142	
F-Statistic	40.260		40.830	
p-value	0.000		0.000	

This table reports the estimated parameters of the professional education background of senior managers and discretionary accrual-based earnings management. ***, ** and * indicate significance at the 1, 5 and 10 percent levels respectively.

Professional Education Background of Chairmen and Real Earnings Management The results for the COBs not concurrently serving CEO positions are shown in Panel A of Table 4. The data showed that $PMBA_{board}$ and ACC_{board} were both significantly positively correlated with REM ($\beta=0.05, p<0.01$; $\beta=0.23, p<0.01$). In Panel B, $PMBA_{board}$ and ACC_{board} for COBs concurrently serving CEO positions were also significantly positively correlated ($\beta=0.06, p<0.01$; $\beta=0.24, p<0.01$), suggesting that, when compared with using DA , the COBs were apt at earnings management through changing OCF . When they concurrently served as CEOs and had an accounting background, optimal effects in earnings management were obtained. The resulting of control variables were similar to those in Table 2.

Table 4: Professional Education Background of Chairmen and Real Earnings Management

Panel A: COBs Were Not Concurrently Serving as CEO				
	COBs with a Business Background		COBs with an Accounting Background	
	Model (9)---Eq.(5)		Model (10)---Eq.(6)	
	Coefficient	p-value	Coefficient	p-value
Intercept	-0.171	0.018 *	0.159	0.027 *
$PMB A_{board}$	0.053	0.000 **		
ACC_{board}			0.226	0.000 **
BIG_4	-0.071	0.002 **	-0.079	0.001 **
LEV	0.054	0.000 **	0.531	0.000 *
$ACCURLS$	0.040	0.053	0.046	0.025 **
$SIZE$	0.012	0.012 *	0.012	0.009 **
$Adj R^2$	0.090		0.094	
F-Statistic	47.970		50.100	
p-value	0.000		0.000	
Panel B COBs were concurrently serving as CEO				
	COBs with a Business Background		COBs with an Accounting Background	
	Model (11)---Eq.(5)		Model (12)---Eq.(6)	
	Coefficient	p-value	Coefficient	p-value
Intercept	0.071	0.528	0.105	0.347
$PMB A_{board}$	0.062	0.001 **		
ACC_{board}			0.241	0.005 **
BIG_4	-0.112	0.000 **	-0.122	0.000 **
LEV	0.562	0.000 **	0.574	0.000 **
$ACCURLS$	-0.048	0.135	-0.047	0.141
$SIZE$	0.003	0.675	0.002	0.787
$Adj R^2$	0.098		0.096	
F-Statistic	22.550		22.061	
p-value	0.000		0.000	

This table reports the estimated parameters of the professional education background of chairmen and real earnings management. ***, ** and * indicate significance at the 1, 5 and 10 percent levels respectively.

Professional Education Background of Senior Managers and Real Earnings Management The results for the COBs not concurrently serving CEO positions are shown in Panel A of Table 5. Similarly, $PMB A_{ceo}$ and ACC_{ceo} were both significantly positively correlated with REM ($\beta=0.08, p<0.01$; $\beta=0.07, p<0.05$). In Panel B, $PMB A_{ceo}$ for the COBs concurrently serving CEO positions remained positive but failed to attain significance, and a significant positive correlation was observed in ACC_{ceo} ($\beta=0.12, p<0.01$). Similar to the results shown in Table 4, when the COBs concurrently served as CEOs, the senior managers with an accounting background had the advantage of possessing finance and accounting knowledge. Although the COBs may have centralized authority, these CEOs can still implement REM to maximize personal benefits. The resulting of control variables were similar to those in Table 2.

Sensitivity Analysis

To confirm the stability of the results, observations were divided into the subsamples of $DA \geq 0$, $DA < 0$, $REM \geq 0$, and $REM < 0$ for sensitivity analysis. The results are presented in Table 6. DA is presented as a dependent variable in Panel A. The COBs who had a business background and were not concurrently holding CEO positions ($PMB A_{boards}, \beta=-0.012, p<0.05$) and those who had an accounting background and were concurrently serving CEO positions implemented reverse earnings management ($ACC_{boards}, \beta=-0.071, p<0.01$). Regardless of whether the COBs concurrently served as CEOs or their background education, all of the senior managers inclined toward positive earnings management, which was particularly evident for the CEOs with a professional accounting background ($ACC_{ceo}, \beta=0.029, p<0.05$). In Panel B, REM was used as the dependent variable. The results showed that regardless of whether the COBs concurrently served as CEOs, they were apt at using OCF for earnings management, which was increasingly evident for those who had an accounting background ($ACC_{board}, \beta=0.18, p<0.01$; $\beta=0.32, p<0.01$). The senior managers presented comparatively noticeable earnings management behaviors when the COBs were not concurrently serving CEO positions ($ACC_{ceo}, \beta=0.067, p<0.05$).

Table 5: Professional Education Background of Senior Managers and Real Earnings Management

Panel A Cobs Were Not Concurrently Serving As CEO				
	Senior Managers with a Business Background Model (13)---Eq.(7)		Senior Managers with an Accounting Background Model (14)---Eq.(8)	
	Coefficient	p-value	Coefficient	p-value
Intercept	-0.099	0.111	-0.069	0.265
PMBA _{cco}	0.084	0.000 **		
ACC _{cco}			0.072	0.027 *
BIG ₄	0.062	0.000 **	0.061	0.000 **
LEV	0.552	0.000 **	0.555	0.000 **
ACCURLS	0.029	0.090	0.026	0.126
SIZE	0.006	0.099	0.006	0.108
Adj R ²	0.092		0.089	
F-Statistic	65.471		63.230	
p-value	0.000		0.000	

Panel B Cobs Were Concurrently Serving As CEO				
	Senior Managers with a Business Background Model (15)---Eq.(7)		Senior Managers with an Accounting Background Model (16)---Eq.(8)	
	Coefficient	p-value	Coefficient	p-value
Intercept	0.098	0.273	0.069	0.437
PMBA _{cco}	0.035	0.231		
ACC _{cco}			0.124	0.002 **
BIG ₄	-0.075	0.000 **	-0.072	0.000 **
LEV	0.408	0.000 **	0.413	0.000 **
ACCURLS	-0.033	0.202	-0.034	0.192
SIZE	0.000	0.934	0.001	0.831
Adj R ²	0.040		0.045	
F-Statistic	13.030		14.660	
p-value	0.000		0.000	

This table reports the estimated parameters of the professional education background of senior managers and real earnings management. ***, ** and * indicate significance at the 1, 5 and 10 percent levels respectively.

Table 6: Professional Education Background of COBs and Senior Managers in Earnings Management

Panel A Professional Education Background and Discretionary Accrual-Based Earnings Management								
	COBs Were Not Concurrently Serving as CEO				COBs Were Concurrently Serving as CEO			
	DA_{≥0}		DA_{<0}		DA_{≥0}		DA_{<0}	
	Coeff.	p-value	Coeff.	p-value	Coeff.	p-value	Coeff.	p-value
COBs with a Business Background								
PMBA _{board}	-0.012	0.021 *	0.002	0.603	0.012	0.069	-0.006	0.336
COBs with an Accounting Background								
ACC _{board}	0.024	0.190	0.011	0.325	0.000	0.997	-0.071	0.008 ***
Managers with a Business Background								
PMBA _{ceo}	0.009	0.700	0.011	0.053	0.008	0.403	0.002	0.880
Managers with an Accounting Background								
ACC _{ceo}	0.008	0.573	0.015	0.106	0.029	0.031 *	-0.015	0.301

Panel B Professional Education Background and Real Earnings Management								
	COBs Were Not Concurrently Serving as CEO				COBs Were Concurrently Serving as CEO			
	REM_{≥0}		REM_{<0}		REM_{≥0}		REM_{<0}	
	Coeff.	p-value	Coeff.	p-value	Coeff.	p-value	Coeff.	p-value
COBs with a Business Background								
PMBA _{board}	-0.012	0.352	0.072	0.000 **	0.012	0.069	0.092	0.000 **
COBs with an Accounting Background								
ACC _{board}	0.180	0.000 **	0.101	0.094	0.319	0.000 **	0.104	0.297
Managers with a Business Background								
PMBA _{ceo}	-0.006	0.764	0.078	0.004 **	-0.044	0.106	0.034	0.313
Managers with an Accounting Background								
ACC _{ceo}	0.067	0.027 *	0.023	0.599	0.026	0.467	0.037	0.491

This table reports the estimated parameters of the professional education background of COBs and senior managers in earnings management. ***, ** and * indicate significance at the 1, 5 and 10 percent levels respectively.

CONCLUDING COMMENTS

Since Jensen and Meckling (1976) proposed agency theory, this topic has constantly received attention from researchers and practitioners. Since ownership and management have separated, management has had greater access to high-quality information than corporate shareholders do. They frequently conduct earnings management by changing accounting methods and managing accrual items in self-benefiting purposes to manipulate financial statements, provide biased information, and generate company losses, consequently undermining company values. To counter the earnings management behaviors of managers, companies must establish boards of directors as crucial internal cores for supervising authorities and maintaining sustained company operations. However, COBs are pivotal figures in decision-making processes. When senior managers have increasing authority, their influence amplifies. Consequently, company performance destabilizes. Therefore, we investigated how professionally educated COBs manipulate earnings for personal benefits based on their professional knowledge when they concurrently serve as CEOs. In addition, we separately determined how professionally educated senior managers manipulate earnings for personal benefits based on their professional knowledge when COBs are not concurrently holding CEO positions.

The empirical results show that, regardless of whether COBs were concurrently serving CEO positions, varying degrees of earnings management were exercised by both COBs and senior managers as they applied their professional education background and adopted DAs or changing operating cash flow. Because DAs self-reverse when accounting principles are applied, COBs and managers who have a business background tend to act cautiously and conservatively when managing earnings through DAs. Despite the presence of earnings management behaviors, they are inclined toward downward earnings management. However, when the COBs and managers had an accounting background and those COBs concurrently held CEO positions, the COBs provided increasingly steady management in company operation. Downward earnings management behaviors became increasingly noticeable. By contrast, the managers were advantageous in applying their professional finance and accounting knowledge to increase company earnings and polish financial statements. When adopting OCF-based earnings management, the COBs and managers engaged in increased earnings management behaviors, which was most pronounced when the COBs with an accounting background concurrently served as CEOs. In summary, when either COBs or senior managers have individual decision-making authority, they tend to apply various methods to adjust company earnings based on their professional knowledge to achieve their anticipated targets. Therefore, we suggest external investors and board members pay additional attention when COBs concurrently serve as CEOs, because they may polish the financial statements of companies based on their professional knowledge. When companies hire CEOs, they must be mindful of managers using their professional knowledge to their advantage to manipulate earnings.

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