The relation between financial statement quality and dividend payout: The role of information asymmetry
財務報表品質與股利發放之關聯性－資訊不對稱之調節效果

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Abstract: Many previous studies in the literature have explored how the quality of financial statements affects a company's financing and investing decisions, but few have discussed the impact of the quality of financial statements on dividend policy. Therefore, this article explores the relation between the quality of financial statements and dividends payout and this paper defines the quality of financial statements by the following three items: (1) the level of accruals management; (2) the level of real earnings management; and (3) accruals quality. We further use "control-cash flow right deviation of ultimate controllers" and "adoption of IFRS" to proxy information asymmetry and examine whether information asymmetry will influence the relation between the quality of financial statements and the dividend payout. This study employs TWSE/TPEx listed companies from 2010 to 2015 as research samples. The empirical results show that if the quality of financial statements is defined by the level of accruals management, then the worse the quality of financial statements, the higher the ratio of dividend payout. However, if the quality of financial statements is defined by the level of real earnings management or accruals quality, then there is no relation between the quality of financial statements and the ratio of dividend payout. The study also finds that if the level of information asymmetry of companies is larger, the relation between the quality of financial statement and dividend payouts is more pronounced. In other words, The larger the control-cash flow right deviation of ultimate controllers or before adoption of IFRS, the more pronounced relation between the quality of financial statements and the ratio of dividend payout. The results of this research serve as a supplement to the literature as well as a reference for TWSE/TPEx listed companies with regard to the distribution of dividends.

Keywords: Financial statement quality, dividend, information asymmetry, real earnings management, accruals management.

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摘要：過去很多文獻探討財務報表品質如何影響公司的籌資及投資決策，但卻很少文獻討論財務報表品質對股利政策之影響。因此，本研究分析財務報表品質對股利發放之影響，並將財務報表品質定義為下列三項：(1)應計盈餘管理程度；(2)實質盈餘管理程度；(3)應計品質。本研究進一步探討資訊不對稱對於前述關聯性的影響，並以控制股東股權偏離程度及採行國際財務報導準則來代理資訊不對稱程度。本研究以 2010 年至 2015 年的台灣上市櫃公司為研究樣本。本研究實證結果顯示若將財務報表品質定義為應計盈餘管理程度，則財務報表品質越差，股利發放率就越高；然而，若將財務報表品質定義為實質盈餘管理程度或應計品質，則財務報表品質與股利發放率之間不具關連性。除此之外，本研究也發現當資訊不對稱程度越高，則財務報表品質與股利發放之間的關聯性越強。換言之，當控制股東股權偏離程度越大、抑或是公司採行國際財務報導準則之前，財務報表品質與股利發放之間的關聯性越顯著。本研究結果可以補充文獻之不足，並作為上市櫃公司發放股利參考之用。

關鍵詞：財務報表品質、股利、資訊不對稱、實質盈餘管理、應計盈餘管理

1. Introduction

Investigating the determinants of dividend payout policy is an issue in finance and accounting field. In perfect and complete financial markets, dividend payout policy should not affect firm value (Miller and Modigliani, 1961); however, in real world, the market is not perfect or complete, so many studies focused on various market frictions to explain why firms pay dividends or explained why investors view dividend payout as positive news (DeAngelo, DeAngelo and Skinner, 2009). The impact of a company's financial statements on its policies is also an important topic. However, most past studies have explored how the quality of financial statements affect a company's financing and investment decisions, with only a few studies exploring the impact of the quality of financial statements on the dividend policy (Koo, Ramalingegowda, and Yu 2017). In addition, there is also no uniform definition of the quality of financial statements in the literature. According to Conceptual Framework for Financial Reporting 2013 in Taiwan, useful financial information must be relevant and faithfully represent its intention; if financial information is comparable, verifiable, timely, and understandable, then its

usefulness can be enhanced. Conceptual Framework for Financial Reporting 2013 in Taiwan also points out that the qualitative characteristics of financial information are relevance and faithful representation; relevance refers to the existence of predictive value, confirmatory value, and materiality; faithful representation refers to completeness, neutrality, and free from error. In short, there is currently no uniform specification on how to define relevance and faithful representation in academic studies. For example, Koo *et al.* (2017) define the quality of financial statements by unexpected accruals as calculated by the model of Dechow and Dichev (2002).

According to the literature, the impact from the quality of financial statements on dividends comes from three channels. First, the quality of financial statements can ease the problem of free cash flow (this is called the free cash flow problem channel); the free cash flow problem channel means that management have the intention to reduce the distribution of dividends and invest cash in investment plans, which are beneficial to them, but not necessarily the best choice (Jensen 1986). From the free cash flow problem channel, the quality of financial statements is positively associated with the dividend payout. In addition, if the impact of corporate governance mechanisms is considered into the free cash flow problem channel, then this will induce two views. One is the outcome view proposed by La Porta *et al.* (2000), Fenn and Liang (2001), and Michaely and Roberts (2012), in which useful corporate governance mechanisms can reduce management's intention to invest in plans that are beneficial to them, but not the best decisions, and which result in paying out more cash dividends to shareholders. Thus, the quality of financial statements is positively associated with the dividend payout. The other one is the substitute view proposed by Rozeff (1982), La Porta *et al.* (2000), Hu and Kumar (2004), and John *et al.* (2015), in which management will show that the company has no problem of free cash flow by distributing more dividends in order to build their reputation for a lower financing cost in the future; thus, when financial statements are better in terms of quality, more relevant, and faithfully represented, management will have less intention to build a reputation by distributing more dividends. From the substitute view, the quality of financial

is negatively associated with the dividend payout.

The second channel is called the financial constraint channel. When asymmetric information exists between management and outsiders, outsiders will increase constraints on financial statements, such as a minimum deposit balance, so as to reduce the dividend payout. However, when the quality of financial statements is better, outsiders are more willing to believe the numbers on the financial statements and intend to reduce constraints, leading to an increase in the dividend payout. In other words, the quality of financial statements is positively associated with the dividend payout.

The third and last channel is called the quiet life problem channel (Hicks 1935; Bertrand and Mullainathan 2003). This channel means that when financial statements are worse in terms of quality, irrelevant, and not faithfully represented, the management are less likely to invest in plans that have a higher value, but instead spend time and effort to supervise and arrange (Bertrand and Mullainathan 2003). However, if the quality of financial statements is better, then management will have a lower chance of investing in plans that have a lower ROI, but also put forth fewer efforts. Thus, the quality of financial statements is negatively associated with the dividend payout.

To sum up, the quality of financial statements will affect the dividend policy through corporate governance mechanisms or constraints on financial statements or the consideration for the free cash flow. As the correlation between the quality of financial statements and the dividend payout varies in terms of channels and views, it is an empirical issue worth studying. As a result, the first purpose of this study is to explore the relation between the quality of financial statements and the dividend payout. Based on Defond and Subramanyam (1998), Dechow and Dichev (2002), Lin *et al.* (2007), Jayaraman (2008), and Lee *et al.* (2015), the quality of financial statements is defined as follows: (1) the level of accruals management; (2) the level of real earnings management; and (3) accruals quality.

Furthermore, if financial markets are less than perfect, for example, in the presence of asymmetric information, the dividend payout policies can have impact on firm value (Miller and Modigliani, 1961). We further examine whether a change

in the information environment of the firm leads to changes in its dividend payout policy. Based on prior studies, such as: Jensen and Ruback (1983), Grossman and Hart (1988), Harris and Raviv (1988), Bebchuk *et al.* (2000), Kalay (2014), Hail *et al.* (2014), and Koo *et al.* (2017). The research decides to examine two moderating factors related with information asymmetry, which were: (1) control-cash flow right deviation of ultimate controllers; (2) adoption of IFRS. To summarize, the second research purpose is to investigate whether information asymmetry will influence the relation between the quality of financial statements and the dividend payout.

Among the foreign literature, only Koo *et al.* (2017) explore the impact of the quality of financial statements on the dividend policy. Although the subject of the present study is similar to that of Koo *et al.* (2017), my study is worth investigating for the following five reasons. First, Koo *et al.* (2017) define the quality of financial statements by unexpected accruals,[2] while this study defines the quality of financial statements as follows: (1) the level of accruals management; (2) the level of real earnings management; and (3) accruals quality. Thus, the range of our study is wider than that of Koo *et al.* (2017). Second, the sample of Koo *et al.* (2017) is listed companies in the U.S., while my study includes TWSE/TPEx listed companies in Taiwan. The U.S. is the world's largest economy with an economic growth rate lower than Taiwan's market. According to La Porta *et al.* (1998) and Hail *et al.* (2014), the economic, legal, and economic growth rates of individual countries will affect companies operating in these markets, and so the similar subject using TWSE/TPEx listed companies in Taiwan as the sample is still worth exploring. Third, La Porta *et al.* (1998) and Claessens *et al.* (2000) indicate that the degree of ownership concentration will affect the effectiveness of corporate governance mechanisms. Most investors in the Taiwan stock market are individual investors, who are different from institutional investors in the U.S. market. When the ownership is more concentrated, the major shareholders are more able to deprive minority shareholders of their rights and interests (Firth *et al.*

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[2] Their study calculates unexpected accruals using the model proposed by Dechow and Dichev (2002).

2006; Conyon and He 2011; Cullinan *et al.* 2012). In other words, as the degree of ownership concentration of TWSE/TPEx listed companies in Taiwan is different from that of listed companies in the U.S., and the degree of ownership concentration will affect the effectiveness of corporate governance mechanisms, this study is significant, because it explores the relation between the quality of financial statements and the ratio of dividend payout using TWSE/TPEx listed companies in Taiwan as the sample. Fourth, among Taiwanese studies in the recent decade (2006~2017), five studies on the subject of dividends have been published in Taiwan Social Sciences Citation Index (TSSCI) journals: Wang *et al.* (2006), Ni and Liao (2006), Chen and Chen (2010), Lin *et al.* (2012), and Chan *et al.* (2016). Wang *et al.* (2006) investigate whether stock repurchases are a substitute for cash dividends and find that they do strengthen the positive result of dividend increasing and reduce the negative impact of dividend decreasing. Ni and Liao (2006) explore the relationship between founding family ownership financing costs and dividend policies from the viewpoint of the agency theory. In addition, Chen and Chen (2010) use data spanning before and after implementation of the tax incentives for operational headquarters and examine the impact of the tax incentives on the remittance of foreign investment income. Lin *et al.* (2012) investigate whether or not the structure of executives' compensation and a corporate governance mechanism is associated with the cash dividend policy of listed companies in Taiwan. Finally, Chan *et al.* (2016) extend the tradeoff between share liquidity and dividend payouts and further examine whether the magnitude of financial constraints is significantly correlated to a dividend policy conditional on the degree of market liquidity. Lastly, the most important difference is that Koo *et al.* (2017) do not examine the moderating effect of information asymmetry but this study extends their research subject to information asymmetry. To summarize the above discussions, there is no Taiwan domestic study exploring the relation between the quality of financial statements and the ratio of dividend payout. Thus, the empirical results of this study can serve as a supplement to references with regard to the relation between the quality of financial statements and the dividend policy.

This study offers the following contributions to the literature. First, the dividend policy is part of company's policy, and so the findings herein can serve as a supplement to studies with regard to the impact of the quality of financial statements on company's policy. Second, this study explores the impact of corporate governance mechanisms on the quality of financial statements and the dividend policy based on the agency theory, resulting in two opposing views. One is the outcome view, where useful corporate governance mechanisms can reduce management's intention to invest in plans that are beneficial to them, but not the best choices, thus resulting in the distribution of more cash dividends to shareholders. On the contrary, from the substitute view, when financial statements are better in terms of quality, more relevant, and faithfully represented, management will have less intention to build a reputation by distributing more dividends. According to the findings of this study, the quality of financial statements is negatively associated with the ratio of dividend payout, which is consistent with the substitute view. Third, this study modifies the research design based on past studies, and so the empirical results herein serve as a supplement to issues not yet clarified in related literature. For example, Skinner and Soltes (2011) explore whether the dividend policy includes information on earnings quality, but this paper does not consider the impact of corporate governance mechanisms. To improve upon that study, this present paper takes the impact of corporate governance mechanisms into account and proposes two opposing views in the hypotheses: the outcome view and the substitute view. Fourth, this study further examines whether a change in the information environment of the firm leads to changes in its dividend payout policy. The article examines two moderating factors related with information asymmetry, which were: (1) control-cash flow right deviation of ultimate controllers; (2) adoption of IFRS. The findings can complete existing literature. Fifth, this study is the first one in Taiwan to explore the quality of financial statements and the dividend policy. Thus, its empirical results can serve as a supplement to references and for TWSE/TPEx listed companies with regard to the distribution of dividends.

The organization of this paper is as follows. The first part describes the

motivation for the study, its purpose, and research contributions. The second part presents the literature review and the development of the research hypotheses. The third part discusses the data and methodology, while the fourth offers the empirical results. Finally, the fifth part provides conclusions and recommendations.

2. Literature review and hypotheses' development

According to the literature, the impact of the quality of financial statements on dividend payout comes from three channels. One channel is called the free cash flow problem channel, which arises from the conflict of interests between principals and agents (Jensen 1986). Instead of returning the free cash flow to investors, management have the intention to obtain benefits by reducing the dividend payout, such as increasing their salaries or choosing investment plans that are beneficial to them, but which have lower ROI. If financial statements are better in terms of quality - that is, more relevant and faithfully represented - then investors will discover more easily that the management invest in plans that are beneficial to them, but diminish firm value. Thus, the management will have to reduce such investment plans and instead distribute cash dividends to shareholders (Bushman and Smith 2001; Biddle *et al.* 2009). On the other hand, if financial statements are better in terms of quality - that is, more relevant and faithfully represented - then the remuneration package of the management is more easily connected with the interests of shareholders, because investors can identify controllable and uncontrollable parts more clearly (Koo *et al.* 2017). Moreover, past studies, such as Hope and Thomas (2008), Biddle *et al.* (2009), and Cheng *et al.* (2013), find that the quality of financial statements could solve the issue of free cash flow. Thus, the quality of financial statements is positively associated with the dividend payout; in other words, when the quality of financial statements is better, more dividends will be distributed. Successive researchers have included corporate governance mechanisms into the free cash flow problem channel, resulting in two views: the outcome view and substitute view.[3] The outcome

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[3] La Porta *et al.* (2000) are the first to propose the outcome view and the substitute view. Their study uses the two opposing views to explain how corporate governance mechanisms affect dividend policy.

view is discussed in some papers, such as La Porta *et al.* (2000), Fenn and Liang (2001), and Michaely and Roberts (2012). According to the outcome view, the distribution of dividends is the result of the effective implementation of corporate governance mechanisms; that is, management have the intention to benefit themselves by reserving cash excessively, and so companies have to set up some mechanisms to force the management to distribute more dividends. One of the effective methods is to build an effective corporate governance mechanism that complicates the procedures for benefiting management or makes benefiting management costly. Some past studies, such as La Porta *et al.* (2000), find that more dividends are distributed when the power of the mechanism to protect small shareholders is enhanced. In short, the outcome view believes that useful corporate governance mechanisms can ease management's intention to benefit themselves, resulting in the distribution of more cash dividends. According to the outcome view, if the quality of financial statements is better, which eases management's intention to reduce the distribution of dividends and invest in plans with low ROI, then more dividends will be distributed. Thus, the quality of financial statements is positively associated with the dividend payout.

The second channel with regard to the impact of the quality of financial statements on dividend payout is called the financial constraint channel. The adverse selection arising from the asymmetric information between management and investors will affect a company's ability to obtain funds from external markets (Myers and Majluf 1984). In other words, when a company obtains limited funds from external markets, it will reserve more earnings, leading to a lower distribution of dividends (Koo *et al.* 2017). However, a better quality of financial statements can reduce the asymmetric information between management and investors, resulting in a lower capital cost (Diamond and Verrecchia 1991; Dechow *et al.* 1996; Francis *et al.* 2004, 2005; Hribar and Jenkins 2004; Bharath *et al.* 2008; Graham *et al.* 2005). Thus, better quality financial statements can reduce the constraints on financial statements, leading to an increase in the distribution of dividends. From the view of the financial constraint channel, the quality of financial statements should positively correlate with the distribution of dividends.

To sum up, the first hypothesis is proposed below.

Hypothesis 1: Based on the free cash flow problem channel, outcome view, and the financial constraint channel, the quality of financial statements is positively associated with the ratio of dividend payout.

Some studies have proposed that the quality of financial statements is negatively associated with the distribution of dividends. Compared to the outcome view, the substitute view denotes the impact of corporate governance mechanisms on the free cash flow problem channel. According to the substitute view proposed by Rozeff (1982), La Porta *et al.* (2000), Hu and Kumar (2004), and John *et al.* (2015), dividends can substitute for corporate governance mechanisms, because companies have to obtain funds from external markets, and so management have to build a good reputation by distributing cash dividends to shareholders rather than investing in plans with diminished ROI in order to obtain a lower capital cost; however, when corporate governance mechanisms are stronger, management will have a lower chance of investing in plans with diminished ROI, leading to a decrease in the benefit produced by the distribution of more dividends so as to obtain investors' trust. Thus, when corporate governance mechanisms are stronger, few dividends will be distributed. Past literature, such as Hu and Kumar (2004), also has proposed similar views. According to Hu and Kumar (2004), the greater management's power is, the higher the distribution of dividends. When external supervision is more effective, less dividends will be distributed (John *et al.* 2015). In short, according to the substitute view, management will show that the company has no problem of free cash flow by distributing more dividends in order to build a reputation for lower financing costs in the future; thus, when financial statements are better in terms of quality, more relevant, and faithfully represented, management will pay less intention to build their reputation by distributing more dividends. From the substitute view, the quality of financial statements is negatively associated with the distribution of dividends.

The last channel with regard to the impact of the quality of financial statements on dividend payout is called the quiet life problem channel, which is discussed in Hicks (1935) and Bertrand and Mullainathan (2003). According to

the quiet life problem channel, if the corporate governance mechanism is more ineffective, then management will choose a quiet life; that is, investment plans which have lower ROI and take less time or effort. When management choose investment plans with lower ROI, more cash dividends will be distributed to investors; however, if financial statements are better in terms of quality, more relevant, and faithfully represented, then management will have a lower chance of choosing the second best investment plan that is easier without too much effort (Bushman and Smith 2001) and instead actively invest cash in plans with higher ROI (Bushman and Smith 2001; Biddle *et al.* 2009), leading to a decrease in the distribution of dividends. Recent papers, such as Cheng *et al.* (2013), have also proposed that the quality of financial statements could restrain management from investing too little. In short, according to the quiet life problem channel, the quality of financial statements is negatively associated with the distribution of dividends. To sum up, the second hypothesis is proposed below.

Hypothesis 2: Based on the substitute view and the quiet life problem channel, the quality of financial statements is negatively associated with the ratio of dividend payout.

In the real world, financial markets are less than perfect; therefore, there is in the presence of asymmetric information. This study further examines whether a change in the information environment of the firm leads to changes the relation between the quality of financial statements and the ratio of dividend payout. Jensen (1986) asserts that dividend payouts are used to reduce the agency costs and reassure minority investors of managers' commitment to make diligent use of firm resources; in other words, paying dividends is a signal that the firm steers clear of overinvestment (Lang and Litzenberger 1989). Therefore, a change in the information asymmetry problem should lead to a change in firms' dividend payout policy. For instance, when a company's information environment with more precise and useful information and with better corporate governance, it should mitigate part of the information asymmetry between managers and investors, which, in turn, affects the role of dividends. In other words, lower information asymmetries reduce the pressure on managers to show their commitments or

communicate private information through costly dividend payouts (Hail *et al.* 2014). Thus, companies are expected to pay fewer dividends, and dividend payments become less informative. Conversely, the reduction in information asymmetry could improve minority investors' monitoring capabilities to successfully alleviate overinvestment and extract higher cash dividends from the firm (Kalay 2014). Extending abovementioned, if the level of information asymmetry of companies is less, the companies have not to pay higher amount of dividend payouts to reassure the quality of financial statement is better; in other words, in an information environment with less information asymmetry, the relation between the quality of financial statement and dividend payouts is less pronounced. To summarize, if dividends become less valuable because there exists more common information to begin with and because there is less of a need to show commitment via costly cash disbursements, this study expects investors to make smaller revisions to their priors upon the release of the dividend signal; therefore, in this kind environment, the relation between the quality of financial statement and dividend payouts is less pronounced.

Based on prior studies, for example: Bebchuk *et al.* (2000), Kalay (2014), Hail *et al.* (2014), and Koo *et al.* (2017). This study further examines two moderating factors to proxy information asymmetry, which were: (1) control-cash flow right deviation of ultimate controllers; (2) adoption of IFRS. The ultimate controllers gain control right by exercising control over each firm in the pyramidal chain; they gain cash flow right through direct or indirect ownership of the firm (La Porta *et al.* 1999; Claessens *et al.* 2000; Faccio and Lang 2002; Tsai *et al.* 2003). The deviation of control right above cash flow right limits the ultimate controllers' costs of reduced return from ownership when they extract control benefits from appropriating the firm (Claessens *et al.* 2000; Johnson *et al.*2000; Fan and Wong 2002; Gopalan and Jayaraman 2012; Zhang *et al.* 2014). In addition, ultimate controllers generally control the board composition and influence the firm's major activities, creating an operational environment difficult for board monitoring, specially the severe of information asymmetry (Chen and Hsieh 2011; Masulis and Mobbs 2011). Therefore, this paper proposes the third hypothesis as

below.

Hypothesis 3: The larger the control-cash flow right deviation of ultimate controllers, the more pronounced relation between the quality of financial statements and the ratio of dividend payout.

Bushman *et al.* (2005) and Fernandes and Ferreira (2009) found out the reduction in dividend payouts is more pronounced in emerging markets or the firms with increased analyst following; in other words, if the information asymmetry is less concerned, the firms have not to pay extra dividend payouts to demonstrate their private information. Moreover, Hail *et al.* (2014) asserted a more pronounced reduction in dividend payouts after mandatory IFRS adoption. This means dividends serve as a means of credibly conveying management's commitment, and a steady and predictable stream of dividend payments helps the company build a favorable reputation in the marketplace or attract a certain investor clientele (Dhaliwal *et al.* 1999; Allen *et al.* 2000). After an exogenous improvement of the commonly available information-mandatory IFRS adoption, there is less of a need for dividends to serve as a costly commitment and reputation device. Thus, the announcement of dividends should be perceived as less of a news event. In summary, the adoption of IFRS decreases the agency costs firms faced and reduces the need to distribute dividend to demonstrate manager's comments (Kalay 2014). Therefore, this study provides the fourth hypothesis as below.

Hypothesis 4: Before adoption of IFRS, the more pronounced relation between the quality of financial statements and the ratio of dividend payout.

3. Research method

3.1 Sample

The sample of this study covers the six-year period from 2010 to 2015,[4] and

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[4] The 2007-2008 global financial crisis is also known as the sub-mortgage crisis. During this time, investors began to lose confidence in the value of mortgage-backed securities, and even though the central banks of many countries injected huge amounts of capital into their financial markets, they were unable to prevent this event. Lehman Brothers eventually declared bankruptcy in September 2008, after which a number of large financial institutions collapsed or were taken over by their government. Therefore, this study has chosen its research period from the start of 2010 in order to avoid the impact of this financial crisis on firm performance of Taiwanese companies.

the sample collection process is shown in Table 1. This paper first selects TWSE/TPEx listed companies' data from the end of 2010, 2011, 2012, 2013, 2014, and 2015 and deletes samples for those with missing data. This results in a total of 7,670 observations, accounting for approximately 80% of the original samples. Furthermore, the data for the variables examined in this work come from the Taiwan Economic Journal (TEJ) database and are supplemented by the relevant information disclosed in the financial statements of the sample companies.

3.2 Variables and equations

3.2.1 Dependent variables

According to the related literature, such as Koo *et al.* (2017), this study defines the dependent variable in the empirical model as the ratio of dividend payout (DIVIDEND) as follows: common stock dividend payment amount in the current period/market value of shareholders' equity at the end of the period.

3.2.2 Independent variables

Based on related studies such as Givoly and Palmon (1982), Chambers and Penman (1984), Kross and Schroeder (1984), Atiase *et al.* (1989), Defond and Subramanyam (1998), Dechow and Dichev (2002), Lin *et al.* (2007), Jayaraman (2008), and Lee *et al.* (2015), this study defines accruals management (AM) as a proxy for the quality of financial statements.

According to Dechow *et al.* (1995), the modified version of the Jones (1991) model is regarded as the most powerful one for determining accrual-based earnings management, and so this study adopts that modified version to estimate abnormal accruals. In addition, when estimating discretionary accruals, it is appropriate to control for firm performance, because accruals are related to firm performance (Kothari *et al.*, 2005; Young *et al.*, 2012). Therefore, this study employs the modified version of the Jones (1991) model and incorporates return on assets (ROA) into it.

Accruals are modeled as a linear function of the change in revenues from the preceding year, the gross value of property, plant and equipment (PPE), and the return on assets. This paper then estimates the equation for each observation

Table 1
Sample collection (N=7,670)

	2010	2011	2012	2013	2014	2015	Total
Initial firm-year samples (number of TWSE/TPEx listed companies at the end of 2010, 2011, 2012, 2013, 2014 and 2015)	1,525	1,570	1,603	1,615	1,619	1,620	9,552
Step 1: Less companies unable to calculate the ratio of dividend payout	(223)	(186)	(177)	(142)	(99)	(61)	(888)
Step 2: Less companies unable to distribute dividends	(99)	(94)	(74)	(108)	(302)	(315)	(992)
Step 3: Less companies with missing data apart from the ratio of dividends payout or unable to distribute dividends	(1)	0	0	(1)	0	0	(2)
Firm-year samples used in the study	1,202	1,290	1,352	1,364	1,218	1,244	7,670
Proportion of final observations (%)	79%	82%	84%	84%	75%	77%	80%

through the cross-sectional regression as Equation A. This study employs the abnormal accrual- AM (Accruals management) as a proxy for the quality of financial statements and the abnormal accrual is measured by subtracting the normal level of accrual as estimated from Equation A, which is shown below.

$$\frac{TA_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{i,t-1}} + \alpha_2 \frac{\Delta REV_{i,t}}{A_{i,t-1}} + \alpha_3 \frac{PPE_{i,t}}{A_{i,t-1}} + \alpha_4 ROA_{i,t} + \varepsilon_{i,t} \qquad (A)$$

where

TA: Total accruals measured by $EBXI_{i,t}$ - $CFO_{i,t.}$, where $EBXI_{i,t}$ is defined as earnings before extraordinary items and discontinued operations; CFO is defined as operating cash flows;

A: Total assets;

ΔREV: The change in revenues from the preceding year;

PPE: The gross value of property, plant, and equipment (PPE);

ROA : Return on assets, defined as net income divided by total assets;

i : i^{th} data;

t : t^{th} year, the research period is from 2010 to 2015; and

ε_t: Residuals.

3.2.3 Control variables

This study discusses control variables in four aspects: (1) company fundamental data; (2) managerial incentive; (3) quality of financial statements; and (4) overall environment.

3.2.3.1 Company fundamental data

First, the literature indicates that when a company's ability to make a profit is better, the company is more able to distribute dividends (Fama and French 2002; DeAngelo *et al.* 2006). Thus, this study adds the control variable of return on assets (ROA) in Equation 1. This study defines ROA as net income before tax, interest, and depreciation expenses/total assets. In addition, when a company has more opportunities for investment, it will reduce the distribution of dividends to reserve more cash for future investments (Fama and French 2002; DeAngelo *et al.* 2006).

Thus, this study adds two control variables in Equation 1: Tobin's Q (Q) and cash flow from investing activities (INVESTMENT). This study defines Tobin's Q (Q) as the book value of shareholders' equity/market value of shareholders' equity; investment refers to the net cash flow from investing activities in the cash flow statement (in thousands). Past studies, such as DeAngelo *et al.* (2006), John *et al.* (2011) and Koo *et al.* (2017), find that the bigger or older a company is, the greater the distribution of dividends. Thus, this study adds two control variables: SIZE and AGE; SIZE refers to the natural logarithm of total assets; AGE refers to the natural logarithm of the number of years of establishment as of the end of the period. This study also adds the standard deviation of return on assets (ROASD) to control a company's risks. According to the results of past studies, such as Becker *et al.* (2011) and John *et al.* (2011), this study expects that the higher a company's risks, the higher the uncertainty is over the future. At that time, more cash is needed in response to contingencies, and so few dividends are distributed. ROASD refers to the standard deviation of quarterly ROA in the prior four years. When a company's liability is higher, the financial stress is more severe, and so the company has no incentive or flexibility to distribute more dividends. Thus, a company's liability will reduce the distribution of dividends (Fama and French 2002). This study also adds DEBT and defines it as total liabilities/total assets in Equation 1. When a company has more net cash flow from operating activities, the company is more able to distribute dividends. Thus, the cash flow from operating activities will affect the distribution of dividends (Fenn and Liang 2001). This study adds an extra control variable, cash flow from operating activities (OCASH), and defines it as net cash flow (in thousands) from operating activities in the cash flow statement.

Past studies, such as DeAngelo *et al.* (2006), find that the distribution of dividends is positively associated with stock returns, and so this study adds return on stock (RET) and defines it as the return rate on a stock in the current period. Lastly, this study also controls the impact of cash balance (CASH) on the distribution of dividends; however, Becker *et al.* (2011) and Subrahmanyam *et al.* (2014) find that the correlation between cash and the distribution of dividends is

inconsistent, and so this study does not forecast the direction of the coefficient of cash balance (CASH).

3.2.3.2 Managerial incentive

The ratio of management's shareholdings (MGTO) will affect the distribution of dividends, but this study does not forecast the direction, because management with a higher shareholding rate may distribute more dividends to shareholders (Fenn and Liang 2001) or be more able to reserve cash for themselves (Rozeff 1982; John *et al.* 2011). This study defines MGTO as the number of shares held by management at the end of the period/number of shares outstanding at the end of the period. In addition, past literature, such as Cohen and Zarowin (2010) and Zang (2012), has pointed out that the number of shares outstanding (SHARE), issuing of new shares (EQUITY), and issuing of bonds (DEBTI) will affect management's intention to distribute dividends. Thus, this study also adds the aforesaid control variables and define them respectively as follows: natural logarithm of number of shares outstanding at the end of the period; the variable equals 1 if a company issues new shares, otherwise it is 0; the variable equals 1 if a company issues bonds, otherwise it is 0.

3.2.3.3 Quality of financial statements

This study controls variables that have an impact on the quality of financial statements, such as standard deviation of cash flow from operating activities (OSD), standard deviation of operation period (CYSD), standard deviation of operating income (SSD), and loss (LOSS), as proposed by Biddle *et al.* (2009). These four variables will affect the quantity of noise in financial statements and further affect the quality of financial statements. Thus, this study adds these four control variables and defines them respectively as follows: standard deviation of quarterly cash flow from operating activities in the prior four years; standard deviation of the days of quarterly operation cycle in the prior four years; standard deviation of quarterly operating profit margin (operating income/total assets) in the prior four years; the variable equals 1 if a company is operating at a loss in the current period, otherwise it is 0.

3.2.3.4 Overall environment

Finally, Taiwanese firms listed on the Taiwan Stock Exchanges (TWSE) are in general subject to stricter listing and disclosure requirements than those listed in the Taipei Exchange Market (TPEx) market. Therefore, this study creates an indicator variable, D, which is set at 1 if the firm is listed on the TWSE, and 0 if it is not. Since our sample period is from 2010 to 2015, a year dummy, YEAR, is coded as 1 for firm i in year t, or 0 otherwise. Stock-based compensation was a more common practice in the electronics industry than in other industries during our sample period (Hsu and Chen 2008), and so an industry dummy, INDUSTRY, is set at 1 if the firm belongs to the electronics industry, and 0 if it does not.

3.3 Equation

Equation 1 is used to test H1 and H2. This study employs AM (Accruals management) as a proxy for the quality of financial statements, so if the absolute value of AM (Accruals management) is larger meaning the quality of financial statements is lower. Therefore, if β_1 in Equation 1 is significantly positive (negatively), then H2 (H1) is supported. Equation 1 is as follows. Based on the dependent variable-the ratio of dividend payout (DIVIDEND) is left censored at zero and thus using an OLS model is inappropriate (Wooldridge 2002). Therefore, this study follows Koo *et al.* (2017) and uses a Tobit model to test their hypotheses.

$$
\begin{aligned}
DIVIDEND_{i,t}=\ &\alpha+\beta_1 AM_{i,t}+\beta_2 ROA_{i,t}+\beta_3 Q_{i,t}+\beta_4 INVESTMENT_{i,t}+\beta_5 SIZE_{i,t}\\
&+\beta_6 AGE_{i,t}+\beta_7 ROASD_{i,t}+\beta_8 DEBT_{i,t}+\beta_9 OCASH_{i,t}+\beta_{10} RET_{i,t}\\
&+\beta_{11} CASH_{i,t}+\beta_{12} MGTO_{i,t}+\beta_{13} SHARE_{i,t}+\beta_{14} EQUITY_{i,t}+\beta_{15} DEBTI_{i,t}\\
&+\beta_{16} OSD_{i,t}+\beta_{17} CYSD_{i,t}+\beta_{18} SSD_{i,t}+\beta_{19} LOSS_{i,t}+\beta_{20} D_{i,t}\\
&+\sum_{2010}^{2015}\beta_{21} YEAR_{i,t}+\beta_{22} INDUSTRY_{i,t}+\varepsilon_{i,t}
\end{aligned}
\tag{1}
$$

where

DIVIDEND: The ratio of dividend payout, common stock dividend payment amount in the current period/market value of shareholders' equity at the end of the period.

AM: Accruals management, a proxy for the quality of financial statements.

ROA: Return on assets, net income before tax, interest, and depreciation expenses/total assets.

Q: Tobin's Q, book value of shareholders' equity/market value of shareholders' equity.

INVESTMENT: Net cash flow from investing activities in the cash flow statement (in thousands).

SIZE: Natural logarithm of total assets.

AGE: Natural logarithm of the number of years of establishment as of the end of the period.

ROASD: Standard deviation of quarterly ROA in the prior four years.

DEBT: Total liabilities/total assets

OCASH: Net cash flow from operating activities in the cash flow statement (in thousands).

RET: Return rate on stock in the current period.

CASH: Cash balance at the end of the period (in thousands).

MGTO: Number of shares held by the management at the end of the period/number of shares outstanding at the end of the period.

SHARE: Natural logarithm of number of shares outstanding at the end of the period.

EQUITY: Equals 1 if a company issues new shares; otherwise it is 0.

DEBTI: Equals 1 if a company issues bonds; otherwise it is 0.

OSD: Standard deviation of quarterly cash flow from operating activities in the prior four years.

CYSD: Standard deviation of the days of quarterly operation cycle in the prior four years.

SSD: Standard deviation of quarterly operating profit margin (operating income/total assets) in the prior four years

LOSS: Equals 1 if a company is operating at a loss in the current period; otherwise it is 0.

D: Set at 1 if the firm is listed on the TWSE, and 0 if it is not.

YEAR: Coded as 1 for firm i in year t, or 0 otherwise.

INDUSTRY: Set as 1 if the firm belongs to the electronics industry, and 0 if it does not.

i: i^{th} data.

t: t^{th} year; the research period is from 2010 to 2015.

ε_t: Residuals.

3.4 Testing of H3 and H4

This study uses the median of one-year prior industry control-cash flow right deviation of ultimate controllers as the standard value to separate observations into two groups, higher- and lower- deviation companies. If β_1 in Equation 1 of higher-deviation companies is significantly and β_1 in Equation 1 of lower-deviation companies is not significantly, then H3 is supported. In addition, the control-cash flow right deviation of ultimate controllers is measured as the difference of ultimate controllers' control rights to ultimate controllers' cash flow rights, where the control (voting) right is computed as the sum of the minimum ownership in each "control chain" of the ownership structure in order to determine the lowest voting rights of the ultimate controllers; and cash flow right is measured as the ratio of shares owned by the ultimate controllers to total shares (La Porta *et al.* 1999; Claessens *et al.* 1999; Tsai *et al.* 2003).

Furthermore, the study divides the sample period into before adoption of IFRS (2010~2012) and after adoption of IFRS (2013~2015) and re-runs the regression Equation 1 to examine H4. If β_1 in Equation 1 using samples before adoption of IFRS (2010~2012) is significantly and β_1 in Equation 1 using samples

after adoption of IFRS (2013~2015) is not significantly, then H4 is supported.

4. Empirical results

4.1 Descriptive statistics

Table 2 reports descriptive statistics of the variables. Here, the mean value for DIVIDEND is around 0.034, meaning the common stock dividend payment amount in the current period is about 3% of the market value of shareholders' equity at the end of the period. In addition, the mean (median) value for AM is 8.002 (8.013). The mean values for ROA and Q are 8.56% and 1.21%, respectively. Finally, the mean values of D and INDUSTRY are both around 0.53, indicating that slightly more of the samples are TWSE firms and in the electronics industry than those that are TPEx firms and in a non-electronics industry.

4.2 Correlation analyses

Table 2 also presents the Pearson product-moment correlation of Equation 1. Table 2 shows that DIVIDEND and AM are not significantly correlated, and so H1 may not be supported. However, simply looking at the significance of correlation coefficients between the two variables cannot determine whether Hypothesis 1 or Hypothesis 2 will be supported. Therefore, this study adopts regression analysis for investigative purposes.

4.3 Regression analyses

Because the dependent variable of this study is left censored at zero and thus the study uses a Tobit model to test hypotheses. Table 3 lists the empirical results of H1 and H2. Regarding the level of accruals management (AM), the coefficient is 0.0025 and t value is 2.27, and so H2 is supported; in other words, the results are consistent with the substitute view and the quiet life problem channel. This shows that the quality of financial statements is significantly and negatively associated with the distribution of dividends. The findings of this work are different from those of Koo *et al.* (2017), because in their paper, higher quality reporting is associated with higher dividends. Two possible reasons are noted as

Table 2

Descriptive statistics and correlation matrix of equation 1 (N=7,670)

Variable	Mean	Med	Std.Dev.	Max	Min	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1.DIVIDEND	0.034	0.031	0.038	0.896	0	1																					
2.AM	8.002	8.013	3.028	15.797	0.002	0.019	1																				
3.ROA	8.569	8.225	9.876	96.450	-107.770	.421**	-0.003	1																			
4.Q	1.219	0.950	1.078	37.760	0.040	-.031**	-0.019	.189**	1																		
5.IVNESTMENT	1,420,080	182,921	9,188,625.846	347,383,537	-17,463,074	.024*	.046**	.121**	0.019	1																	
6.SIZE	9.624	9.538	0.618	12.364	7.254	.138**	-.037**	.204**	-.160**	.384**	1																
7.AGE	30.637	28.939	13.199	70.720	2.271	.033**	-.031**	-.074**	-.190**	.046**	.256**	1															
8.DEBT	0.403	0.400	0.179	0.978	0.005	-.077**	-.132**	-.180**	-.215**	.047**	.330**	.127**	1														
9.OCASH	-1,119,049	-109,371	7,391,209.685	33,852,763	-281,054,215	0.003	-0.018	-.083**	-0.003	-.845**	-.368**	-.050**	-.094**	1													
10.RET	0.084	0.000	0.538	9.520	-0.934	.065**	-.114**	.252**	.312**	0.011	-.025*	0.008	-0.006	0.006	1												
11.CASH	2,601,774	539,493	14,249,850.835	694,027,045	1,309	0.021	0.012	.059**	-0.016	.683**	.390**	.032**	.099**	-.504**	-0.006	1											
12.MGTO	0.011	0.003	0.023	0.444	0	.027*	-.120**	.067**	0.02	-.039**	-.091**	-0.022	-.044**	.039**	.032**	-.039**	1										
13.SHARE	5.129	5.045	0.490	7.413	3.439	.033**	-0.017	.037**	-.137**	.381**	.885**	.327**	.208**	-.355**	-.050**	.363**	-.161**	1									
14.EQUITY	0.088	0	0.284	1	0	-.074**	-.092**	-.037**	.097**	-.031**	-.114**	-.123**	.036**	0.019	.072**	-.030**	.036**	-0.019	1								
15.DEBTI	0.079	0	0.269	1	0	0.01	-.033**	.033**	-0.002	.124**	.130**	-0.022	.145**	-.130**	0.013	.096**	-.026*	.146**	0.016	1							
16.ROASD	4.888	4.174	3.540	104.302	0.134	.023*	-.027*	.194**	.418**	.031**	-.147**	-.317**	-.202**	-.024*	0.003	0.003	0.02	-0.005	.112**	-0.002	1						
17.OSD	760231.783	172609.431	2913285.975	79,561,146	3,979.651	0.012	0.018	.074**	-0.02	.854**	.525**	.071**	.131**	-.777**	-0.022	.700**	-.066**	.831**	-.035**	.141**	0.014	1					
18.CYSD	947.324	17.3424	19559.226	1236200.303	0.707	0.005	-0.014	-0.007	-0.008	-0.008	-0.006	0.011	.034**	0.007	0.005	-0.007	-0.011	-0.008	0.004	.036**	-0.008	-0.004	1				
19.SSD	0.310	0.263	0.229	6.167	0.001	.089**	-.053**	.054**	-0.001	-0.015	-.045**	-.133**	.135**	.039**	0.002	.040**	.032**	-.039**	0.017	-0.007	.181**	0.006	-.035**	1			
20.LOSS	0.258	0	0.437	1	0	-.459**	.035**	-.598**	-.062**	-.062**	-.218**	-.035**	.059**	.039**	-.147**	-.050**	-.038**	-.027**	.042**	-.036**	-.057**	-.046**	-0.006	-.089**	1		
21. D	0.536	1	0.498	1	0	.070**	-0.021	.077**	-.108**	.121**	.524**	.292**	.096**	-.111**	-.028*	.128**	-0.006	.202**	-.075**	0.011	-.127**	.184**	.023*	-.061**	-.100**	1	
22.INDUSTRY	0.532	1	0.498	1	0	0.013	.061**	0.009	-.082**	0.018	-.084**	-.399**	-.083**	0.001	-.056**	.053**	-0.022	-0.013	-.036**	-0.016	.079**	0.008	-.050**	.137**	.063**	-.148**	1

DIVIDEND: Common stock dividend payment amount in the current period/market value of shareholders' equity at the end of the period. AM: Accruals management. ROA: Net income before tax, interest, and depreciation expenses/total assets. Q: Tobin's Q, book value of shareholders' equity/market value of shareholders' equity. INVESTMENT: Net cash flow from investing activities in the cash flow statement (in thousands). SIZE: Natural logarithm of total assets. AGE: Natural logarithm of the number of years of establishment as of the end of the period. ROASD: Standard deviation of quarterly ROA in the prior four years. DEBT: Total liabilities/total assets. OCASH: Net cash flow from operating activities in the cash flow statement (in thousands). RET: Return rate on stock in the current period. CASH: Cash balance at the end of the period (in thousands). MGTO: Number of shares held by the management at the end of the period/number of shares outstanding at the end of the period. SHARE: Natural logarithm of number of shares outstanding at the end of the period. EQUITY: Equal to 1 if a company issues new shares; otherwise it is 0. DEBTI: Equal to 1 if a company issues bonds, otherwise it is 0. OSD: Standard deviation of quarterly cash flow from operating activities in the prior four years. CYSD: Standard deviation of the days of quarterly operation cycle in the prior four years. SSD: Standard deviation of quarterly operating profit margin (operating income/total assets) in the prior four years. LOSS: Equal to 1 if a company is operating at a loss in the current period, otherwise it is 0. D: Set at 1 if the firm is listed on the TSE, and 0 if it is not. INDUSTRY: Set at 1 if the firm belongs to the electronics industry, and 0 if it does not. 2. ** and * indicate significance at the 1% and 5% levels, respectively.

follows to explain the differences between the two studies. First, most investors in the Taiwan stock market are individuals, whereas most investors in the U.S. stock market are institutions, implying there is a severe (slight) information asymmetry problem in the Taiwan (U.S.) stock market. Thus, the association between the quality of financial statements and the distribution of dividends in the Taiwan (U.S.) stock market is more likely to support the quiet life problem channel (the free cash flow problem channel), which documents the quality of financial statements negatively (positively) correlates with the dividend payout. Second, the degree of ownership concentration of TWSE/TPEx listed companies in Taiwan is higher than that of listed companies in the U.S., and the degree of ownership concentration mitigates the effectiveness of corporate governance mechanisms (La Porta *et al.* 1998; Claessens *et al.* 2000). Therefore, the effectiveness of corporate governance mechanisms in the Taiwan (U.S.) stock market is less (more), implying the Taiwan (U.S.) stock market is more likely to support the substitute view (the outcome view), which indicates a negative (positive) relation between the quality of financial statements and the dividend payout.

According to Table 4, the coefficient of AM of higher-deviation companies is 0.0026 (t=2.39), which shows a positive significance; in other words, the quality of financial statements is significantly and negatively associated with the ratio of dividend payout. However, the coefficient of AM of lower-deviation companies is 0.0035 (t=1.45), which shows no positive significance. To summarize, the results show that the coefficient of AM of higher-deviation companies is significantly but the coefficient of AM of lower-deviation companies is not significantly, so H3 is supported.

On the other hand, the coefficient of AM using samples before adoption of IFRS is 0.0032 (t=2.55), which shows a positive significance. That means the quality of financial statements is significantly and negatively associated with the ratio of dividend payout. However, the coefficient of AM using samples after adoption of IFRS is 0.0025 (t=1.12), which shows no positive significance. In other words, the quality of financial statements is not significantly and negatively associated with the ratio of dividend payout. The finding is consistent with the

conclusion of Hail *et al.* (2014) and supports H4: Before adoption of IFRS, the more pronounced relation between the quality of financial statements and the ratio of dividend payout.

The results of control variables are also consistent with those in past studies. First, the literature points out that when a company's ability to make a profit is better, the company is more able to distribute dividends (Fama and French 2002; DeAngelo *et al.* 2006). The coefficient of the control variable ROA is significantly positive in Table 3 and Table 4, which is consistent with that in the literature; in addition, when a company has more opportunities for investment, it will reduce the distribution of dividends to reserve more cash for future investments (Fama and French 2002; DeAngelo *et al.* 2006). The coefficient of Tobin's Q (Q) is significantly negative in Table 3 and Table 4, which is also consistent with the view of past research. Moreover, the coefficients of the two control variables, SIZE and AGE, are significantly positive in Table 3 and Table 4, which is also consistent with the findings of studies such as DeAngelo *et al.* (2006), John *et al.* (2011), and Koo *et al.* (2017), who find that the bigger or older a company is, the greater the distribution of dividends. On the other hand, when a company's financial stress is severe, the company has no incentive or flexibility to distribute more dividends. Thus, a company's liability will reduce the distribution of dividends (Fama and French 2002). This study finds that the coefficient of DEBT is significantly negative in Table 3 and Table 4, which is also consistent with the assertions of aforesaid studies. Lastly, when a company has more net cash flow from operating activities, the company is more able to distribute dividends (Fenn and Liang 2001). The coefficient of the control variable OCASH is mostly significantly positive in Table 3 and Table 4, which is consistent with the aforesaid view.

4.4 Sensitivity analyses

The additional analyses of this study consist of three issues. First of all, this study changes the proxy for the quality of financial statements from accruals management (AM) to real earnings management (REM) to re-examine hypotheses.

Table 3

Regression statistics for H1 and H2 (N=7,670)

$$DIVIDEND_{i,t}=\alpha+\beta_1 AM_{i,t}+\beta_2 ROA_{i,t}+\beta_3 Q_{i,t}+\beta_4 INVESTMENT_{i,t}+\beta_5 SIZE_{i,t}+\beta_6 AGE_{i,t}$$
$$+\beta_7 ROASD_{i,t}+\beta_8 DEBT_{i,t}+\beta_9 OCASH_{i,t}+\beta_{10}RET_{i,t}+\beta_{11}CASH_{i,t}+\beta_{12}MGTO_{i,t}+\beta_{13}SHARE_{i,t}+\beta_{14}EQUITY_{i,t}$$
$$+\beta_{15}DEBTI_{i,t}+\beta_{16}OSD_{i,t}+\beta_{17}CYSD_{i,t}+\beta_{18}SSD_{i,t}+\beta_{19}LOSS_{i,t}+\beta_{20}D_{i,t}+\sum_{2010}^{2015}\beta_{21}YEAR_{i,t}+\beta_{22}INDUSTRY_{i,t}+\varepsilon_i$$

Variable	Parameter Estimate	Standard Error	t Value	Pr> |t|
Intercept	-0.0022	0.0091	-0.241	0.8305
AM	0.0025	0.0011	2.27	0.0264**
ROA	0.0009	0.0001	15.89	<.0001***
Q	-0.0025	0.0004	-6.25	<.0001***
IVNESTMENT	0.0000	0.0000	0.61	0.4927
SIZE	0.0094	0.0016	5.87	<.0001***
AGE	0.0001	0.0000	4.12	<.0001***
DEBT	-0.0129	0.0024	-5.37	<.0001***
OCASH	0.0000	0.0000	2.47	0.0151**
RET	0.0009	0.0008	1.06	0.2891
CASH	0.0000	0.0000	-0.49	0.6411
MGTO	-0.0091	0.0164	-0.55	0.5636
SHARE	-0.0102	0.0021	-4.86	<.0001***
EQUITY	-0.0044	0.0015	-2.93	0.0033***
DEBTI	0.0000	0.0014	0.01	0.9926
ROASD	-0.0001	0.0001	-0.73	0.4615
OSD	0.0000	0.0000	-0.11	0.9217
CYSD	0.0000	0.0000	0.99	0.3259
SSD	0.0094	0.0017	5.52	<.0001***
LOSS	-0.0268	0.0012	-22.33	<.0001***
D	0.0008	0.0009	0.88	0.4508
YEAR	YES	YES	YES	YES
INDUSTRY	0.0026	0.0009	2.88	0.0041***
AdjR^2	0.3985			
F value	120.11			
Pr>F	<.0001***			

1. All variables are as defined in Table 2.
2. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 4

Regression statistics for H3 and H4 (N=7,670)

	Higher-deviation companies			Lower-deviation companies			Before adoption of IFRS (2010~2012)			After adoption of IFRS (2013~2015)		
Variable	Parameter Estimate	t Value	Variable	Parameter Estimate	t Value	Variable	Parameter Estimate	t Value	Variable	Parameter Estimate	t Value	
Intercept	0.0100	(1.01)	Intercept	-0.0165	(-1.01)	Intercept	-0.0062	-0.60	Intercept	-0.0108	(-0.73)	
AM	0.0026	(2.39)**	AM	0.0035	(1.45)	AM	0.0032	(2.55)**	AM	0.0025	(1.12)	
ROA	0.0008	(14.42)***	ROA	0.0008	(9.64)***	ROA	0.0012	(18.14)***	ROA	0.0007	(6.76)***	
Q	-0.0025	(-6.03)***	Q	-0.0027	(-3.52)***	Q	-0.0044	(-6.82)***	Q	-0.0027	(-3.32)***	
IVNESTMENT	0.0000	(0.47)	IVNESTMENT	0.0000	(0.62)	IVNESTMENT	-0.0000	-1.14	IVNESTMENT	-0.0000	(-0.11)	
SIZE	0.0089	(5.22)***	SIZE	0.0079	(2.62)***	SIZE	0.0099	(4.86)***	SIZE	0.0087	(3.35)***	
AGE	0.0001	(2.99)***	AGE	0.0001	(3.16)***	AGE	0.0001	(1.66)*	AGE	0.0002	(3.45)***	
DEBT	-0.0112	(-4.11)***	DEBT	-0.0151	(-3.50)***	DEBT	-0.0094	(-3.34)***	DEBT	-0.0187	(-4.58)***	
OCASH	0.0000	(3.02)***	OCASH	0.0000	(1.66)*	OCASH	0.0000	(3.28)***	OCASH	0.0000	(0.54)	
RET	0.0012	(1.35)	RET	0.0003	(0.23)	RET	0.0045	(4.21)***	RET	-0.0021	(-1.55)	
CASH	0.0000	(1.19)	CASH	-0.0000	(-1.18)	CASH	-0.0000	(-0.72)	CASH	0.0000	(0.27)	
MGTO	0.0241	(1.26)	MGTO	-0.0400	(-1.50)	MGTO	-0.0081	(-0.45)	MGTO	-0.0155	(-0.58)	
SHARE	-0.0116	(-5.92)***	SHARE	-0.0051	(-1.37)	SHARE	-0.0133	(-5.51)***	SHARE	-0.0072	(-2.32)**	
EQUITY	-0.0049	(-3.42)***	EQUITY	-0.0035	(-1.55)	EQUITY	-0.0032	(-2.06)**	EQUITY	-0.0057	(-2.28)**	
DEBTI	-0.0000	(-0.02)	DEBTI	-0.0000	(-0.01)	DEBTI	0.0020	(1.18)	DEBTI	-0.0013	(-0.52)	
ROASD	-0.0002	(-2.19)**	ROASD	0.0001	(0.81)	ROASD	-0.0001	(-0.91)	ROASD	-0.0001	(-0.35)	
OSD	-0.0000	(-0.57)	OSD	0.0000	(0.46)	OSD	0.0000	(0.76)	OSD	-0.0000	(-0.62)	
CYSD	0.0000	(0.84)	CYSD	0.0000	(0.66)	CYSD	0.0000	(-1.02)	CYSD	0.0000	(1.45)	
SSD	0.0079	(4.73)***	SSD	0.0115	(3.49)***	SSD	0.0085	(4.89)***	SSD	0.0125	(3.74)***	
LOSS	-0.0267	(-22.50)***	LOSS	-0.0258	(-14.17)***	LOSS	-0.0221	(-17.96)***	LOSS	-0.0291	(-16.75)***	
D	0.0020	(2.08)**	D	-0.0017	(-1.09)	D	0.0026	(2.54)*	D	-0.0009	(-0.62)	
YEAR	YES	YES	YEAR	YES	YES	YEAR	YES	YES	YEAR	YES	YES	
INDUSTRY	0.0008	(0.90)	INDUSTRY	0.0034	(2.41)**	INDUSTRY	-0.0005	(-0.61)	INDUSTRY	0.0054	(4.04)***	
AdjR²	0.4312			0.3217			0.4512			0.3154		
F value	118.22			61.23			122.77			55.96		
Pr > F	<.0001			<.0001			<.0001			<.0001		

1. All variables are as defined in Table 2.

2. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Secondly, the study also changes the proxy for the quality of financial statements from accruals management (AM) to accruals quality (UNEXACC) to re-test H1, H2, H3 and H4. Lastly, the control-cash flow right deviation of ultimate controllers (DEV) and adoption of IFRS (IFRS) are then interacted with the level of accruals management (AM) and added to Equation 1 to re-check H3 and H4.

4.4.1 Using real earnings management (REM) as a proxy for the quality of financial statements

According to the literature, such as Jayaraman (2008), Lin *et al.* (2007), and Lee *et al.* (2015), this study takes real earnings management (REM) as a proxy for the quality of financial statements. The REM calculation is based on the research of Dechow *et al.* (1998), Roychowdhury (2006), and Chi *et al.* (2011). REM is defined as the total sum of abnormal operating cash flows ($\Delta\frac{CFO_{i,t}}{A_{i,t-1}}$), abnormal production costs ($\Delta\frac{PROD_{i,t}}{A_{i,t-1}}$), and abnormal discretionary expenses ($\Delta\frac{DISEXP_{i,t}}{A_{i,t-1}}$), which are explained as follows.

(1) Abnormal operating cash flows ($\Delta\frac{CFO_{i,t}}{A_{i,t-1}}$)

This paper first expresses normal operating cash flows as a linear function of sales and change in sales and then estimates the equation for each observation through the cross-sectional regression as Equation B. The abnormal operating cash flows ($\Delta\frac{CFO_{i,t}}{A_{i,t-1}}$) are measured by subtracting the normal level of operating cash flows as estimated from Equation B.

$$\frac{CFO_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{i,t-1}} + \alpha_2 \frac{Sales_{i,t}}{A_{i,t-1}} + \alpha_3 \frac{\Delta Sales_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t} \qquad (B)$$

where for fiscal year t and firm i:

$CFO_{i,t}$: Operating cash flows in year t;

$A_{i,t-1}$: Total assets at the beginning of year t;

$Sales_{i,t}$: Net sales during year t;

$\Delta Sales_{i,t}$: The change in sales in year t;

i : i^{th} data;

t : t^{th} year, the research period is from 2010 to 2015; and

ε_t: Residuals.

(2) Abnormal production costs ($\Delta \frac{PROD_{i,t}}{A_{i,t-1}}$)

Production costs are defined as the sum of the cost of goods sold and change in inventory during the year. First, this study expresses the production costs as a linear function of sales and then estimates the equation for each observation through the cross-sectional regression as estimated from Equation C. The abnormal production costs ($\Delta \frac{PROD_{i,t}}{A_{i,t-1}}$) are measured by subtracting the normal level of production costs as estimated from Equation C. Equation C is shown below.

$$\frac{PROD_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{i,t-1}} + \alpha_2 \frac{Sales_{i,t}}{A_{i,t-1}} + \alpha_3 \frac{\Delta Sales_{i,t}}{A_{i,t-1}} + \alpha_4 \frac{\Delta Sales_{i,t-1}}{A_{i,t-1}} + \varepsilon_{i,t} \qquad (C)$$

Where

$PROD_{i,t}$: Production costs in year t.

The definitions of the other variables are from Equation B.

(3) Abnormal discretionary expenses ($\Delta \frac{DISEXP_{i,t}}{A_{i,t-1}}$)

Discretionary expenses are shown as a linear function of lagged sales. This research expresses the discretionary expenses as a linear function of lagged sales and then estimates the equation for each observation through the cross-sectional

regression as Equation D. The abnormal discretionary expenses ($\Delta \frac{DISEXP_{i,t}}{A_{i,t-1}}$) are measured by subtracting the normal level of discretionary expenses as estimated from Equation D. This paper shows Equation D as follows:

$$\frac{DISEXP_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{i,t-1}} + \alpha_2 \frac{Sales_{i,t-1}}{A_{i,t-1}} + \varepsilon_{i,t} \qquad (D)$$

Where

> $DISEXP_{i,t}$: Discretionary expenses in year t, defined as the sum of advertising expenses, RandD expenses, selling expenses, and general and administrative expenses.

The definitions of the other variables are from Equation B.

The coefficient of the level of real earnings management (REM) is 0.0003 (t=0.29), which is insignificant. In other words, if the proxy for the quality of financial statements is defined as REM, then there will be no significant correlation between the quality of financial statements and the ratio of dividend payout, which is inconsistent with the conclusion that the quality of financial statements is significantly and negatively associated with the ratio of dividend payout when this study defined the quality of financial statements as accruals management (AM).

The reason for such inconsistency is as follows. According to Schipper (1989), earnings management is divided into accruals earnings management and real earnings management. The former refers to the earnings management method whereby earnings change due to the flexibility given by certain accounting principles or an accrual-based assumption that does not affect real cash flow; the latter refers to trading arrangements that affect changes in real cash flow, such as manipulating sales discounts or payment terms, excessively purchasing materials, or decreasing discretionary expenses. Thus, if the quality of financial statements is defined as real earnings management (REM), then the cash flow will reflect changes due to trading arrangements; in other words, the quality of financial

statements may be negatively associated with the distribution of dividends, but real earnings management affects the amount of cash flow, such as increasing the balance of cash flow, leading to an increase in the distribution of dividends. Therefore, if the quality of financial statements is defined as real earnings management (REM), then the relation between the quality of financial statements and the distribution of dividends turns complicated due to the impact of real earnings management on cash. The empirical result then changes from a significantly negative correlation to insignificance.

Even if the proxy for the quality of financial statements is defined as REM, the coefficient of REM of higher-deviation companies is 0.0021 (t=2.02), which shows a positive significance; however, the coefficient of REM of lower-deviation companies is 0.0031 (t=1.24), which shows no positive significance. Therefore, the results still support H3. On the other hand, the coefficient of REM using samples before adoption of IFRS is 0.0038 (t=2.41), which shows a positive significance; however, the coefficient of REM using samples after adoption of IFRS is 0.0027 (t=1.04), which shows no positive significance. In other words, the finding is consistent with the main results and still supports H4.

Finally, as the symbols and significance of control variables are similar with the section of regression analyses, no additional description will be discussed.

4.4.2 Using accruals quality (UNEXACC) as a proxy for the quality of financial statements

Based on the literature, such as Dechow and Dichev (2002) and Lee *et al.* (2015), this study uses accruals quality (UNEXACC) as a proxy for the quality of financial statements. The accruals quality (UNEXACC) calculation is according to the research of Dechow and Dichev (2002), Francis *et al.* (2005), Biddle *et al.* (2009), Ramalingegowda *et al.* (2013), and Lee *et al.* (2015). The accruals quality (UNEXACC) is defined as the number of unexpected accruals and is the absolute value of residuals (ε) in Equation E. The residuals in Equation E refer to the unexplained part after comparing the current accruals with the cash flow from operating activities and controlling the characteristics of the company level. The

bigger the absolute value is of residuals (ε), the greater the unexplained part, showing that the accruals quality is worse. Equation E is shown below.

$$TCA_{i,t} = \alpha + \beta_1 CFO_{i,t-1} + \beta_2 CFO_{i,t} + \beta_3 CFO_{i,t+1} + \beta_4 \Delta Sales_{i,t} + \beta_5 PPE_{i,t} + \varepsilon_{i,t} \qquad (E)$$

TCA: The accruals number of current items, defined as the changes of accrual in current assets minus the changes of accrual in current liabilities.

CFO: Cash flow from operating activities.

The definitions of the other variables are from Equations A and B.

The coefficient of accruals quality (UNEXACC) is 0.0000 (t=0.33), which shows no significance. In other words, if the quality of financial statements is defined as accruals quality (UNEXACC), then there will be no significant correlation between the quality of financial statements and the distribution of dividends, which is inconsistent with the conclusion when this study defines the quality of financial statements as accruals management (AM). In other words, this study finds that the quality of financial statements is significantly and negatively associated with the ratio of dividend payout and only applies when the quality of financial statements is defined as accruals management (AM). One possible reason for this inconsistency runs as follows. The regressors of Equation E include cash-related factors, such as $CFO_{i,t-1}$, $CFO_{i,t}$, and $CFO_{i,t+1}$; therefore, accruals quality (UNEXACC) considers the influence from changes in the cash flow from operating activities, implying if the quality of financial statements is defined as accruals quality (UNEXACC), then the relation between the quality of financial statements and the distribution of dividends turns complicated due to the influence of management on the cash flow from operating activities. In other words, the quality of financial statements may negatively correlate with the distribution of dividends, but accruals quality (UNEXACC) considers the influence of the changes in the cash flow from operating activities; therefore, managers can manipulate cash flow from operating activities to modify the correlation from significantly negative to insignificance.

When the proxy for the quality of financial statements is defined as

UNEXACC, the coefficient of UNEXACC of higher-deviation companies is positive significance (t=2.18); however, the coefficient of UNEXACC of lower-deviation companies shows no positive significance (t=1.16). As a result, the findings support H3. Moreover, the coefficient of UNEXACC using samples before adoption of IFRS is positive significance (t=2.39); but the coefficient of UNEXACC using samples after adoption of IFRS has no positive significance (t=1.09). In short, the results are consistent with the above findings and still supports H4.

4.4.3 Using AM*DEV and AM*IFRS to re-test H3 and H4

In the regression analyses section, this study uses the median of one-year prior industry control-cash flow right deviation of ultimate controllers as the standard value to separate observations into two groups, higher- and lower-deviation companies to examine H3. In addition, the work divides the sample period into before adoption of IFRS (2010~2012) and after adoption of IFRS (2013~2015) and re-runs the regression Equation 1 to examine H4. However, in the last part of sensitivity analyses section, this paper added intermediate terms- AM*DEV and AM*IFRS in Equation 1 to re-examine H3 and H4. The empirical results show that the coefficients of AM*DEV and AM*IFRS are significantly positive (t-statistics are 2.12 and 2.05) still supporting H3 and H4.

4.5 Additional analysis

The past literature has established many important determinants of dividend policy already, of which one of them is consistency or persistency of cash dividend level (ratio) (Lintner 1956; Pruitt and Gitman 1991; Brav *et al.* 2005). For additional analysis, I take the AR(1) term of DIVIDEND into consideration and re-run Equation 1 to test H1, H2, H3, and H4. In other words, this section examines whether the empirical results of H1, H2, H3, and H4 remain if I take the AR(1) term of DIVIDEND into consideration. Does the quality of accounting statements or the consistency or persistency consideration affect a manager more on his

dividend policy? Does the effect resulting from information asymmetry remain?

Referring to Table 5, the coefficient of AM is 0.0030 (t=2.64), and so H2 is supported; in other words, the results are consistent with the above-mentioned results, which support the substitute view and the quiet life problem channel, implying that after taking the AR(1) term of DIVIDEND into consideration, the quality of financial statements is negatively associated with dividend payout. In addition, according to Table 6, the coefficient of AM of higher-deviation companies is 0.0116 (t=2.79), which shows a positive significance; in other words, the quality of financial statements is significantly and negatively associated with the ratio of dividend payout. However, the coefficient of AM of lower-deviation companies is 0.0021 (t=1.52), which shows no positive significance. Thus, the results support H3. Furthermore, the coefficient of AM using samples before adoption of IFRS is 0.0042 (t=2.83), which shows a positive significance. It means the quality of financial statements is significantly and negatively associated with the ratio of dividend payout. However, the coefficient of AM using samples after adoption of IFRS is 0.0024 (t=1.45), which shows no positive significance. To summarize, the finding is consistent with the suggestion of H4.

Taken together, the results when I take the AR(1) term of DIVIDEND into consideration are consistent with those without considering the AR(1) term of DIVIDEND, which still support H2, H3, and H4. This shows the quality of accounting statements affects a manager more on his dividend policy than the consistency or persistency consideration of cash dividend level (ratio) does. Moreover, the effects resulting from information asymmetry are the same whether or not I consider the AR(1) term of DIVIDEND.

4.6 Endogeneity analysis

The estimation of Equation 1 may suffer from the problem of endogeneity. First, it is likely that this study has omitted some unobservable variables that simultaneously affect the quality of financial statements and the ratio of dividend payout, or the quality of financial statements and the ratio of dividend payout may

Table 5

Regression statistics for H1 and H2 - taking the AR(1) term of DIVIDEND into consideration (N=7,670)

Variable	Parameter Estimate	Standard Error	t Value	Pr> |t|
Intercept	-0.0122	0.0089	-1.37	0.1696
AM	0.0030	0.0011	2.64	0.0082***
ROA	0.0008	0.0000	16.53	<.0001***
Q	-0.0025	0.0004	-6.09	<.0001***
IVNESTMENT	0.0000	0.0000	0.71	0.4728
SIZE	0.0094	0.0015	5.92	<.0001***
AGE	0.0001	0.0000	3.52	0.0004***
DEBT	-0.0146	0.0024	-5.92	<.0001***
OCASH	0.0000	0.0000	2.40	0.0160**
RET	-0.0003	0.0007	-0.44	0.6536
CASH	0.0000	0.0000	0.04	0.9639
MGTO	-0.0013	0.016	-0.82	0.4120
SHARE	-0.0098	0.0019	-5.11	<.0001***
EQUITY	-0.0038	0.0013	-2.88	0.0039***
DEBTI	-0.0005	0.0013	-0.36	0.7133
ROASD	0.0000	0.0001	-0.51	0.6080
OSD	0.0000	0.0000	-0.09	0.9227
CYSD	0.0000	0.0000	0.89	0.3706
SSD	0.0092	0.0017	5.36	<.0001***
LOSS	-0.0252	0.001	-23.68	<.0001***
D	0.0011	0.0009	1.18	0.2374
INDUSTRY	0.0122	0.0089	-1.37	0.1696
AdjR^2	0.3190			
F value	85.72			
Pr>F	<.0001***			

1. All variables are as defined in Table 2.

2. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 6

Regression statistics for H3 and H4 - taking the AR(1) term of DIVIDEND into consideration (N=7,670)

Higher-deviation companies			Lower-deviation companies			Before adoption of IFRS (2010~2012)			After adoption of IFRS (2013~2015)		
Variable	Parameter Estimate	t Value	Variable	Parameter Estimate	t Value	Variable	Parameter Estimate	t Value	Variable	Parameter Estimate	t Value
Intercept	-0.0182	(-0.97)	Intercept	-0.0185	(-1.83)*	Intercept	-0.0027	(-0.26)	Intercept	-0.0297	(-2.05)**
AM	0.0116	(2.79)***	AM	0.0021	(1.52)	AM	0.0042	(2.83)***	AM	0.0024	(1.45)
ROA	0.0008	(7.53)***	ROA	0.0008	(14.63)***	ROA	0.0011	(18.17)***	ROA	0.0005	(7.13)***
Q	-0.0063	(-4.69)***	Q	-0.0021	(-4.87)***	Q	-0.0042	(-7.02)***	Q	-0.0014	(-2.54)**
INVESTMENT	0.0000	(1.69)*	INVESTMENT	-0.0000	(-0.13)	INVESTMENT	-0.0000	(-0.86)	INVESTMENT	-0.0000	(-0.23)
SIZE	0.0107	(3.20)***	SIZE	-0.0094	(-5.26)***	SIZE	-0.0102	(-5.26)***	SIZE	-0.0092	(-3.72)***
AGE	0.0001	(1.97)**	AGE	-0.0001	(-2.90)***	AGE	-0.0000	(-1.99)**	AGE	-0.0001	(-2.16)**
DEBT	-0.0102	(-1.98)**	DEBT	-0.0152	(-5.43)***	ROASD	-0.0000	(-0.04)	ROASD	-0.0001	(-0.58)
OCASH	0.0000	(2.42)**	OCASH	-0.0000	(-1.78)*	DEBT	-0.0111	(-3.79)***	DEBT	-0.0204	(-5.20)***
RET	-0.0157	(-7.25)***	RET	-0.0020	(-2.45)***	OCASH	-0.0000	(-3.24)***	OCASH	-0.0000	(-0.72)
CASH	-0.0000	(-1.30)	CASH	-0.0000	(-0.28)	RET	-0.0022	(-2.33)**	RET	-0.0023	(-1.98)**
MGTO	-0.0055	(-0.15)	MGTO	-0.0150	(-0.84)	CASH	-0.0000	(-0.26)	CASH	-0.0000	(-0.24)
SHARE	-0.0175	(-4.33)***	SHARE	-0.0087	(-4.03)***	MGTO	-0.0101	(-0.53)	MGTO	-0.0247	(-0.95)
EQUITY	-0.0074	(-2.56)***	EQUITY	-0.0028	(-1.91)*	SHARE	-0.0137	(-5.82)***	SHARE	-0.0068	(-2.29)**
DEBTI	-0.0024	(-0.73)	DEBTI	-0.0008	(-0.58)	EQUITY	-0.0027	(-1.79)*	EQUITY	-0.0044	(-2.07)**
ROASD	-0.0002	(-0.90)	ROASD	-0.0001	(-0.81)	DEBTI	-0.0009	(-0.57)	DEBTI	-0.0013	(-0.58)
OSD	-0.0000	-0.69	OSD	-0.0000	(-0.06)	OSD	-0.0000	(-1.04)	OSD	-0.0000	(-0.66)
CYSD	-0.0000	(-0.16)	CYSD	-0.0000	(-1.03)	CYSD	-0.0000	(-1.10)	CYSD	-0.0000	(-1.48)
SSD	-0.0044	(-1.31)	SSD	-0.0108	(-5.48)***	SSD	-0.0082	(-4.56)***	SSD	-0.0129	(-3.98)***
LOSS	-0.0211	(-9.66)***	LOSS	-0.026	(-21.62)***	LOSS	-0.0224	(-17.78)***	LOSS	-0.0280	(-16.72)***
D	-0.0031	(-1.54)	D	-0.0005	(-0.50)	D	-0.0031	(-2.71)***	D	-0.0000	(-0.02)
INDUSTRY	-0.0040	(-0.24)	INDUSTRY	-0.0015	(-0.15)	INDUSTRY	-0.0222	(-1.84)*	INDUSTRY	-0.0140	(-1.04)
AdjR²	0.3562			0.3194			0.3866			0.3101	
F value	18.57			70.91			58.07			41.53	
Pr > F	<.0001			<.0001			<.0001			<.0001	

1. All variables are as defined in Table 2.

2. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

be jointly determined. Therefore, this study shall use two methods to alleviate concerns about endogeneity: the fixed-effect models and a dynamic panel data analysis. Second, there may be self-selection bias in the samples of the study. Thus, the work adopts the instrumental variable in the two-stage least squares (IV-2SLS) regression to re-examine hypotheses. Finally, the quality of financial statements and the ratio of dividend payout are simultaneously both dependent and independent variables to each other. To solve this simultaneous situation, this study uses a seemingly unrelated regression to re-run Equation 1.

4.6.1 Fixed-effect model

The estimation of Equation 1 may suffer from the problem of endogeneity. First of all, it is likely that this paper has omitted some unobservable variables that simultaneously affect the ratio of dividend payout and the quality of financial statements. Second, the ratio of dividend payout and the quality of financial statements may be jointly determined. This work thus expects to use two methods to alleviate concerns about endogeneity: fixed-effect models, and a dynamic panel data analysis. Among these, the fixed-effect models can mitigate the endogeneity that arises from omitted unobservable variables (Conyon and He 2011; Zhang *et al.* 2014), while the dynamic panel data analysis can alleviate the endogeneity that arises from simultaneous determination (Aslan and Kumar 2012; Blundell and Bond 1998; Roodman 2009; Zhang *et al.* 2014).

Firstly, this article employs the Hausman test to explore whether the random effect model or fixed effect model is suitable for endogeneity analysis. Under the null hypothesis of Hausman test, estimators are not correlated with the error terms of intercept; in contrast, under the alternative hypothesis of Hausman test, estimators are correlated with the error terms of intercept. If the Hausman test value of this study is significant, then rejects the null hypothesis. In other words, there is a relation between estimators and the error terms of intercept; therefore, the fixed effect model is employed for the endogeneity issue. However, if the Hausman test value of this study is not significant, then random effect model is suitable for endogeneity analysis.

The value of the Hausman test is -21.01. Therefore, the fixed-effect model is employed for endogeneity analysis. The coefficient of AM remains significantly positive (t=2.28), which is consistent with the previous findings. In other words, the quality of financial statements is significantly negatively associated with the ratio of dividend payout.

4.6.2 Instrumental variable in the two-stage least squares (IV-2SLS) regression

Prior studies, such as Kim *et al.* (2010) and Chi *et al.* (2011) have suggested that the level of quality control of company's CPA firm is associated with the level of company's earnings management. In other words, the level of quality control of CPA firms have impact on the quality of company's financial statements, then this study employs a dummy variable of whether the CPA firm is one of the Big 4 as an instrumental variable in the two-stage least squares (IV-2SLS) regression. Furthermore, the past literature also asserts that choosing the Big 4 CPA firm is a function of firm size and risk. Therefore, according to Anderson and Reeb (2003), this article first regresses whether the CPA firm is one of the Big 4 (CPA) on the natural log of total assets, the square item of the natural log of total assets, and monthly stock return volatility (with a standard deviation of the 60 monthly stock returns in the previous five years) to obtain the estimated value of CPA. In the second stage, this paper uses the estimated value of CPA to replace the "AM" variable.

The results show that the estimated coefficient of CPA is 0.018, and the t value is 2.08. Therefore, it still has a statistically positive significance and supports H2, showing that the empirical results are consistent after self-selection bias in samples is considered.

4.6.3 Seemingly unrelated regression model

Correlation may exist between this study's dependent variable, the ratio of dividend payout, and the independent variable, the quality of financial statements, and so the study adopts the seemingly unrelated regression model to re-run Equation 1. As proposed by Zellner (1962), the seemingly unrelated regression model, along with the panel data model, belongs to a system of equations

considering the cross-section and time series of data at the same time.

The results of regression analysis using the seemingly unrelated regression model show that the coefficient (t value) of AM is 0.0029 (2.31), which still supports H2. After considering the possible correlation between the dependent variable, the ratio of dividend payout, and the independent variable, the quality of financial statements, the latter is still significantly and negatively associated with the former, proving that the empirical results herein are worth it as reference material.

5. Conclusions

A large strand of the literature has explored how the quality of financial statements affects a company's financing and investing decisions, but few studies in literature have discussed the impact of the quality of financial statements on dividend policy. Therefore, this article explores the relation between the quality of financial statements and dividend payout. In addition, based on the literature, the correlation between the quality of financial statements and the dividend payout varies in terms of channels and views. The impact of the quality of financial statements on dividend payout comes from three channels, which were: free cash flow problem channel, financial constraint channel, and quiet life problem channel. In addition, if financial markets are in the presence of asymmetric information, the dividend payout policies can have impact on firm value (Miller and Modigliani, 1961). Therefore, this study further examines whether a change in the information environment of the firm leads to changes in its dividend payout policy. Based on the prior literature, the research decides to examine two moderating factors related with information asymmetry, which were: (1) control-cash flow right deviation of ultimate controllers; (2) adoption of IFRS.

According to the related literature, such as Defond and Subramanyam (1998), Dechow and Dichev (2002), Lin *et al.* (2007), Jayaraman (2008), and Lee *et al.* (2015), this paper defines the quality of financial statements by the following three items: (1) the level of accruals management; (2) the level of real earnings

management; and (3) accruals quality. Empirical results show that when the quality of financial statements is only defined by the level of accruals management, worse quality financial statements result in a higher ratio of dividend payout. The above findings are consistent no matter if this study uses the Tobit regression model, the fixed-effect model, the two-stage least squares (IV-2SLS) regression, or the seemingly unrelated regression model. However, if the quality of financial statements is defined as the level of real earnings management or accruals quality, then there is no relation between the quality of financial statements and the ratio of dividend payout. In addition, no matter the proxy for the quality of financial statements is defined as the level of accruals management (AM), the level of real earnings management (REM) or accruals quality (UNEXACC), the coefficient of the quality of financial statements of higher-deviation companies is positive significance; however, the coefficient of the quality of financial statements of lower-deviation companies is no positive significance. On the other hand, the coefficient of the quality of financial statements using samples before adoption of IFRS shows a positive significance; however, the coefficient of the quality of financial statements using samples after adoption of IFRS shows no positive significance. The findings show that if the level of information asymmetry of companies is severe, the companies have to pay less amount of dividend payouts to show the quality of financial statement is better; in other words, in an information environment with larger information asymmetry, the relation between the quality of financial statement and dividend payouts is more pronounced.

The findings of my paper run opposite to those of Koo *et al.* (2017). In the Taiwan stock market, most investors are individuals, and so there is a serious information asymmetry problem, implying managers can easily disguise their behaviors. In other words, when the quality of financial statements is worse, managers are less likely to invest in plans that have a higher value, but instead spend time and efforts to pretend they are busy (Bertrand and Mullainathan 2003). Thus, the quality of financial statements is negatively associated with the dividend payout, which supports the view of the quiet life problem channel (Hicks 1935; Bertrand and Mullainathan 2003). On the other hand, in the U.S. stock market,

most investors are institutions, and so there is a slight information asymmetry problem, implying managers do not have to decrease the dividend payout to ease the problem of free cash flow; this is consistent with the free cash flow problem channel. Furthermore, the effectiveness of corporate governance mechanisms in the Taiwan (U.S.) stock market is less (more), because the degree of ownership concentration of TWSE/TPEx listed companies in Taiwan is higher than that of listed companies in the U.S. In other words, agency problems in the Taiwan (U.S.) stock market are more (less) serious; therefore, in Taiwan managers will show that their company has no problem of free cash flow by distributing more dividends in order to build their reputation for lower financing cost in the future, which supports the suggestion of the substitute view; on the other hand, useful corporate governance mechanisms in the U.S. can reduce management's intention to invest in plans that are beneficial to them and which result in paying out more cash dividends to shareholders. Thus, the quality of financial statements is positively associated with the dividend payout and runs in agreement with the outcome view.

This study has the following six contributions. First, this is the first one in Taiwan to explore the quality of financial statements and dividend policy, and so the empirical results herein can serve as supplemental references for TWSE/TPEx listed companies with regard to the distribution of dividends. Second, the outcome view and the substitute view proposed in the hypotheses of this study aim to investigate the relation between the quality of financial statements and the dividend policy while considering the moderating effect of corporate governance mechanisms. Thus, the findings herein can fill the gap in the past literature by exploring how the quality of financial statements interacts with corporate governance mechanisms and further affects dividend policy. Third, the study modifies the research design based on past papers, and so the empirical results serve as a supplement to issues not yet clarified in related literature. Taking Skinner and Soltes (2011) as an example, they explore whether the dividend policy includes information of earnings quality, but their paper does not consider the impact of corporate governance mechanisms. To improve upon that study, this

present research takes the impact of corporate governance mechanisms into account and proposes two opposing views in the hypotheses: the outcome view and the substitute view. Fourth, Hail *et al.* (2014) examine the dividend payment behavior around the mandatory adoption of IFRS and around the initial implementation of new insider trading laws. They find that, following these two events, firms are less likely to pay cash dividends. On the other hand, my study divides the sample period into before adoption of IFRS (2010~2012) and after adoption of IFRS (2013~2015) and re-runs the regression model. My findings are consistent with the conclusion of Hail *et al.* (2014) and support that the distribution of dividends will decrease when the government forces companies to adopt IFRS. To summarize the findings of these two works, firms' dividend payout policies depend on the extent of information about all firms in the economy, implying changes in firms' dividend payouts following an exogenous shock to the information environment. Fifth, Dewenter and Warther (1998) compare dividend payout policies of U.S. and Japanese companies and find that Japanese companies, especially Keiretsu-member firms that face less information asymmetry and have fewer agency conflicts than U.S. companies, experience smaller stock price reactions to dividends omissions. My article's purpose is to explore how the quality of financial statements affects a company's dividend policy and to further examine whether information asymmetry will influence the relation between the quality of financial statements and dividend payout. The findings in this study and in Dewenter and Warther (1998) show that reductions in the information asymmetry problem via more and better information about firms in the economy lead to less reliance on dividend payments, which is consistent with lower agency costs of the free cash flow theory. Finally, this study indicates that it is more appropriate to define the quality of financial statements as accruals management (AM) than real earnings management (REM) or accruals quality (UNEXACC) when analyzing the relation between the quality of financial statements and the distribution of dividends, because both real earnings management (REM) and accruals quality (UNEXACC) consider the impacts of cash flow. In other words, if the quality of financial statements is defined by the level of real earnings

management (REM) or accruals quality (UNEXACC), then management will influence the amount of cash flow, such as increasing the balance of cash flow, leading to a rise in the distribution of dividends. As a result, if the quality of financial statements is defined as real earnings management (REM) or accruals quality (UNEXACC), then the relation between the quality of financial statements and the distribution of dividends turns complicated due to the impact of management on cash.

This study has two recommendations for future research. (1) This paper defines the quality of financial statements by the following three items: the level of accruals management, the level of real earnings management, and accruals quality. Future researchers can define the quality of financial statements with other definitions and re-explore the relationship between the quality of financial statements and the dividend payout. (2) This study uses annual financial report data, and other researchers can change to use quarterly data and compare the results with one another.

This study also has some limitations. For example, the source of variables is from the TEJ database or manually-collected statistics on the financial statements of the sample companies. If there is a difference between the actual numbers and numbers disclosed by sample companies, then the study is unable to differentiate them, which is a common limitation of empirical studies.

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