

Association between Key Management Personnel Remuneration and the Performance of Authorized Deposit-Taking Institutions in Australia

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Accepted: March 03, 2015

DOI: 10.5296/ijafr.v5i1.7198

URL: <http://dx.doi.org/10.5296/ijafr.v5i1.7198>

Abstract

The study investigates the association between each component of key management personnel remuneration (short-term and long-term remuneration) and total remuneration, and the performance of Authorized Deposit-taking Institutions (ADIs) in Australia. Data were collected from 91ADIs regulated by the Australian Prudential Regulation Authority. The study provides evidence that total key management personnel remuneration, short-term key management personnel remuneration and long-term key management personnel remuneration are significantly associated with the performance of ADIs, while the pay-performance association is weaker for long-term remuneration as compared to total remuneration and short-term remuneration. In addition, size of the board, existence of remuneration board committee and composition of remuneration board committee is significantly associated and composition of the board is partially associated with the performance of ADIs in Australia.

The findings of the study also suggest that the pay-performance association is more sensitive for short-term remuneration as compared to long-term remuneration, indicating that although long-term remuneration is widely used by ADIs, short-term remuneration is an important part of key management personnel remuneration.

Keywords: Key management personnel remuneration; base salary; short-term bonus; long-term incentives; corporate performance

1. Introduction

Key management personnel remuneration has been the subject of much discussion amongst employers, employees and regulators for a long period of time and the need to understand the extent of key management personnel remuneration (and its structure) has further intensified in the aftermath of major corporate collapses during the last decade (in particular after the global financial crisis of 2008) in the North America, Europe and Australia (Duffhues and Kabir, 2008; Basel Committee on Banking Supervision, 2009). Further, key management personnel remuneration of many of the collapsed organisations gripped headline news and was the subject of severe criticism from politicians and civil society. These corporate collapses highlighted the need for stringent corporate governance practices with a focus on key management personnel remuneration.

While poor corporate governance of financial institutions is generally cited as the primary reason responsible for the global financial crisis in 2008, the Basel Committee on Banking Supervision identified key management personnel remuneration in banks and financial institutions as being partly to blame. In the UK, the Financial Services Authority reported that “*inappropriate incentive structures played a role in encouraging behaviour which contributed to the financial crisis*” (Turner, 2009 p.79), while the USA Financial Crisis Inquiry Commission noted that “*Lehman’s failure resulted in part from significant problems in its corporate governance, ... exacerbated by compensation to its executives ... that was based predominantly on short-term profits*” (FCIC, 2011 p. 343). Such extensive attention is largely driven by considerable and sustained increases in key management personnel remuneration in recent decades at the cost of corporate performance¹.

Remuneration is one of the most important issues in organisational success, because it has an influence on both how executives behave and what kind of executives an organisation attracts (Jensen and Murphy, 1990). Moreover, Jensen and Murphy (1990) argued that what matters in key management personnel remuneration is how you pay rather than how much you pay. Consequently, appropriate key management personnel remuneration structure in an organisation has a substantial influence on organisational success. While there has been

¹ Average CEO remuneration among S&P 500 firms in the US increased 146% between 1993 and 2003 (Bebchuk and Grintein, 2005). In the UK, average CEO pay increased 81% between 1999 and 2005 (Ozkan, 2011). In 2010 alone, CEO remuneration in top companies in the US and the UK ascended by 27% and 55%, respectively, from the previous year. Similarly, CEO remuneration in Australia grew by 13% per annum during the mid- 1990s to 2000, moderating to 6% per annum in the period 2000 to 2007 (Productivity Commission, 2009)

mounting literature that examines the association between key management personnel remuneration and performance (e.g. Jensen and Murphy, 1990; Core et al., 1999; Cornett et al., 2008), the literature provides mixed and often conflicting results. For instance, the USA based surveys document a positive pay-performance association, with equity-based incentives awarded to key management personnel being the main driver of corporate performance (Hall and Liebman, 1998; Murphy, 1999). Outside the USA, studies mainly document low pay-performance sensitivities (Canyon and Murphy, 2000) or the absence of a pay-performance link (Fernandes, 2008). However, Kato and Kubo (2006) find a positive pay-performance association for a sample of Japanese companies. Tosi et al. (2000) and Doucouliagos et al. (2012) present Meta analyses of the literature for the USA and the UK, respectively. Both studies find a strong association between key management personnel remuneration and organisational size and a modest association between remuneration and performance. Based on the review of existing literature, it is difficult to provide a rational explanation why existing studies show mixed results regarding the relation between key management personnel remuneration and performance. Further, a review of the literature suggests that previous studies have investigated key management personnel compensation in the aggregate, and have largely failed to analyse key management personnel remuneration in its separate components, which consist of base salary, pay-for-performance short-term bonus, and long-term incentives. Each part of remuneration has various characteristics; hence examining each component of remuneration is necessary to ensure an appropriate balance between all to improve performance. Hence, this study untangles some of this complexity by investigating balance of key management personnel remuneration by identifying the nature of each component in key management personnel remuneration.

While several studies have been undertaken to examine the association between key management personnel's remuneration and organisation performance, most of the studies have been conducted in the context of North America and Europe, with very limited research undertaken in the context of Australia. It is likely that studies conducted in North America and Europe only provide a limited view of the association between key management personnel remuneration and corporate performance when their findings are applied in the context of financial services sector as Australia has its own Authorized Deposit-taking institutions (ADIs)² regulation. ADIs including banks, building societies and credit unions have always been excluded from previous research due to the extremely high leverage level compared to other companies that may cause generalizability and transferability problems. A review of the literature also suggests that the operations and technologies of financial institutions differ from manufacturing organisations in terms of the nature of regulations and market behaviour, products and services, types of operations, technologies, customers' expectations, skills and knowledge of employees and management strategies. Fitzgerald et al. (1991) suggest that studies conducted in manufacturing organisations may not be relevant to

² There are three types of financial institutions in Australia: (i) Authorised Deposit-taking Institutions (ADIs); (ii) Non-ADI Financial Institutions; and (iii) Insurers and Funds Managers (Reserve Bank of Australia, 2012). ADIs include banks that provide all sectors of the economy with financial services, building societies and credit unions. Non-ADI Financial Institutions include merchant banks that operate primarily in wholesale markets, finance companies and securitisers.

the financial institutions. With very limited research on Australian banking and financial institutions, this study will address this gap in the literature.

Accordingly, the following two research questions have been formulated for this study:

- i. What is the association between key management personnel remuneration and its components and performance of ADIs in Australia?
- ii. How strong is the association between different components of key management personnel remuneration and performance of ADIs?

The remainder of the paper is organised as follows: Section 2 describes the theoretical background of the study, relevant literature and develops hypotheses. Section 3 outlines the research method followed by sample selection procedure and data description in Section 4. Sections 5 and 6 present the results and conclusions of the study respectively.

2. Background Literature and Hypotheses Development

2.1 Association between Total Key Management Personnel Remuneration and ADIs performance

The agency theory highlights that shareholders attempt to mitigate the differing incentives between managers and them by designing remuneration contract providing the suitable incentive for the manager to exert optimal effort to maximize the corporate value (Barnea et al., 1985). Jensen and Meckling (1976) describe an agency relationship as a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf. This involves the principal delegating some decision making authority to the agent. Agency relationship is based on a number of assumptions (Eisenhardt, 1989). First, a conflict of interest could exist between the principal and the agent. A second assumption is asymmetric information. This means that the agent has more information than the principal. Consequently, since the principal cannot perfectly monitor the actions of the agent, the agent has some discretion in its executive activities. The agent can use this information asymmetry to his/her own advantage, instead of pursuing the objectives of the principal.

Murthy (1999) argues that the most effective mechanism to solve agency problems is to relate managers' remuneration to corporate performance. Agency theory suggests that there is potential for managerial conflicts when the interests of owners and agents diverge and that a solution to this agency problem is alignment of owner and agent interests through agent compensation and equity ownership (Jensen and Meckling, 1976). From shareholders' view, they would like to increase their benefits by enhancing corporate performance. Consequently, the theory suggests that there should be a positive association between executive remuneration and corporate performance as shareholders have an intention to motivate managers to achieve higher shareholder return by aligning executive remuneration with corporate performance. While some prior studies find that there is no or a weak pay-performance association (Girma et al., 2007; Fahlenbrach and Stulz, 2009; Gropp and Kohler, 2010), a majority of studies have found a positive and obvious pay-performance

association (Coles et al., 2006; Basu et al., 2007; DeYoung et al., 2013). For example, Rosen (1981) argued that larger companies with better corporate performance should offer higher levels of pay and be matched with more able key management personnel of an efficient labour market. Fama and Jensen (1983) posit that effective incentives provided to key management personnel have a tendency to mitigate agency problems and increase corporate performance, which is consistent with the result of Lazear (2000), who found a strong association between financial incentive and corporate performance. In the Malaysia context, Hassan et al. (2003) also found a positive association between executive remuneration and corporate performance, though it is weak.

The extant Australian studies can be separated into two broad groups according to the data they used and the final results they achieved. The first group consists of studies using data for the 1980s and early 1990s. This group of studies in general failed to establish a pay-performance association. For example, Defina et al. (1994) used cross-sectional data from 89 companies for 1990 and failed to find a pay-performance link. Izan et al. (1998) also found no link between CEO pay and performance by collecting a sample from 99 Australian companies for the period 1987 to 1992. Similar results were found by O'Neill and Job (1999). Matolcsy (2000) explored a longer period (1987–95) and reported mixed results, i.e. a positive association during periods of economic growth and no association during periods of recession. The recent group of studies using updated data found a positive association. Buffini (2006) posited that given the ability of shareholders to vote on the contents of the Remuneration Report, it was expected that more adequate pay-performance link could be achieved as shareholders could voice their displeasure. Doucouliagos and Hoque (2005) found a positive association between CEO pay and performance measured by market value. Similarly, Clarkson et al. (2006) used the data for 336 Australian companies for the 1998–2004 periods and found a positive association.

The evidence is largely consistent with agency theory, regarding key management personnel compensation as a solution to agency problems, so key management personnel remuneration overall is significantly positively linked to corporate performance. Key management personnel remuneration plays an important role in attracting and retaining exceptionally capable key management personnel (Finkelstein and Hambrick, 1988). Consequently, a well-organised remuneration contract could be a powerful motive for key management personnel to increase the performance of the organisation (Abdel-khalik et al., 1987). Based on the above discussion, it is hypothesised that:

H1: There is a positive association between key management personnel remuneration and ADIs performance

2.2 Association between Short-Term Key Management Personnel Remuneration and ADIs Performance

Issues related to how executive compensation should be structured have been broadly discussed since Jensen and Murphy (1990) posited that what matters in key management personnel pay is how you pay rather than how much you pay. In this study, total remuneration is separated into two main components, short-term remuneration (fixed remuneration salary and short-term pay-for-performance bonus) and long-term remuneration (superannuation, long service leave provision, share-based payments, options and other long-term remunerations). Bebchuk and Fried (2003) argue that compensation contracts should not put too much emphasis on short-term performance as short-term focus might lead to self-interested managerial behaviour. However, Bolton et al. (2006) argue that an emphasis on short-term stock performance may be optimal from the view of companies' existing shareholders in a speculative market where stock prices may deviate from fundamentals.

It seems that the benefits of tying pay to performance are obvious. However it is surprising that corporations apparently resist introducing short-term pay-for-performance bonus remuneration plans with enough financial "action" to have a major motivational effect at the very beginning. The lack of short-term pay-for-performance remuneration is due to the fact that monetary rewards are counter-productive, according to the explanation offered by psychologists and behaviourists. Deci (1972) posits that short-term pay-for-performance monetary rewards actually lower key management personnel motivation, by reducing the "intrinsic rewards" that key management personnel might receive from their jobs. Slater (1980) concludes that getting people to chase money can only make people chase money rather than anything else, so "*using money as a motivator leads to a progressive degradation in the quality of everything produced* (p. 38)". Similarly, Kohn (1988) posits three reasons why short-term pay-for-performance has counterproductive effects. "*First, rewards encourage people to focus narrowly on a task, to do it as quickly as possible, and to take few risks . . . Second, extrinsic rewards can erode intrinsic interest . . . Finally, people come to see themselves as being controlled by a reward* (p. 25)." Consequently, while financial incentive schemes improve productivity in principle, in practice they induce significant adverse side effects on corporate performance that are costly to employee morale and productivity, so that the costs of dealing with many of the problems induced by short-term pay-for-performance remuneration might outweigh the limited organisational benefits they offer (Baker et al., 1988).

Financial crisis made short-term pay-for-performance to be criticized by observing that banks with more short-term pay-for-performance bonus in their executive remuneration package perform worse during financial crisis because more risk inducing compensation structure had riskier policies (DeYoung et al., 2013). According to Gervais et al. (2011), differences of remuneration composition may attract different key management personnel depending upon the degree of the manager's overconfidence. When similar companies compete for the services of a mildly overconfident manager, only a modest amount of performance-based compensation is needed to realign key management personnel's incentives, and the companies end up competing to attract him by increasing the fixed portion of his

compensation. Adversely, when the manager's overconfidence is extreme, increasing the performance-based compensation becomes optimal for the companies to compete for his services. However, the key management personnel may overvalue this type of compensation and try to increase pay-for-performance remuneration by accepting high risk-level investments, which may make the key management personnel worse off during financial crisis. Goel and Thakor (2008) show that moderate levels of manager overconfidence benefit the company, while extreme levels of overconfidence are detrimental. Consequently, performance-based short-term incentives may attract the key management personnel with extreme overconfidence, which may damage the corporate performance during financial crisis. Suntheim (2011) finds that high performance based short-term bonus payments in the year before the financial crisis lead to worse performance during the crisis because bank risk is positively correlated with key management personnel's risk taking incentives and short-term remuneration tends to encourage higher risk taking incentives. Gropp and Kohler (2010) find that shareholders prefer more risk than managers, so the extremely large performance-based remuneration packages given to bank managers may be interpreted as an attempt by shareholders to induce management to increase risk taking.

As short-term pay-for-performance remuneration is gradually accepted and used by companies to pay its key management personnel, the following studies began to find some different results. Defina et al. (1994) find no evidence of an association between corporate performance and short-term cash-based remuneration (base salary and pay-for-performance bonus). Attaway (2000) found a positive association between corporate performance and key management personnel compensation by comparing key management personnel cash-based compensation (short-term salary and cash bonus) to return on shareholders' equity for a sample of 42 CEOs. Similarly, Rupp and Smith (2002) also observed a significant and positive association between key management personnel short-term base salary plus cash bonus and corporate performance in the USA metals industry by using a sample of small, similar-sized companies. Merhebi et al. (2006) posited that the association between key management personnel short-term cash based remuneration and organisational performance was positive and significant. Although Grinstein and Hribar (2004) could not find a positive relation between short-term bonus compensation and corporate performance, a positive relation between short-term bonus compensation and measures of effort was found.

Based on the above mixed evidence it is hypothesized that:

H2: There is a positive association between short-term key management personnel remuneration and ADIs performance

2.3 Association between Long-Term Key Management Personnel Remuneration and ADIs Performance

A review of literature suggests that any examination of pay-performance association without considering other potentially performance sensitive remuneration components are likely to be biased (Conyon and Sadler, 2001). Through examining data of 461 executives from 72 of the

largest USA companies, Murphy (1985) confirms the sensitivity of long-term remuneration to corporate performance.³ After that, Main et al. (1996) find that long-term remuneration is more sensitive to corporate performance compared to cash-based remuneration through studying 60 large UK companies over the period of 1983 to 1989. Later, McKnight and Tomkins (1999) report a similar result based on a more extensive sample including 109 companies from 1991 to 1995.

The majority of prior research (e.g. Shleifer and Vishny, 1997; Holmstrom, 1979; Smith and Watts, 1982) regarded equity-based compensation as an efficient method of maximising organisational performance. The remuneration policy of Alliance and Leicester (2000, p. 28) posit that *“Of the total remuneration package of executive directors, a potentially significant proportion should relate directly to the performance of the company and its share performance”*. According to Blankfein (2009), *“An individual’s performance should be evaluated over time so as to avoid excessive risk taking. To ensure this, all equity awards need to be subject to future delivery and/or deferred exercise. Senior executive officers should be required to retain most of the equity they receive at least until they retire, while equity delivery schedules should continue to apply after the individual has left the firm (p. 7)”*. It is widely acknowledged in the literature that, by enabling executives to cash large amounts of equity-based remuneration in a short period before the long-term consequences of decisions are realized, executives have been given incentives to focus excessively on short-term performance by overlooking the risk-taking for long-term shareholder value. As a result, long-term remuneration might better align key management personnel remuneration to shareholders’ long-term benefits.

Bank executives holding common shares in the company would have an incentive to be more conservative than common shareholders. Firstly, the ownership of common shares in the company represents a substantial fraction of an executive’s wealth, which would lead the executive to be more risk averse than shareholders who are more diversified. Secondly, a collapse of the bank might impose a huge amount of personal costs on the executives that would not be undertaken by other common shareholders. Thus, giving key management personnel shares as remuneration could prevent excess risk-taking behaviours. As for executive stock option remuneration, it rose dramatically after scholarly support from Jensen and Murphy (1990). As stock options give the holder the right to acquire a share at a future date for a pre-specified price, the holder of an option cares about share price increasing above the pre-specified price and undertakes the risk of getting nothing when share price ends up being below the pre-specified price. Since options are valuable only if the stock price remains above the option’s strike price, they align the key management personnel interest to shareholder interest.

However, during the financial crisis, executive remuneration was blamed for extreme risk and executives are blamed for risk-seeking behaviour. Suntheim (2011) find that key management personnel with a greater exposure to options would be expected to choose riskier policies

³ Long-term incentives may include shares, stock options and the like that measure organisation performance over several years (Coleman and Fortier, 2002).

leading to an increase in bank risk, thus banks relying more on option based remuneration performed worse during the financial crisis. In contrast, Fahlenbrach and Stulz (2009) suggest that stock options had no obvious adverse impact on bank performance during the crisis because there is no evidence in the sample that greater sensitivity of top pay to stock volatility led to worse corporate performance during the crisis. Some studies posit that financial companies' executives suffered significant personnel losses when the stock prices of their companies fell sharply. From their view, these losses resulted fully from mistakes, such as excessive optimism, failure to perceive risks rather than from incentives (Fahlenbrach and Stulz, 2009). The losses suffered by financial executives during the financial crisis indicate that incentives can be blamed for neither the credit crisis nor the performance of banks because executives managed their banks in a manner that would benefit the shareholders in their belief (Grundfest, 2009). It is therefore hypothesized that:

H3: There is a positive association between long-term key management personnel remuneration and ADIs performance

3. Research Method

3.1 Regression Models

Multivariate General Linear Model to Test Pay-Performance Association

The hypotheses developed in Section 2 are tested using 3 cross-sectional regression models.

$$\beta_1 ROA/ROE = \alpha + \beta_1 TR + \beta_2 TA + \beta_3 BD + \beta_4 COB + \beta_5 Bcom + \beta_6 RBCom + \beta_7 D \text{ of } RBC + \beta_8 CORBC + \beta_9 RBC \text{ meeting} + \beta_{10} KEY PER \dots \dots \dots \text{Model 1}$$

$$\beta_1 ROA/ROE = \alpha + \beta_1 ST + \beta_2 TA + \beta_3 BD + \beta_4 COB + \beta_5 Bcom + \beta_6 RBCom + \beta_7 D \text{ of } RBC + \beta_8 CORBC + \beta_9 RBC \text{ meeting} + \beta_{10} KEY PER \dots \dots \dots \text{Model 2}$$

$$\beta_1 ROA/ROE = \alpha + \beta_1 LT + \beta_2 TA + \beta_3 BD + \beta_4 COB + \beta_5 Bcom + \beta_6 RBCom + \beta_7 D \text{ of } RBC + \beta_8 CORBC + \beta_9 RBC \text{ meeting} + \beta_{10} KEY PER \dots \dots \dots \text{Model 3}$$

Three regression models are used because high correlations are expected between the two ADIs performance measurements ((ROA (return on assets) and ROE (return on equity)) and among the three components of key management personnel remuneration (total remuneration, short-term remuneration and long-term remuneration). Model 1 (*Hypothesis 1*) is used to examine the association between the total key management personnel remuneration and ADIs performance measured by ROA and ROE. Model 2 (*Hypothesis 2*) tests the association between the short-term key management personnel remuneration and ADIs performance,

while Model 3 (*Hypothesis 3*) tests the association between the long-term key management personnel remuneration and ADIs performance. In all of the models, TA (total assets – ADI size), BD (board size), COB (composition of board), Bcom (number of board committees), RBCom (existence of remuneration board committee), D of RBC (number of directors in the remuneration board committee), RBC meeting (frequency of the remuneration committee meeting), CORBC (composition of remuneration board committee) and KEY PER (number of directors of key management personnel) are used as control variables.

3.2 Dependent Variable

Most research in the USA has measured corporate performance using market measures (Murphy, 1999), as it is thought to be particularly relevant in a setting where key management personnel remuneration payments include a significant stock component (Matolcsy, 2000). However, some studies argued that the equity proportion of remuneration might be undervalued compared to market price if the managers are risk-averse and undiversified with a significant proportion of wealth tied to share price (Beatty and Zajac, 1994; Meulbroek, 2001). Clarkson et al. (2006) suggest that the incentive components of key management personnel remuneration is typically based on accounting based measures for most companies. Similarly, Matolcsy and Wright (2006) found Australian key management personnel compensation especially cash salary and bonus is linked to ROA in Australia, where cash payments are still more prevalent and seem to be a significant component of key management personnel remuneration package, accounting measures of performance should be a good way to measure corporate performance (Matolcsy, 2000; Conyon et al., 2000). Moreover, Gopalan et al. (2013) find that key management personnel pay duration is associated with project and asset duration, so that companies in the Finance-Trading industry have above median pay duration (they rank 11th among the 48 industries), which means that key management personnel remuneration is more based on short-term ADIs performance. One year period of performance measurement might be long enough to examine pay-performance association of ADIs. Consequently, this study uses accounting measures of performance to examine the association between key management personnel remuneration and short-term ADIs performance in 2012. This study uses ROA and ROE to keep consistency with previous studies in order to make results comparable.

3.3 Independent Variables

In 1990, Jensen and Murphy found that there is little association between key management personnel remuneration and corporate performance. Then, Conyon et al. (1995), Main et al. (1996), Benito and Conyon (1999) observed weak pay-performance association. Most recent studies have found a positive and significant association between key management personnel remuneration and corporate performance (Coles et al., 2006; Basu et al., 2007; DeYoung et al., 2013), thus this study expects total key management personnel remuneration (TR) to be one of major variables that might influence corporate performance.

Moreover, this study focuses on the association between ADI's performance and two remuneration components as prior research found that the sensitivity of pay-performance link differs across the various components (McKnight and Tomkins, 1999) although both

remuneration components might have positive association with corporate performance. They are short-term remuneration (ST) and long-term remuneration (LT). Main et al. (1996) and Buck et al. (2003) found that pay-performance sensitivities were higher when equity incentive payments were included. Buck et al. (2003) posited that long-term incentive payments should also be included in the estimation of pay-performance association. Short-term remuneration includes salary and short-term pay-for-performance bonus. Long-term remuneration includes superannuation, long service leave provision, share-based payments, options and other long-term remunerations.

3.4 Control Variables

Firm Size (TA)

As a numerous body of literature suggests that there is a strong positive association between firm size and key management personnel remuneration, which indicates that larger firm with more assets would provide key management personnel with higher compensation (Conyon, 1997; Girma et al., 2007), so this study regard firm size as a potential determinant that may influence the pay-performance association and firm size is measured as the total assets of the ADIs.

Size of the Board (BD)

The board of directors is the primary corporate governance mechanism to decide management remuneration and monitor executives representing the interest of shareholders (Finkelstein and Hambrick, 1996). Moreover, Yermach (1996) and Cheng et al. (2008) find a negative association between board size and corporate performance. Core et al. (1999) find that key management personnel remuneration is higher when the board is larger. This study regards the size of the board as a potential determinant that may influence the pay-performance association and the size of the board is measured as the total number of board directors of the deposit-taking organisation.

Composition of the Board (COB)

The composition of the board is an important factor affecting the efficiency of corporate governance because the characteristics of the board members determines the board's ability to monitor managers, monitor compliance with relative laws and regulations, and link the company to the external environment (Carter et al., 2010). In addition, the composition of the board is closely related to the board independence. Both Core et al. (1999) and Wade et al. (1990) find the composition of the board have an influence on the pay-performance association. The companies with higher percentage of independent board directors generally have better performance. This study regards the composition of the board as a potential determinant that may influence the pay-performance association and the composition of the board measured as the ratio of the number of independent directors divided by the total number of directors of the board.

The Number of the Board Committees (Bcom)

Some prior studies posit that board committees could improve the corporate performance (Klein, 1998), could positively influence organisational strategies (Vance, 1983) and could

reduce agency problems as well (Davidson et al., 2005). This study expects that the efficiency of corporate governance will increase along with the increasing number of committees, including remuneration committee, audit committee, risk committee, board performance and renewal committee and so on, thus the number of committees would have an influence on the pay-performance association. The number of committees is measured as the total number of board committees that a deposit-taking organisation has.

Existence of the Remuneration Committee (RBCom)

The ASX Corporate Governance Council (CGC) has set guidelines to recommend that corporations establish a remuneration committee as a means of improving the effectiveness of corporate governance, and in particular, risk management (ASX CGC, 2007). Remuneration committee, where the majority of key management personnel remuneration decisions occur, is responsible for ensuring key management personnel remuneration consistent with the interests of shareholders (Fisher, 1986; Kesner, 1988). Consequently, its existence will influence the pay-performance association. It is coded one if the ADI has a remuneration committee and zero otherwise

Size of the Remuneration Committee (D of RBC)

The ASX CGC recommends that the remuneration committee should have a minimum of three members. The size of the remuneration committee arguably has an impact on their monitoring function. Jensen (1993, p. 865) asserts “*as groups increase in size they become less effective because the coordination and process problems overwhelm the advantages from having more people to draw on*”. Conversely, a larger committee may bring a greater depth of thoughts and diverse skills essential for managing remuneration practices. Consequently, the size of the remuneration committee is likely to be associated with its efficiency of monitoring remuneration practices, thus this study would expect that the size of remuneration committee will be a potential determinant that may influence the pay- performance association. The size of the remuneration committee is measured as the total number of directors of the remuneration committee.

Composition of the Remuneration Committee (CORBC)

The ASX CGC recommends that the remuneration committee should consist of “*a majority of independent directors*” (ASX CGC, 2007, p. 35) based on the belief that independent directors are more effective representatives of shareholders, thus better corporate performance. Harry et al. (1999) posits that the composition of the remuneration committee has an influence on the pay-performance association, and specifically, the sensitivity of pay to performance is lower when at least one member of the remuneration committee is an insider. Thus, this study regards the composition of remuneration committee as a potential determinant that may influence the pay-performance association. The composition of the remuneration committee is measured as the ratio of independent directors divided by the total number of directors of the remuneration committee.

Frequency of the Remuneration Committee Meeting (RBC meeting)

Committees are extensions of the board of directors. Due to the range of tasks assigned to

committees and the need to discuss remuneration issues with other members, directors need to meet frequently to fulfil their obligations. Hutchison and Ngoc (2012) posit that frequent meetings enable committee members to exchange their opinions, learn from others and assist the company in taking timely actions to reduce risk levels. Thus, this study regards the frequency of the remuneration committee meeting as a potential determinant that may influence the pay-performance association. The frequency of the remuneration committee meeting is measured as the total number of remuneration committee meetings during a year.

Number of Key Management Personnel (KEY PER)

Because most ADIs only disclose the total remuneration of key management personnel in their annual reports, this study used the number of key management personnel to control the effects of management team size on pay-performance association. The number of key management personnel is measured as the total number of managers in the key management team of an ADI.

4. Sample Selection and Data Description

4.1 Data Sources

Using an archival research method, data were collected from secondary sources, including Morningstar *DatAnalysis* Premium, *FinAnalysis* and *OneSource* databases in addition to ADIs' websites. Morningstar *DatAnalysis* Premium and *FinAnalysis* are two premier research tools for ASX company data, including company details, full dividend history, operational history, financial and annual reports as well as some company announcements. The database is updated daily from announcements lodged at the ASX. *OneSource* allows access to biographical data, such as remuneration of key executives by searching multiple variables, including industry code, description and location. Although “*databases offer an efficient means of analysing data*”, “*prior to use, database methodologies require scrutiny for determining accuracy and threats to validity and data integrity*” (Buffum, 2000, p.126). Consequently, in order to ensure the accuracy of the database, annual reports were used as a backup as well. By comparing the data from the databases and that from the annual report, the accuracy of the data can be improved.

The information about key management personnel remuneration including LOGTR (total remuneration), LOGST (short-term remuneration), LOGLT (long-term remuneration) as well as KEY PER (number of key management personnel) were collected from the related-party disclosures section of the updated annual reports directly downloaded from the ADIs websites. As for KEY PER, some judgement was needed to determine the number of key management personnel that includes all non-executive directors (NEDs), the chief executive officer (CEO) and other persons having authority and responsibility for planning, directing and controlling the activities of the entity (AASB 124 *Related Party Disclosures*) according to the directors' report of the company because for some companies, no obvious and exact disclosure was provided. As for ROA and ROE, they were calculated by using the data collected from the relevant financial statements from either of Morningstar *DatAnalysis* Premium or *FinAnalysis*. The control variables in relation to TA (ADI size), BD (size of the board), COB (composition of the board), BCom (the number of the board committees), RBCom (existence of the

remuneration committee), D of RBC (size of the remuneration committee), CORBC (composition of the remuneration committee), RBC meeting (frequency of the remuneration committee meeting) were collected from directors' report.

Consistent with the study of Adkins et al. (2007) which includes all the Bank Holding Companies with total assets over \$1 billion from the Federal Reserve System, this study used all ADIs with the variables of interest available from the APRA's ADIs list in order to ensure that the sample is large enough for testing using regression. Consequently, the data used to test the hypotheses are drawn from the ADIs regulated by APRA, which represents most of financial companies both listed and unlisted in Australia. It broadly represents the current Australian financial market. As a result, the study is not limited to large banks or other financial institutions listed in ASX, and will therefore be able to draw conclusions as to the pay-performance association for SME (small to medium size financial enterprises) as well. In order to further verify the objectivity and accuracy of the data collected, a sample of the collected data (approximately ten per cent) was assessed against original data sources by an independent third party. By comparing this study's results with those from the third party, any variation was reviewed until no evident variation was found.

4.2 Sample Collection Procedures

Sample selection commenced with the 124 ADIs regulated by APRA, including 21 Australian-owned banks, 8 foreign subsidiary banks, 9 building societies and 86 credit unions. A change in key management personnel or managing director is likely to lead to remuneration being impacted by factors not included in the independent variables under study. When one of key management personnel leaves the company, he/she might manipulate current year profit to make it higher in order to receive more termination pay. Similarly, key management personnel commencing with the company may also manipulate current year profit to make it worse in order to show his management ability by presenting higher profit increase rate in the coming financial year. Therefore, 28 ADIs, including 1 Australian-owned bank, 4 foreign subsidiary banks, 4 building societies and 19 credit unions were removed as key management personnel remuneration was not available or one of the key management personnel was changed.

Moreover, some ADIs were merged with or became a subsidiary of the Big Four (National Australia Bank, Commonwealth Bank, Westpac, and Australia and New Zealand Banking Group. For example, St George Bank Limited merged with Westpac Banking Corporation in December 2008 (Westpac, 2008). Bank of Melbourne became a subsidiary of Westpac Banking Corporation in 2011. Bank of Western Australia Limited was purchased by the Commonwealth Bank of Australia (Commonwealth Bank, 2008). Rural Bank Limited became a subsidiary of Bendigo and Adelaide Bank Limited in 2010 (Rural Bank Limited, 2010). Big Sky Credit Union Limited integrated with Lifeplan Building Society officially on March 1st 2012 and subsequently became Big Sky Building Society, a subsidiary of Australian Unity Limited (Australian Unity, 2013). Moreover, on 15th June 2013, Fitzroy and Carlton Community Credit Co-Operative Limited merged with Bankmenu. Consequently, 91 ADIs on the list were left for analysis. Also, among those 91 ADIs, the annual reports of Rabobank Nederland Group and Investec Bank Limited were presented in a foreign currency

(Euro). The financial data was converted to Australian dollars according to the foreign exchange rate in order to ensure the accuracy and generalisation of the final results.

According to AASB 124, an entity is required to disclose when key management personnel compensation in total. Consequently, the disclosure of CEO remuneration is not compulsory according to AASB. Within 91 institutions, only 14 deposit-taking institutions disclose their CEO remuneration in their annual reports. In addition, for those foreign subsidiary banks, remuneration information for these companies is more likely to be confidential and is only asked to be voluntarily disclosed according to the legislation in their domicile countries. For example, the remuneration information is totally not provided in the annual report of Bank of China Limited because the remuneration is regarded as confidential information. As a result, the total remuneration of key management personnel rather than CEO remuneration of 91 ADIs was used in the regression model to provide a broad explanation of pay-performance association. In addition, the Australian subsidiary of Bank of Beirut, Beirut Hellenic Bank Ltd, was relaunched under its new name, which is Bank of Sydney Ltd. As a result, the data of Beirut Hellenic Bank Ltd (the name on the list of ADIs regulated by APRA) was actually collected from the annual report of Bank of Sydney, which was the same bank under a different name.

4.3 Data Description

Dependent Variables

This study used ROA and ROE to be consistent with previous studies in order to make results comparable (e.g. Dam, 2006; Guenster et al., 2005; Aigner, 2006; Nelling and Webb, 2006; Orlitzky et al., 2003; Shen and Chang, 2009). ROA is the return on assets, the result of net profit after income tax divided by total assets. ROE is the return on equity, the result of net profit after income tax divided by total equity. John et al. (2010, para. 7) posited that “*ROA explicitly takes into account the assets used to support business activities. It determines whether the company is able to generate an adequate return on these assets rather than simply showing robust return on sales.*” The financial industry is quite different from other industries. For example, as ADIs are highly leveraged with considerable liabilities, so the total assets may be quite large due to liabilities. A large gap between two companies’ profits may not be obviously reflected by ROA because total assets, the divisor in the equation are extreme large due to liabilities. As a result, a 1 per cent ROA may indicate huge profits, so ROE may be a better indicator when comparing ADIs with higher profits. Consequently, the study uses ROA together with ROE to measure ADIs performance.

Descriptive statistics for measures of ADI financial performance used in the study are presented in Table 1. Mean ROA is 0.469 per cent, ranging from a high of 1.117 per cent to a low of -2.989 per cent. Mean ROE is 5.505 per cent, ranging from a high of 15.813 per cent to a low of -15.003 per cent. The minimum ROA and ROE are negative due to the negative profit of that company. However, the mean of ROA and the mean of ROE all have positive signs suggesting that profit rather than loss was dominant for the full sample ADIs. Moreover, the divisor in the equation of ROA is total assets, which is larger than the divisor in the equation of ROE, which is equity, only a part of total assets. Therefore, with the same profits,

the standard deviation of ROE is much larger than that of ROA, indicating that ROE are more sensitive to the change of profits, so ROE can better reflect the profit differences between two ADIs, and therefore differences in performance. For an ADI, its ROE is much larger than its ROA, which demonstrates that ADIs are significantly leveraged.

Table 1: Descriptive Statistics of Measures of ADI Performance

Variable	Mean	Median	Min	Max	St Dev
ROA	0.469	0.459	-2.989	1.117	0.443
ROE	5.505	5.881	-15.003	15.813	3.760

Note: ROA = Return on Assets as calculated by net profit after income tax / total assets

ROE = Return on Equity as calculated by net profit after income tax / total equity

Independent Variables

Table 2 details the main components of remuneration for the top executive team measured for the study, including short-term remuneration, long-term remuneration and total remuneration. Measures of short-term remuneration, long-term remuneration and total remuneration are shown in dollars. Short-term remuneration includes salary and short-term bonus. Long-term remuneration includes superannuation, long service leave provision, share-based payments and other long-term remunerations. Total remuneration includes all the payments to the top management team except termination fee.

Table 2: Descriptive Statistics of Key Management Personnel Remuneration

Variable	Mean (\$)	Median (\$)	Min (\$)	Max (\$)	St Dev (\$)	Mean of TC
ST	3,046,655	879,803	84,800	32,683,000	6,423,999	64%
LT	1,717,490	132,646	7,327	38,326,939	5,666,769	36%
TC	4,708,140	1,072,054	102,301	66,624,242	11,771,692	100%

From the descriptive statistics, there is substantial variation (\$6,423,999, \$5,666,769 and \$11,771,692 for short-term, long-term and total remuneration respectively) across sample ADIs with regards to the level of all components of remuneration, as shown by the standard deviations, which means the remuneration between large companies and SME (small to medium enterprises) varies. Total remuneration ranges from \$66,624,242 down to \$102,301 may also be caused by different sizes of institutions. For example, the key management

personnel of some large size ADIs, especially the Big Four enjoy much larger remuneration as compared to most of others. The significant differences between means and medians also indicate that there are some outliers. However these outliers were not removed due to the reason that they neither distort the assumptions of the regression models used in the analysis nor significantly impact on the results. In addition, the percentages of short-term remuneration (65 per cent) and long-term remuneration (36 per cent) show that both short-term remuneration and long-term remuneration play a role in the average remuneration packages of the key management personnel, but short-term remuneration contributes the most to total remuneration compared to long-term remuneration (around 2:1, see Table 2). This is consistent with the regression results that the association between total remuneration and ADIs performance is the same as that between short-term remuneration and ADIs performance as short-term remuneration has much more effects on total remuneration.

Control Variables

In regression analyses, this study controls for variables that are likely to affect pay-performance association. Nine control variables are identified:

Table 3: Descriptive Statistics for Control Variables

Continuous Variables					
Variable	Mean	Median	Min	Max	St Dev
TA	46,040,124,335	337,753,536	9,718,945	940,512,500,000	168,135,462,000
BD	8	8	5	13	1.562
COB	0.976	1	0.8	1	0.052
Bcom	4	3	0	9	1.789
D of RBC	4	4	0	8	1.313
CORBC	0.971	1	0	1	0.131
RBC meeting	4	4	0	14	3.079
KEY PER	13	13	2	25	4.058
Dichotomous Variables					
Variable	Code	Frequency	Per cent		

RBCom: Existence of the	0	15	0.16
Remuneration committee	1	76	0.84

Description statistics relating to the 9 control variables are presented in Table 3. Total assets show a significant range from \$9,718,945 to \$940,512,500,000, which might be the reason why the standard deviation of all components of remuneration is quite large. Most ADIs have around 8 directors in their board and 4 directors on their remuneration committee. The number of directors in the board and the number of people included in key management personnel are consistent with the size of the company measured by total assets. Larger companies are more likely to have larger boards as well as more people included in key management personnel. Moreover, most directors on the board are non-executive directors (97.6 per cent) and almost all of the members of the remuneration committee are non-executive directors (97.1 per cent). Also, 84 per cent of the institutions have a remuneration committee compared to only 16 per cent without a remuneration committee, indicating that most ADIs have a remuneration committee.

Correlation Analysis

Tabachnick and Fidell (1989) indicate that multicollinearity is an issue if the correlation coefficient is greater than 0.70. The high correlation of an independent variable in Table 4 with other independent variables means the relation between one compensation component and ADIs performance is significantly affected by or highly dependent on other compensation components. Consequently, this study created separated models for each of four hypotheses rather than testing them in a full model. As three independent variables are examined respectively in the regression, there should be no multicollinearity issue.

The other pair of highly correlated (0.836) variables is RBCom (whether an institution has remuneration board committee and CORBC (composition of remuneration board committee). As for the control variables, Allison (2012) posits that if the collinear variables are only used as control variables, and they are not collinear with variables of interest (LOGTC, LOGST and LOGLT), there's no problem. The coefficients of the variables of interest are not affected, and the performance of the control variables as controls is not impaired. As a result, although CORBC and RBCom are highly correlated, there's no problem to be concerned about, and no need to delete one or the other of the two controls because they are not collinear with the independent variables (Allison, 2012). Consequently, an examination of Table 4 suggests no multicollinearity issues for both of independent variables and control variables in the data.

Tests of Regression Assumptions

The assumptions of the regression model, including normality, constant variance and linearly independent between random variables were tested to ensure the reliability of the results. Independence should be met as the sample was selected randomly by the statistics system. As for the two other assumptions, they were examined by residual plots for the regression model. TR, ST and LT rather than their log values were used in the model, but indicated that the

assumptions of normality and constant variance might be a concern. Consequently, in order to improve the normal distribution of the data, their log values were used in the model.

5. Results and Discussion

5.1 Regression Results

Table 5, 6 and 7 provide results of regression relating to the association between key management personnel remuneration and ADIs performance. As discussed in Section 4, ROA and ROE are used separately in the regression model to measure ADIs performance because of their high correlation and ROE measure is considered better than ROA. Models estimating ADIs performance measured by ROA and ROE, short-term remuneration, long-term remuneration and total remuneration are presented separately. All models have reasonable explanatory power, with the R-squared ranging from 32 per cent for the regression explaining the association between ROA and long-term remuneration to 63 per cent for the regression describing the association between ROE and total remuneration.

Table 4: Correlation Analysis

	ROE	TA	BD	COB	Bcom	RBCom	D of RBC	CORBC	RBC meet
TA	0.329								
	(0.001)								
BD	0.100	0.291							
	(0.346)	(0.005)							
COB	-0.057	-0.231	0.126						
	(0.596)	(0.0280)	(0.241)						
Bcom	0.176	-0.001	0.208	0.025					
	(0.097)	(0.9960)	(0.051)	(0.813)					
RBCom	0.242	0.030	0.290	0.162	0.324				
	(0.030)	(0.788)	(0.009)	(0.151)	(0.003)				
D of RBC	-0.084	0.040	0.201	0.331	0.028	0.221			
	(0.464)	(0.727)	(0.080)	(0.003)	(0.811)	(0.066)			
CORBC	0.174	-0.060	0.199	0.101	-0.158	0.872	0.206		

	(0.127)	(0.601)	(0.082)	(0.381)	(0.170)	(0.000)	(0.073)		
RBC meet.	0.041	0.202	0.212	0.072	0.188	-0.045	0.190	-0.033	
	(0.7240	(0.082)	(0.067)	(0.540)	(0.110)	(0.715)	(0.105)	(0.783)	
KEY PER	0.291	0.379	0.342	-0.335	0.377	0.161	-0.097	-0.061	-0.030
	(0.015)	(0.001)	(0.004)	(0.005)	(0.001)	(0.216)	(0.463)	(0.642)	(0.823)
	ROA	TA	BD	COB	Bcom	RBCom	D of RBC	CORBC	RBC meet
TA	0.104								
	(0.327)								
BD	-0.004	0.291							
	(0.972)	(0.005)							
COB	-0.011	-0.231	0.126						
	(0.920)	(0.0280	(0.241)						
Bcom	0.094	-0.001	0.208	0.025					
	(0.377)	(0.9960	(0.051)	(0.813)					
RBCom	0.201	0.030	0.290	0.162	0.324				
	(0.072)	(0.788)	(0.009)	(0.151)	(0.003)				
D of RBC	-0.067	0.040	0.201	0.331	0.028	0.221			
	(0.562)	(0.727)	(0.080)	(0.003)	(0.811)	(0.066)			
CORBC	0.137	-0.060	0.199	0.101	-0.158	0.872	0.206		
	(0.230)	(0.601)	(0.082)	(0.381)	(0.170)	(0.000)	(0.073)		
RBC meet.	-0.031	0.202	0.212	0.072	0.188	-0.045	0.190	-0.033	

	(0.793)	(0.082)	(0.067)	(0.540)	(0.110)	(0.715)	(0.105)	(0.783)	
KEY PER	0.117	0.379	0.342	-0.335	0.377	0.161	-0.097	-0.061	-0.030
	(0.333)	(0.001)	(0.004)	(0.005)	(0.001)	(0.216)	(0.463)	(0.642)	(0.823)

Table 5: Regression Results for Total Key Management Personnel Remuneration

Variables	Dependent Variables					
	ROA			ROE		
	Coeff.	t-stat	p-value	Coeff.	t-stat	p-value
Independent Variables						
LOGTR	0.314	3.356	0.002**	4.399	4.593	0.000***
Control Variables						
KEY PER	-0.005	-0.402	0.690	0.052	0.447	0.657
TA	0.000	0.282	0.779	0.000	1.185	0.243
BD	-0.065	-2.374	0.023**	-0.678	-2.404	0.021**
COB	0.953	10219	0.230	15.585	1.946	0.059*
Bcom	-0.007	-0.249	0.805	0.081	0.296	0.769
RBCom	-0.862	-1.801	0.008***	-13.430	-2.738	0.009***
D of RBC	-0.022	-0.712	0.481	-0.347	-1.094	0.281
CORBC	2.960	2.056	0.047**	45.418	3.080	0.004***
RBC meeting	-0.002	-0.148	0.883	0.057	0.484	0.631
Constant	-3.695	-2.757	0.009***	-62.377	-4.544	0.000***
R-squared	41.52%			63.11%		
***Significant at 1%	0.01					
**Significant at 5%	0.05					

*Significant at 10%	0.1
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From the regression, it can be seen that there is a significantly positive association between key management personnel remuneration (total remuneration, short-term remuneration as well as long-term remuneration) and ADIs performance, which means that higher key management personnel remuneration could indicate higher ROA and ROE in the same year. Those results are opposite to some prior studies of normal companies rather than ADIs, finding that there is no or a negative pay-performance association (Girma et al., 2007; Fahlenbrach and Stulz, 2009; Gropp and Kohler, 2010). Hypothesis 1 was supported as the results indicate that ROA and ROE are significantly associated with the remuneration of key management personnel. Consistent with Hypothesis 2, higher short-term remuneration may indicate a better ADIs performance, which aligns with the results of Merhebi et al. (2006) and Attaway (2000) who found a positive association between short-term remuneration and corporate performance. In addition, Hypothesis 3 is partially supported by finding a significantly positive association between long-term remuneration and ADIs performance measured by ROE.

Table 6: Regression Results for Short-Term Key Management Personnel Remuneration

Variables	Dependent Variables					
	ROA			ROE		
	Coeff.	t-stat	p-value	Coeff.	t-stat	p-value
Independent Variables						
LOGST	0.333	3.618	0.001***	4.517	1.765	0.000***
Control Variables						
KEY PER	-0.005	-0.441	0.662	0.054	0.469	0.641
TA	0.000	0.425	0.673	0.000	1.493	0.144
BD	-0.064	-2.359	0.024**	-0.656	-2.357	0.024**
COB	0.957	1.246	0.220	15.522	1.965	0.057*
Bcom	-0.010	-0.384	0.703	0.042	0.154	0.879
RBCom	-0.852	-1.812	0.078*	-13.247	-2.738	0.009***

D of RBC	-0.022	-0.721	0.475	-0.344	-1.102	0.277
CORBC	2.903	2.055	0.047**	44.539	3.063	0.004***
RBC meeting	-0.002	-0.174	0.862	0.055	0.475	0.638
Constant	-3.741	-2.861	0.007***	-62.068	-4.613	0.000***
R-squared	43.61%			64.09%		
***Significant at 1%	0.01					
**Significant at 5%	0.05					
*Significant at 10%	0.1					

The study also examines the association between other corporate governance factors and ADIs performance: ADI size, size of the board, composition of the board, frequency of the board meetings, the number of the board committees, existence of the remuneration committee, size of the remuneration committee, composition of the remuneration committee and the frequency of the remuneration committee meeting. Among all the control variables, BD (size of the board), COB (composition of the board), RBCom (existence of remuneration board committee) and CORBC (composition of remuneration board committee) are proved or partially proved to be significantly associated with ADIs performance.

The first control variable included is the total company assets to control for bank size. According to prior research (Serrasqueiro and Macas Nunes 2008; Singh and Whittington 1975; Yang and Chen 2009), large companies are more likely to achieve better corporate performance as they may enjoy the benefits of economies of scale, enjoy higher negotiation power over their clients and suppliers, face less difficulty in getting access to credit for investment, have broader pools of qualified human capital, and may achieve greater strategic diversification. However, the size turns out to be non-significant in the regression with both of ROA and ROE indicating that larger deposit-taking organizations may not perform better than smaller ones.

Table 7: Regression Results for Long-Term Key Management Personnel Remuneration

Variables	Dependent Variables					
	ROA			ROE		
	Coeff.	t-stat	p-value	Coeff.	t-stat	p-value
Independent Variables						
LOGLT	0.181	1.997	0.053*	3.167	3.397	0.002***
Control Variables						
KEY PER	0.000	0.039	0.969	0.091	0.705	0.485
TA	0.000	0.536	0.595	0.000	0.998	0.325
BD	-0.071	-2.320	0.026**	-0.772	-2.451	0.019**
COB	0.814	0.950	0.348	14.023	1.589	0.121
Bcom	0.011	0.379	0.707	0.328	1.085	0.285
RBCom	-0.960	-1.779	0.083*	-15.337	-2.756	0.009***
D of RBC	-0.013	-0.361	0.720	-0.201	-0.548	0.587
CORBC	3.365	2.059	0.047**	52.897	3.139	0.003***
RBC meeting	0.002	0.175	0.862	0.109	0.829	0.412
Constant	-3.043	-2.038	0.049**	-57.666	-3.745	0.001***
R-squared	31.58%			56.19%		
***Significant at 1%	0.01					
**Significant at 5%	0.05					
*Significant at 10%	0.1					

A company's board is the primary internal corporate governance mechanism responsible for setting management compensation (Finkelstein and Hambrick, 1988, 1996; Jensen, 1993; Lorsch, 1989; Main and Johnston, 1993; Tosi et al., 2000). The boards might be ineffective in monitoring key management teams when the financial stakes and equity holdings of outside

directors are low or the independence of outside directors may be challenged if they were appointed By CEO or they were not truly independent as formerly members of the company's management team (Nickell, 1995; Baysinger and Hoskisson, 1990).

By examining the impact of board size on corporate performance for a large sample of 2746 UK listed companies, Guest (2009, p. 385) posit that "*board size has a strong negative impact on profitability. Overall, the evidence of this study supports the argument that problems of poor communication and decision-making undermine the effectiveness of large boards*". Consistent with a majority of previous studies (Lipton and Lorsch, 1992; and Jensen, 1993), this study also found a significantly negative relation between board size and corporate performance. It is argued that although larger board size initially facilitates key board functions, board effectiveness (and ADI performance) declines when larger boards suffer from coordination and communication problems (Lipton and Lorsch, 1992; and Jensen, 1993).

The empirical evidence of whether the proportion of non-executives on a board should be positively related to performance is mixed. Some found a positive association between the proportion of non-executive directors on the board and performance by arguing that non-executive directors are effective monitors of the executive directors (Vance, 1964; Ezzamel and Watson, 1993; Pearce and Zhara, 1992), while others found a negative relationship (Yermack, 1996; Klein, 1998; Agrawal and Knoeber, 1996) or no relationship between board structure and corporate performance (Daily and Dalton, 1992). This study finds a significantly positive association between the proportion of non-executive directors on the board and corporate performance measured by ROE, but only a weakly positive association when corporate performance measured by ROA.

Singh and Harianto posited that "*the most important means for facilitating the decision making process of the board is the creation of various committees such as the...executive compensation...committee*" (1989, p.147). The absence of an independent remuneration committee may provide an opportunity for senior executives to award themselves pay raises that are conflicting with shareholder interests (Main and Johnston, 1993). Consequently, many studies posited that the existence of remuneration board committee should be positively related to corporate performance by aligning management and shareholder interests (Conyon et al., 1995; Main and Johnston, 1993; Ezzamel and Watson, 1997).

However, O'Reilly et al., (1988) questioned the effectiveness of remuneration committees and found that the average salary of compensation committee members had a positive effect on CEO pay. Moreover, Main and Johnston (1993) found that management pay was significantly higher in companies that adopted remuneration committees. This study is consistent with Main and Johnston (1993), finding a significant negative association between the existence of remuneration committee and corporate performance. Compared to the simple adoption of a remuneration committee, the composition of the remuneration committee is more important to the effectiveness of a remuneration committee.

By testing 115 randomly selected UK quoted companies for the years 1992 and 1995, Klein (1998) has investigated board committees and corporate performance and shows some

evidence that the presence of remuneration committees is positively related to company performance. However the relationship was not strong. Oppositely, this study found a significantly negative association between the existence of remuneration committee and corporate performance, which may indicate that imposing a governance structure on a company may lead to the fact that monitoring is both redundant and costly, and will not necessarily improve corporate performance.

However, this study found the corporate performance is significant associated with the composition of remuneration board committee or the proportion of non-executive directors in the remuneration committee. This is consistent with the recommendation of Lipton and Lorsch (1992, p. 66), which is “*a ratio of at least two independent directors to one non-independent and board committees that consist solely of independent directors, one of whom should be the chair*”. This result may indicate that more decision power of senior executive remuneration given to non-directors may lead to a better corporate performance. In this way, CEOs cannot manipulate their remuneration or are able to influence the board decision on their remuneration, so they need to improve the corporate performance to prove their ability in order to get higher remuneration. Besides that, the significant association between corporate performance and the composition of remuneration committee may also indicate that remuneration should have some impacts on corporate performance.

5.2 Sensitivity Analysis

Sensitivity analysis was conducted in order to further examine potential multicollinearity between control variables. Only two correlations between all of independent variables and control variables which have significant coefficients greater than 0.7 were found from the correlation analysis reported in Table 5.

There are correlations between return on assets (ROA) and return on equity (ROE), and between whether a company has a remuneration board committee (RBCom) and the composition of remuneration board committee (CORBC). For the first correlation (ROA and ROE), the two variables are tested in the regression model separately and therefore multicollinearity should not be a concern.

For the second correlation (RBCom and CORBC), RBCom is removed from the model in order to undertake further analysis. Before removing RBCom, CORBC is significant at 5% level for all the regression equations. Comparably, after RBCom is removed, although CORBC is still consistently significant at 5 per cent when ADIs performance is measured by ROE, CORBC is only significant at 10 per cent when ADIs performance is measured by ROA. However, RBCom and CORBC are still overall significantly associated with ADIs performance.

6. Conclusion

This study examined a total of 91 ADIs, and found that ADIs performance is positively associated with key management personnel remuneration. This result is consistent with the implication of agency theory as well as the evidence provided from other developed countries outside Australia (Jensen and Murphy 1990; Coles et al., 2006; Basu et al., 2007; DeYoung et al., 2013), but in contract to findings of most prior published literature in the Australian

corporate governance area that key management personnel remuneration is unrelated to corporate performance or weakly related to corporate performance (Capezio et al., 2007; Craswell et al., 1997; O'Neill and Iob, 1999).

According to agency theory, all individuals are inclined to take actions that maximize their personal welfare with minimal effort (Jensen and Meckling, 1976). Key management personnel remuneration is used as a mechanism to align management interests with those of shareholders, and that key management personnel pay is a solution to the agency costs arising from the separation of ownership and management (Jensen and Meckling, 1976). Consequently, Agency theory assumes that making key management personnel remuneration dependent on corporate performance is a good way to motivate key management personnel to act in the best interest of the shareholders (Murphy, 1985). Therefore, corporate performance should be positively associated with key management personnel remuneration. Although some studies of developed countries outside Australia suggested a weak pay-performance (Gregg et al., 1993; Conyon et al., 1995), Most studies taken in developed countries found a positive association between key management personnel remuneration and corporate performance (Jensen and Murphy 1990; Conyon, 1997; Coles et al., 2006; Basu et al., 2007; DeYoung et al., 2013; McKnight, 1996; Ingham and Thompson, 1995), which is consistent with the implication of agency theory.

As Australia is a developed country, it is expected to find a similarly positive pay-performance association for Australian companies. However, it is surprising to find that most previous Australian studies found a weak or negative association between key management personnel remuneration and corporate performance (Defina et al., 1994; Izan et al., 1998; Craswell et al., 1997; O'Neill and Iob, 1999). Izan et al. (2000) found no significant relationship between remuneration and performance. In contrast, a few Australian studies found a positive association between key management personnel remuneration and corporate performance, but the corporate performance was regarded as a lagged variable (Merhebi et al., 2006; Clarkson et al., 2005). Merhebi et al. (2006) and Clarkson et al. (2005) found a significant and positive association between key management personnel remuneration and lagged stock returns.

According to the literature review, most prior studies tried to find the optimum key management personnel remuneration package according to corporate performance and other corporate governance variables, so that most of prior Australian studies found no or weak association between key management personnel remuneration and the corporate performance of Australian companies by using key management personnel remuneration as dependent variables. Compared to finding the optimum key management personnel remuneration package, how to improve corporate performance is more important to most stakeholders. Rather than examining how corporate performance affects key management personnel remuneration, this study examined how key management personnel remuneration and other corporate variables affect ADIs performance. This study used key management personnel remuneration from the most updated database as independent variables and supported the implications of agency theory by finding a significantly positive association between key management personnel remuneration and ADIs performance measured by ROA

as well as ROE in the same year, indicating that although corporate performance may not have obvious effects on key management personnel remuneration, key management personnel remuneration does have something to do with improving ADIs performance by affecting the incentives of the key management team. This study proves the significant association between key management personnel remuneration and ADIs performance in ADIs, which is consistent with most studies in other countries (Canyon, 1997; Coles et al., 2006; Basu et al, 2007; DeYoung et al., 2013).

This study also examined pay-performance association by separating key management personnel remuneration into short-term remuneration and long-term remuneration. This study found a positive and significant association between short-term remuneration and ADIs performance. As short-term remuneration still contributes to the most part of the remuneration package, it is expected that a similarly positive and significant association should be found between total remuneration and ADIs performance. However, a lower significance level of positive association was found between long-term remuneration and ADIs performance. The short-term remuneration contributes to over 60 per cent of total remuneration. The large percentage of short-term remuneration in the total remuneration might be the reason why short-term remuneration was found to be more closely related to ADIs performance compared to long-term remuneration. In addition, a significant and positive association between long-term remuneration and ADIs performance is partially supported. Long-term remuneration can be separated into equity-based long-term remuneration and debt-based long-term remuneration by different characteristics. Equity-based long-term remuneration and debt-based long-term remuneration might have significant association with ADIs performance when they are examined separately. However, their influence on ADIs performance might be affected or weakened when they are examined as a total. As a result, the association between total long-term remuneration and ADIs performance is not as significant as expected.

The results provide support for optimizing key management personnel remuneration package as a way to solve agency problems by aligning managers' benefits with shareholders' benefits. Moreover, this study proves the value of the study of key management personnel remuneration, which is quite important to further improve corporate governance and ADIs performance. The study also finds that pay-performance association is more sensitive for short-term remuneration compared to long-term remuneration, indicating that the effects of short-term remuneration on ADIs performance is more obvious. Although long-term remuneration such as shares and options are more and more widely used by companies as key management personnel remuneration, short-term remuneration should still be an important and necessary part of key management personnel remuneration.

This study only tested an ADI's one-year overall performance and only use ROA and ROE without considering any market measurement, which may not closely reflect a ADI's general long-term performance. ADIs with better recent stock performance offer longer-duration pay contracts to their executives, which might indicate that the association between long-term remuneration and ADIs performance might be stronger when ADIs performance is measured by stock market price. This paper only focuses on the association between key management

personnel remuneration and ADIs performance by using accounting performance measurement rather than market performance measurement. Consequently, this might be the reason why the association between long-term remuneration and ADIs performance is partially proved. Also, some study results appear to indicate that share-based compensation is more likely related to market-based measures of performance than accounting measures (McKnight and Tomkins, 1999; Coulton and Taylor, 2002). Further studies may use ROA and ROE as well as shareholder return over several years to accurately assess ADIs performance.

Further, because only total long-term remuneration and total short-term remuneration can be found in the annual report, further studies may separate both short-term remuneration and long-term remuneration into several parts. For example, long-term remuneration may be further separated into debt-like long-term remuneration and equity-like long-term remuneration as the interaction may exist between them. Empirical studies (e.g. Bebchuk and Jackson 2005; Gerakos 2007) found that key management personnel hold some debt in their own company, in the form of defined benefit pensions and deferred compensation. While those studies had to hand-collect data on debt compensation as the disclosure was quite limited. Due to the small sample size of ADIs with disclosed debt remuneration, benefit pensions and deferred compensation were excluded from the long-term remuneration in this study in order to avoid the interaction between debt remuneration and equity remuneration. With the increasing number of institutions that began to disclose detailed information about key management personnel remuneration, further studies may examine pay-performance association by splitting remuneration into smaller parts.

Due to the fact that disclosure of personnel remuneration is not compulsory regarding to AASB, most Australian companies only disclose the total remuneration of key management personnel. As a result, this study used key management personnel remuneration and the number of people involved in the key management remuneration to indirectly examine the association between CEO remuneration and ADIs performance. Because CEO is expected to gain much higher remuneration compared to other key management executives, the remuneration of key management personnel may not fully represent the situation of CEO remuneration. Future studies might use exact CEO remuneration to examine pay-performance association if data is available and accessible.

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