J. Int. Financ. Markets Inst. Money xxx (2018) xxx–xxx

Contents lists available at ScienceDirect

Journal of International Financial Markets, Institutions & Money

journal homepage: www.elsevier.com/locate/intfin

Accounting discretion and executive cash compensation: An empirical investigation of corporate governance, credit ratings and firm value

George Emmanuel Iatridis *

University of Thessaly, Department of Economics, Volos, Greece
EDHEC Business School, France

ARTICLE INFO

Article history:
Received 30 December 2016
Accepted 22 February 2018
Available online xxxx

JEL classification:
M41

Keywords:
Executive cash compensation
Corporate governance
Income smoothing
Discretionary accruals
Credit ratings
Firm value

ABSTRACT

This study focuses on executive compensation that takes the form of cash. It examines the association between executive compensation and corporate governance, income smoothing, discretionary accruals and firm value. It also investigates the possibility of employing earnings manipulation practices when current credit ratings differ from their expected ratings. This study shows that executive cash compensation is negatively associated with corporate governance. Analyst following, company size and debt are negatively related to executive compensation. In contrast, a positive association has been reported for high growth. Executive cash compensation is positively associated with discretionary accruals and negatively with firm value. Firms that pay cash compensation are likely to engage in earnings manipulation when their actual credit ratings differ from their expected ratings. They are also likely to engage in earnings manipulation with the intent of returning to an expected credit rating when the current ratings have drifted.

1. Introduction

The disclosure of executive compensation arrangements in annual reports would allow investors and other interested parties to make informed judgements about manager motivation and commitment to maximise shareholder wealth (Deegan, 2004). High quality disclosures would provide a signal of transparency and would enhance managers' reputation (Simnett et al., 2009). Information about the structure and nature of manager bonuses and stock option schemes would reduce uncertainty and would earn the company a competitive advantage. Transparency would therefore entail multiple benefits for the company including lower cost of equity (Cao et al., 2015) and higher manager value and prospects. Chaigneau (2018) argues that the timing of executive compensation is closely related to when the stock price best captures and reflects managers' actions and performance.

Investors would require the disclosure of useful narrative and numerical information about manager remuneration (Solomon and Solomon, 2006). To be of high quality, disclosures need to provide explicit information about managerial

* Address: 94 Vassani Street, Volos 38 333, Greece.
E-mail address: giatridis@econ.uth.gr

https://doi.org/10.1016/j.intfin.2018.02.008
1042-4431/

judgements, assumptions and estimations. The provision of detailed disclosures would reduce the potential for earnings manipulation or for making short-sighted financial decisions that are at long-term expense of shareholders. Besides, informative disclosures are important for investors when evaluating a company's value and future prospects. Executive compensation disclosures would be highly valued by financial analysts, investors and market authorities to the extent that they are meaningful, value relevant and free of error or bias (Throop et al., 1993). Lack of sufficient information about executive pay might give rise to significant political and agency costs. This would tend to be more evident in the case of large companies, since large size would attract political and regulatory attention and would motivate managers to provide higher quality disclosures.

Agency theory deals with conflicts in the objectives between shareholders and managers (Jensen and Meckling, 1976). Graves and Waddock (1994) argue that driven by self-interest, managers are likely to employ certain accounting practices to maximise their compensation (Fields et al., 2001). A focal issue is whether an annual report presents true and adequate information about managerial emoluments or serves managers' personal financial objectives and bonus pursuits (Lambert, 2001). Thus, from a shareholder standpoint, it is important to disclose the characteristics of executive compensation contracts and to determine executive compensation in a transparent and company-performance related manner, such as using equity compensation or stock options (Parthasarathy et al., 2006). Indeed, Beyer et al. (2014) argue that the optimal compensation contract is less dependent upon reported earnings and therefore less prone to error or bias.

Ramaswamy et al. (2002) have shown that family ownership of a firm is negatively associated with executive compensation because it would tend to align the interests of managers with those of shareholders. Shareholder dispersion may make shareholder involvement or co-ordination costly or restrictive. Thus, the difference in the value of firms that are managed by shareholders as opposed to managers would give rise to agency costs, which would further reduce profit margins and firm value (Jensen and Meckling, 1976; Dah et al., 2012).

According to agency theory, shareholders would need to establish mechanisms to monitor managers, and reduce opportunism and information asymmetry (Healy and Palepu, 2001; Cormier and Magnan, 2003). If effective monitoring devices were in place, managers would be more careful and would tend to better look after shareholder interests (Eisenhardt, 1989). A number of corporate governance mechanisms, such as material managerial ownership, the presence of non-executive or independent directors on the board and the presence of internal control, compensation and nomination committees, would monitor manager actions and would limit the potential for earnings manipulation (Mitton, 2004; Kim et al., 2015).

Companies with more effective corporate governance would be expected to link executive compensation to executive performance (Abbott et al., 2004; Cerbioni and Parbonetti, 2007; Carcello et al., 2011). For example, internal auditors would assess the effectiveness of internal controls and would also evaluate managers' compensation based on their performance (Chalevas, 2011). Thus, shareholders would be expected to ask for lower executive compensation in companies with lower executive performance scores. It should also be noted that Ghosh (2006) has found that executive compensation is linked to current year performance, while the compensation of the board tends to be affected by past year financial performance as well. On the other hand, Core et al. (1999) and Davila and Penalva (2006) argue that weaker corporate governance is linked to less variable executive compensation and more frequent cash payments. They have also shown that the presence of weaker corporate governance mechanisms would allow managers to favourably influence the compensation arrangements.

Income smoothing may be used to serve certain managerial objectives, such as to maximise current and future executive pay especially when bonus caps exist (Healy, 1985; Holthausen et al., 1995; Watts and Zimmerman, 1990). Financial analysts examine and explain private and public financial information for investors (Chen et al., 2010). Analysts' role can help investors to better understand and interpret managers' actions including income smoothing practices. This implies that analyst coverage can enhance financial reporting oversight and reduce earnings manipulation and managerial subjectivity (Yu, 2008; Chava et al., 2010; Dyck et al., 2010). It follows that higher analyst coverage can reduce agency costs and increase firm value (Jung et al., 2012). However, it is argued that the significant pressure to meet earnings forecasts may sometimes lead to the adoption of accounting policies that negatively affect firm value (Fuller and Jensen, 2002; Dechow et al., 2003; Michenaud, 2008). Jung et al. (2012) argue that the positive effect of analyst coverage monitoring on firm value would be more significant for cash items, such as cash executive pay. This is because cash is related to greater agency costs and a higher possibility of managerial opportunism (Dittmar and Mahrt-Smith, 2007; Dechow et al., 2008). Therefore, it would be expected that executive pay in the form of equity would be linked to higher firm value.

Graham and Harvey (2001) have shown that firms' credit ratings affect managerial decisions significantly. For example, Kisgen (2006, 2009) have reported that firms tend to alter their financing strategy in order to avoid downgrades. It is evident that a deviation from expected credit ratings would affect a firm's access to capital markets and would subsequently affect the financial results and investors' investment decisions as well as managerial compensation (Alissa et al., 2013). A credit rating conveys certain quality information, and thus managers are likely to resort to earnings manipulation in order to reverse unfavourable movements in their ratings (see Kisgen, 2006; Jung et al., 2012). Hence, managers might be inclined to influence earnings upwards when their current credit ratings are below their expected ratings and vice versa (Alissa et al., 2013).

The quality of investor protection mechanisms as well as of executive pay disclosures would vary from country to country (van der Laan Smith et al., 2005; Silberhorn and Warren, 2007). Common-law countries, which are shareholder/investor oriented and have strong investor protection mechanisms and effective corporate governance structures in place, would tend to promote shareholder interests to a greater extent than code-law countries that are government-driven, tax-dominated and

Please cite this article in press as: Emmanuel Iatridis, G. Accounting discretion and executive cash compensation: An empirical investigation of corporate governance, credit ratings and firm value. J. Int. Financ. Markets Inst. Money (2018), https://doi.org/10.1016/j.intfin.2018.02.008

lender/creditor oriented (Ball et al., 2000; Jaggi and Low, 2000). In the absence of a strong and effective regulatory framework or of effective governance structures, the reported information is likely to be of lesser quality and usefulness (Patten, 2005; Segal and Segal, 2016).

This study focuses on the UK, which is a common-law country, and uses the agency theory as the theoretical background. It examines the association between executive compensation and corporate governance. It also investigates the association between executive compensation, the informativeness of income smoothing and discretionary accruals. Further, this study tests whether higher executive compensation is likely to lead to higher earnings manipulation when current credit ratings differ from their expected ratings. In the same context, it also investigates whether higher executive compensation motivates firms to use earnings manipulation with the intent of returning to an expected credit rating when the current ratings have drifted. Finally, this study examines the association between executive compensation and firm value.

This study shows that executive cash compensation is negatively associated with corporate governance. Analyst following, company size and debt are negatively related to executive compensation. In contrast, a positive association has been reported for high growth. Executive cash compensation is positively associated with discretionary accruals and negatively with firm value. Firms that pay cash compensation are likely to engage in earnings manipulation when their actual credit ratings differ from their expected ratings. They are also likely to engage in earnings manipulation with the intent of returning to an expected credit rating when the current ratings have drifted.

The remaining sections of the study are as follows. Section 2 presents the research hypotheses. Section 3 describes the data. Section 4 discusses the empirical findings, and Section 5 presents the conclusions of the study.

2. Research hypotheses

2.1. Executive compensation and corporate governance

Managers may manipulate key financial numbers in order to increase their compensation and at the same time satisfy analyst forecasts and investor expectations (Milne and Patten, 2002; Laux and Laux, 2009). Corporate governance plays a significant role in closing the information gap between managers and stakeholders (Nasser Abdallah and Ismail, 2017). This would reduce agency costs, such as monitoring costs and bonding costs, and would result in efficient contracting and executive compensation determination (Foo, 2007; Jones, 2010; Karolyi, 2012). A larger number of non-executive and independent directors that serve on the board would seek to ensure that managers do not implement accounting policies that intend to maximise their pay but that reinforce shareholders' wealth (Xie et al., 2003; Haniffa and Cooke, 2005). According to Chen et al. (2015), increased board independence leads to lower earnings manipulation. The size of the board is also vital. According to Gao et al. (2017), board size is related to abnormal turnover in companies with higher fraud rates. Jensen (1993) and Core et al. (1999) argue that a smaller board size would better coordinate and monitor managers' decisions and performance. Further, companies where the CEO and the chairman is not the same person would display more efficient executive compensation programs (Taylor, 2004).

Internal auditors would assess the effectiveness of managers and the quality of management compensation schemes. Likewise, higher ownership dispersion would serve as a monitoring device of managers' decisions and would subsequently promote shareholders' interests (Ho et al., 2004; McKnight and Weir, 2009). Insider shareholders who are non-executives and own significant proportion of shares would be motivated to watch the determination of executive compensation (Allen, 1981). In contrast, insider shareholders who are executives may use their voting rights to reinforce their self-defined wealth-maximising objectives (Brandes et al., 2003; Khan et al., 2005). Shareholders that hold more than 5% of the share capital would tend to avoid compensation payments that are not in line with company profitability and targets (Hartzell and Starks, 2003; Chalevas, 2011). However, managers with strong influence on the board of directors would be able to strategically determine the level and the terms of their own compensation (Feito-Ruiz and Renneboog, 2017).

Higher leverage would imply that lenders would monitor managers' actions and financial reporting quality (McConnell and Servaes, 1990). In addition, higher leverage would direct reduce agency costs and direct free cash flows to less discretionary uses (Faccio et al., 2001; Florackis, 2008). Effective corporate governance would be linked to lower uncertainty, subsequently leading to obtaining financing on better terms (Clarkson et al., 2004; Ioannou et al., 2014). This would positively influence companies' future financial prospects and firm value (Clarkson et al., 2008; Dhaliwal et al., 2011). Large firms would tend to establish effective corporate governance structures in order to avoid attention and negative publicity (Francis, 2001). To avoid negative publicity, CEOs tend to adopt performance-based performance schemes. However, the benefits of performance-based plans is mitigated when powerful CEOs strategically select performance targets and benchmarks (Abernethy et al., 2015). High growth firms would tend to establish more attractive compensation plans in order to motivate managers to increase their performance and serve shareholders' interests (Chalevas, 2011). It follows that in the absence of effective corporate governance, managers could make short-sighted decisions and set their compensation at significantly high levels at the expense of shareholders. According to Armstrong et al. (2012), executive compensation tends to be higher for firms that display weaker corporate governance quality. Model (1) is based on Chalevas (2011, p. 152) and tests hypothesis 1.

Please cite this article in press as: Emmanuel Iatridis, G. Accounting discretion and executive cash compensation: An empirical investigation of corporate governance, credit ratings and firm value. J. Int. Financ. Markets Inst. Money (2018), https://doi.org/10.1016/j.intfin.2018.02.008

H_1 Executive compensation in the form of cash is negatively associated with corporate governance.

$$\begin{aligned} lncomp = {} & a_0 + a_1 r + a_2 br + a_3 rbr + a_4 l1r + a_5 l1br + a_6 l1rbr + a_7 \Delta oi + a_8 negoi + a_9 oinegoi + a_{10} l1oi + a_{11} l1negoi \\ & + a_{12} l1oinegoi + a_{13} \Delta cf + a_{14} negcf + a_{15} cfnegcf + a_{16} l1cf + a_{17} l1negcf + a_{18} l1cfnegcf + a_{19} ind \\ & + a_{20} nonexec + a_{21} intauditor + a_{22} ccom + a_{23} dual + a_{24} mgtchange + a_{25} board + a_{26} insider + a_{27} block \\ & + a_{28} bigau + a_{29} crlist + a_{30} analyst + a_{31} lnMV + a_{32} debt + a_{33} growth + a_{34} age + e \end{aligned} \quad (1)$$

where

lncomp	is executive cash compensation scaled by the natural logarithm of total turnover;
r	is the stock return;
br	is a dummy variable that takes 1 if *r* is negative and 0 otherwise;
l1r	is 1 year lagged *r;*
11br	is a dummy variable that takes 1 if *l1r* is negative and 0 otherwise;
Δoi	is the change in operating income scaled by total assets;
negoi	is a dummy variable that takes 1 if *Δoi* is negative and 0 otherwise;
l1oi	is 1 year lagged *Δoi*;
l1negoi	is a dummy variable that takes 1 if *l1oi* is negative and 0 otherwise;
Δcf	is the change in net cash flows from operating activities scaled by total assets;
negcf	is a dummy variable that takes 1 if *Δcf* is negative and 0 otherwise;
l1cf	is 1 year lagged *Δcf*;
11negcf	is a dummy variable that takes 1 if *l1cf* is negative and 0 otherwise;
ind	is the percentage of independent directors on the board;
nonexec	is the percentage of non-executive directors on the board;
intauditor	is a dummy variable that takes 1 if a firm has an internal audit committee and 0 otherwise;
ccom	is a dummy variable that takes 1 if a firm has a compensation committee and 0 otherwise;
dual	is a dummy variable that takes 1 if the CEO and chairman is not the same person and 0 otherwise;
mgtchange	is a dummy variable that takes 1 if the CEO has changed and 0 otherwise;
board	is the number of directors on the board;
insider	is the percentage of outstanding shares owned by insider shareholders;
block	is the percentage of outstanding shares owned by shareholders that hold more than 5% of the share capital;
bigau	is a dummy variable that takes 1 for firms that are audited by a big 4 auditor and 0 otherwise;
crlist	is a dummy variable that takes 1 for cross listed firms and 0 otherwise;
analyst	is the number of financial analysts following the firm;
lnMV	is the natural logarithm of market value of equity;
debt	is total debt scaled by total assets;
growth	is market to book value;
age	is the natural logarithm of the number of years since firm foundation;
e	is the error term.

2.2. Executive compensation and the informativeness of income smoothing

Income smoothing is informative when it conveys private information about future earnings to investors (Sun, 2011). It follows that the use of income smoothing for self-defined opportunistic purposes would reduce the informativeness of income smoothing (Tucker and Zarowin, 2006). Model (2) is based on Sun (2011, p. 340) and tests hypothesis 2.

H_2 Executive compensation in the form of cash is negatively associated with the informativeness of income smoothing.

$$\begin{aligned} r = {} & a_0 + a_1 l1eps + a_2 eps + a_3 eps3 + a_4 r3 + a_5 beta + a_6 insm + a_7 insm\ x\ l1eps + a_8 insm\ x\ eps + a_9 insm\ x\ eps3 \\ & + a_{10} insm\ x\ r3 + a_{11} lncomp + a_{12} lncomp\ x\ insm + a_{13} lncomp\ x\ eps3 + a_{14} lncomp\ x\ insm\ x\ eps3 + a_{15} ind \\ & + a_{16} ind\ x\ insm + a_{17} ind\ x\ eps3 + a_{18} ind\ x\ insm\ x\ eps3 + a_{19} lnMV + a_{20} lnMV\ x\ eps3 + a_{21} BM \\ & + a_{22} BM\ x\ eps3 + a_{23} epsdev + a_{24} epsdev\ x\ epse3 + a_{25} loss + a_{26} loss\ x\ eps3 + e \end{aligned} \quad (2)$$

Please cite this article in press as: Emmanuel Iatridis, G. Accounting discretion and executive cash compensation: An empirical investigation of corporate governance, credit ratings and firm value. J. Int. Financ. Markets Inst. Money (2018), https://doi.org/10.1016/j.intfin.2018.02.008

where

r	is the stock return;
l1eps	is 1 year lagged earnings per share scaled by the stock price at the beginning of the year;
eps	is the earnings per share scaled by the stock price at the beginning of the year,
eps3	is the sum of earnings per share in years t + 1, t + 2 and t + 3 scaled by the stock price at the beginning of year t;
r3	is the annually compounded stock return for years t + 1, t + 2 and t + 3;
beta	is the beta coefficient as obtained from DataStream;
insm	is income smoothing and is described in Section 2.2.1;
lncomp	is executive cash compensation scaled by the natural logarithm of total turnover;
ind	is the percentage of independent directors on the board;
lnMV	is the natural logarithm of market value of equity;
BM	is book to market value of equity;
epsdev	is the standard deviation of earnings per share for years t + 1, t + 2 and t + 3 scaled by the stock price at the beginning of the year;
loss	is a dummy variable that takes 1 for loss-making firms and 0 otherwise;
e	is the error term.

A significant and positive coefficient on *insm x eps3* would suggest a significant improvement in earnings informativeness as a result of income smoothing (see Tucker and Zarowin, 2006). The coefficient on *lncomp x insm x eps3* would be significantly negative if cash executive compensation is negatively associated with the informativeness of income smoothing. A positive coefficient on the association between board independence and the informativeness of income smoothing, i.e. *ind x insm x eps3*, would be expected (see Klein, 2002; Vafeas, 2005). The coefficients on *lnMV x eps3* and *BM x eps3* are expected to be positive. In contrast, the coefficients on *epsdev x eps3 and loss x eps3* are expected to be negative (see Tucker and Zarowin, 2006).

2.2.1. Computation of income smoothing

According to Sun (2011, pp. 338–339), the measure of income smoothing, *insm*, is obtained as follows. First, the discretionary accruals, *dac*, are estimated using the modified Jones model. The study uses the residuals of the following model as discretionary accruals (see also Kothari et al., 2004; Garza-Gomez et al., 2006).

$$AC/l1A = a_0 1/l1A + a_1 \Delta REV/l1A + a_2 PPE/l1A + a_3 ROA + e \quad (3)$$

where

AC	is accruals and equal to annual change in current assets (excluding cash) minus current liabilities (excluding short-term debt and income tax payable) minus depreciation;
l1A	is 1 year lagged total assets;
ΔREV	is the annual change in revenues;
PPE	is property, plant and equipment;
ROA	is return on assets;
e	is the error term.

Subsequently, the pre-discretionary profits are measured as the difference between net profits and discretionary accruals. Second, the correlation between the change in discretionary accruals and the change in pre-discretionary income is computed for the current year and four previous years. Income smoothing would be evidenced by a negative correlation coefficient since managers would be inclined to use discretionary accruals in order to smooth (improve) their reported earnings (see Myers et al., 2007). Income smoothing is then measured as a firm's reversed fractional ranking of the correlation coefficient (see Tucker and Zarowin, 2006; Sun, 2011, p. 339).

2.3. Executive compensation and discretionary accruals

The potential opportunistic behaviour that might be expressed by managers is likely to be associated with the private information that they possess and which they might use to the detriment of investors and for their own benefit. CEO overconfidence may be motivated by the motive to maximise the value of the firm and the market valuation of the firm (Yu, 2014). However, Ham et al. (in press-a) have found that CEO overconfidence or arrogance is positively related to earnings manipulation, less timely loss recognition and more frequent accounting restatements. Likewise, Ahmed and Duellman (2013) have reported a negative association between managers' overconfidence and timely loss recognition and earnings conservatism. The level of optimism or pessimism that is reflected on CEOs' behaviour, actions and earnings forecasts affects

Please cite this article in press as: Emmanuel Iatridis, G. Accounting discretion and executive cash compensation: An empirical investigation of corporate governance, credit ratings and firm value. J. Int. Financ. Markets Inst. Money (2018), https://doi.org/10.1016/j.intfin.2018.02.008

their compensation in a significant manner. Otto (2014) has found that CEOs with a greater level of optimism tend to receive lower compensation. In contrast, Ham et al. (in press-b) have witnessed that companies that are managed by overconfident CEOs tend to receive higher compensation, even if they enjoy lower financial performance and operating cash flows. Of course, the existence of an overconfident CEO that implements good (conditional) conservatism would boost cash flow and financial performance (Hsu et al., in press). Depending on managerial motives, the use of earnings manipulation practices would vary and would have significant effects on financial reporting quality, especially in the case of long CEO tenures (Dikolli et al., 2014).

Fields et al. (2001) and Lambert (2001) argue that managerial compensation and CEO reputation are to a large degree affected by accounting-based contracts and subsequently affect managerial behaviour (see also LaFond and Watts, 2008). Managers may be opportunistically motivated to transfer earnings from good to bad accounting years or overstate assets and earnings related figures and understate liabilities in order to improve their bonuses and wealth or the company financial profile and future financial prospects (Watts, 2003). They may manipulate their profits by influencing the estimates and assumptions of key accounting items, exercising judgement and subjectivity or misappropriating assets (Comer, 1998). For example, managers may implement certain depreciation or stock valuation methods that serve certain managerial and opportunistic goals. Likewise, they may influence provisions for bad debts, the value of property, plant and equipment or accounts receivable by recording unearned sales (Beasley et al., 1999).

Cano-Rodriguez (2010) has found that such practices may be present particularly in the case of firms that are close to financial distress and experience high litigation risk and low reputation levels. Also, companies that experience low profitability and low asset-related and sale-related returns would generally be inclined to manipulate their accounting numbers in order to exhibit better financial measures (Beasley et al., 1999; Spathis et al., 2002). The same would hold for companies that fail to meet profit targets or exhibit negative market returns in order to avoid providing negative managerial signals (Summers and Sweeney, 1998; Premuroso et al., 2012). The nature or the classification of the components of the income statement is also of importance. For example, Gaver and Gaver (1998) have found that non-recurring gains play a significant role in determining compensation, whereas non-recurring losses strategically do not. Model (4) tests hypothesis 3.

H_3 Executive compensation in the form of cash is likely to be positively associated with discretionary accruals.

$$\begin{aligned} dac = {} & a_0 + a_1 lncomp + a_2 r + a_3 br + a_4 rbr + a_5 l1r + a_6 l1br + a_7 l1rbr + a_8 \Delta oi + a_9 negoi + a_{10} oinegoi + a_{11} l1oi \\ & + a_{12} l1negoi + a_{13} l1oinegoi + a_{14} \Delta cf + a_{15} negcf + a_{16} cfnegcf + a_{17} l1cf + a_{18} l1negcf + a_{19} l1cfnegcf + a_{20} bel \\ & + a_{21} high + a_{22} bel\ x\ lncomp + a_{23} high\ x\ lncomp + a_{24} lnMV + a_{25} debt + a_{26} growth + a_{27} lncomp\ x\ lnMV \\ & + a_{28} lncomp\ x\ debt + a_{29} lncomp\ x\ \Delta cf + a_{30} lncomp\ x\ growth + e \end{aligned} \quad (4)$$

where

dac	is discretionary accruals and is described in Section 2.2.1;
lncomp	is executive cash compensation scaled by the natural logarithm of total turnover;
r	is the stock return;
br	is a dummy variable that takes 1 if *r* is negative and 0 otherwise;
l1r	is 1 year lagged *r*;
11br	is a dummy variable that takes 1 if *l1r* is negative and 0 otherwise;
Δoi	is the change in operating income scaled by total assets;
negoi	is a dummy variable that takes 1 if *Δoi* is negative and 0 otherwise;
l1oi	is 1 year lagged *Δoi*;
l1negoi	is a dummy variable that takes 1 if *l1oi* is negative and 0 otherwise;
Δcf	is the change in net cash flows from operating activities scaled by total assets;
negcf	is a dummy variable that takes 1 if *Δcf* is negative and 0 otherwise;
l1cf	is 1 year lagged *Δcf*;
11negcf	is a dummy variable that takes 1 if *l1cf* is negative and 0 otherwise;
bel	is a dummy variable that takes 1 if earnings before manipulation, i.e. reported earnings minus abnormal accruals, scaled by total assets, is less than zero or less than lagged reported earnings and 0 otherwise (see Peasnell et al., 2005, p. 1322);
high	is a dummy variable that takes 1 if earnings before manipulation, i.e. reported earnings minus abnormal accruals, scaled by total assets, is more than zero or more than lagged reported earnings and 0 otherwise (see Peasnell et al., 2005, p. 1322);
lnMV	is the natural logarithm of market value of equity;
debt	is total debt scaled by total assets;
growth	is market to book value;
e	is the error term.

Please cite this article in press as: Emmanuel Iatridis, G. Accounting discretion and executive cash compensation: An empirical investigation of corporate governance, credit ratings and firm value. J. Int. Financ. Markets Inst. Money (2018), https://doi.org/10.1016/j.intfin.2018.02.008

2.4. Earnings manipulation and drifting current credit ratings

Deviations from an expected or target credit rating might significantly impede a firm's access to capital. Thus, firms might be inclined to use earnings manipulation techniques in order to improve their ratings and subsequently their terms of financing. Model (5) is based on Alissa et al. (2013, pp. 140, 142) and tests hypothesis 4.

H_4 Firms that pay executive compensation in the form of cash are likely to engage in earnings manipulation when their current credit ratings differ from their expected ratings.

$$dac = a_0 + a_1 amer + a_2 ig + a_3 amer\ x\ ig + a_4 lnMV + a_5 BM + a_6 ROA + a_7 debt + a_8 cfd + a_9 loss + a_{10} epsg + a_{11} smpr + a_{12} mgtchange + a_{13} ind + a_{14} insider + a_{15} block + a_{16} bigau + e \quad (5)$$

where

dac	is discretionary accruals and is described in Section 2.2.1;
amer	is a firm's actual rating minus its expected rating. A firm's actual rating is expressed by *rat*. A firm's expected rating is the rating level with the highest fitted probability from the probit model (6) presented below, adjusted for the overall frequency of each rating in the sample (Hovakimian et al., 2009; Alissa et al., 2013, pp. 133, 142).

$$rat = a_0 + a_1 mva + a_2 ppe + a_3 R\&D + a_4 R\&Dm + a_5 S\&A + a_6 opa + a_7 lnsales + a_8 predv + e \quad (6)$$

where

rat	is an ordinal variable, which takes values from 1 to 16, reflecting Standard & Poor's (S&P's) credit ratings from B- to AAA;
mva	is market value of assets scaled by total assets;
ppe	is net property plant and equipment scaled by total assets;
R&D	is research and development expenses scaled by sales;
R&Dm	is a dummy variable that takes 1 if a firm has non-missing R&D and 0 otherwise;
S&A	is selling, general and administrative expenses scaled by sales;
opa	is operating profit scaled by lagged total assets;
lnsales	is the natural logarithm of sales;
predv	is the standard deviation of operating income scaled by lagged total assets over the previous five fiscal years;
e	is the error term.
ig	is a dummy variable that takes 1 if a firm's actual credit rating and expected credit rating fall on opposite sides of the investment-grade cut-off and 0 otherwise (Alissa et al., 2013, p. 141). According to Alissa et al. (2013, p. 140), the investment grade cut-off falls between S&P's BBB- and BB + rating levels, where BBB- is considered to be the lowest rating and BB + the highest rated speculative rating in the investment grade.
lnMV	is the natural logarithm of market value of equity;
BM	is book to market value of equity;
ROA	is return on assets;
debt	*is* total debt scaled by total assets;
cfd	is a dummy variable that takes 1 if free cash flow is less than −0.1 and 0 otherwise;
loss	is a dummy variable that takes 1 for loss-making firms and 0 otherwise;
epsg	is a dummy variable that takes 1 for firms that reported increases in earnings per share for the last four quarters and 0 otherwise;
smpr	*is* a dummy variable that takes 1 if net profits exceed analyst forecasts by three cents and 0 otherwise;
mgtchange	is a dummy variable that takes 1 if the CEO has changed and 0 otherwise;
ind is *the*	percentage of independent directors on the board;
insider	is the percentage of outstanding shares owned by insider shareholders;
block	is *the* percentage of outstanding shares owned by shareholders that hold more than 5% of the share capital;
bigau	is a dummy variable that takes 1 for firms that are audited by a big 4 auditor and 0 otherwise;
e	is the error term.

Please cite this article in press as: Emmanuel Iatridis, G. Accounting discretion and executive cash compensation: An empirical investigation of corporate governance, credit ratings and firm value. J. Int. Financ. Markets Inst. Money (2018), https://doi.org/10.1016/j.intfin.2018.02.008

2.5. Using earnings manipulation with the intent to return to expected credit ratings

Firms that are away from their expected credit ratings might use earnings manipulation in order to return to their expected ratings. To test for mean reversion, this study uses Dickey-Fuller unit root regressions across windows of one, three and five years based on model (7) below (Alissa et al., 2013, p. 136). A negative coefficient on a_1 would indicate that a firm's actual rating minus its expected rating (*amer*) displays mean reversion.

$$\Delta amer_{t+k} = a_0 + a_1 amer_t + e \quad (7)$$

where

$\Delta amer_{t+k}$	is the difference between $amer_{t+k}$ and $amer_t$;
$amer_t$	is a firm's actual rating minus its expected rating, as described in Section 2.4;
e	is the error term.

Model (8) examines the effects of earnings manipulation on the mean reversion of deviations from a firm's expected credit rating (Alissa et al., 2013, p. 141). The hypothesis that is tested is presented below:

H_5 Firms that pay executive compensation in the form of cash are likely to engage in earnings manipulation with the intent of returning to an expected credit rating when the current ratings have drifted.

$$\Delta amer_{t+k} = a_0 + a_1 amer + a_2 mdac + a_3 amer\ x\ mdac + a_4 \Delta debt + a_5 \Delta ROA + a_6 \Delta beta + a_7 \Delta cf + e \quad (8)$$

where

$\Delta amer_{t+k}$	is the difference between $amer_{t+k}$ and $amer_t$;
$amer_t$	is a firm's actual rating minus its expected rating, as described in Section 2.4;
mdac	is equal to *dac* if $amer \leq 0$, and $-1\ x\ dac$ if $amer > 0$. *dac* is discretionary accruals and is described in Section 2.2.1;
$\Delta debt$	is the change in total debt scaled by total assets;
ΔROA	is the change in the return on assets;
$\Delta beta$	is the change in the beta coefficient as obtained from DataStream;
Δcf	is the change in net cash flows from operating activities scaled by total assets;
e	is *the* error term.

2.6. Executive compensation and firm value

In their effort to attract high quality managers and show that they appreciate high managerial performance, firms would be inclined to pay higher executive compensation (see also Banker et al., 2013). It follows that higher managerial performance would be appreciated by market participants and would subsequently lead to higher stock valuations. On the other hand, any conflict of interest between manages and shareholders because of managers' motivation to implement opportunistic policies and influence their bonus payments could adversely affect firm stock valuation (see also Jung et al., 2012). In a similar vein, higher executive compensation might come from the absence of effective corporate governance mechanisms or the outcome of earnings manipulations. In this case, higher executive compensation would be associated with higher agency costs and lower firm stock valuation.

High free cash flows are related to high agency costs since managers may be tempted to use them to reinforce their reputation and compensation or for other self-defined purposes (Nohel and Tarhan, 1998; Pinkowitz et al., 2006; Dittmar and Mahrt-Smith, 2007; Dechow et al., 2008). Likewise, high free cash flows may be directed to investment projects with negative net present value and high short-term profits in order to increase their bonus in the short-run (see Jung et al., 2012). Information asymmetry between managers and shareholders would further increase shareholders' scepticism and uncertainty about the effectiveness of the use of excessive cash (Chava et al., 2010). In all cases, firm value would be negatively affected (see Pinkowitz et al., 2006; Andrews et al., 2010).

Following Faulkender and Wang (2006), the need of cash for investment projects would reduce the potential for opportunistically using cash for managerial benefits, such as for executive compensation. To obtain a higher stock valuation, firms would need to make a more efficient use of cash (Healy and Palepu, 2001). In a similar vein, the distribution of cash to shareholders rather than to managers would tend to increase stock valuation (Jensen, 1986; Lang and Litzenberger, 1989; Jung et al., 2012).

The discussion presented above indicates that cash is significantly related to firm value. Li et al. (2014) have shown that firm value maximisation would tend to lead to higher executive pay. Berrone and Gomez-Mejia (2009) have found that com-

Please cite this article in press as: Emmanuel Iatridis, G. Accounting discretion and executive cash compensation: An empirical investigation of corporate governance, credit ratings and firm value. J. Int. Financ. Markets Inst. Money (2018), https://doi.org/10.1016/j.intfin.2018.02.008

pensation that is based on short-term incentives are more prone to earnings manipulation rather than compensation that is based on long-term incentives. Unlike executive compensation in the form of stock options, executive compensation in the form of cash might be associated with the opportunistic use of free cash flows and lead to lower stock valuation. To reduce phenomena of opportunism, most firms tend to use non-cash executive compensation as opposed to cash compensation (Yermack, 1995). Non-cash compensation may include stock options, warrants and employee shares (Hojen, 2007; Ben Sita et al., 2013). Hillegeist and Penalva (2004) and Dah et al. (2012) report a positive association between equity-based managerial compensation and corporate performance. Model (9) is based on Faulkender and Wang (2006) and Jung et al. (2012, p. 67) and tests hypothesis 6.

H_6 Higher executive compensation in the form of cash is associated with lower firm value.

$$R - R_p = a_0 + a_1\Delta na + a_2\Delta oi + a_3\Delta R\&D + a_4\Delta inter + a_5\Delta div + a_6 lncomp + a_7 fin + a_8 debt + a_9\Delta cash + a_{10}\Delta noncash + a_{11} lncomp\ x\ \Delta na + a_{12} lncomp\ x\ \Delta cash + a_{13} lncomp\ x\ \Delta noncash + a_{14} debt\ x\ \Delta cash + e \quad (9)$$

where

R	is the stock return;
R_p	is returns of the portfolio matched with each sample firm based on size and book to market value as in Fama and French (1993) (see Jung et al., 2012, p. 67);
Δna	is the change in net assets;
Δoi	is the change in operating income scaled by total assets;
$\Delta R\&D$	is the change in research and development;
$\Delta inter$	is the change in interest expense;
Δdiv	is the change in dividends;
lncomp	is executive cash compensation scaled by the natural logarithm of total turnover;
fin	is equity and debt minus stock repurchase and debt repayment;
debt	is total debt scaled by total assets;
$\Delta cash$	is the change in cash;
$\Delta noncash$	is the change in noncash current assets;
e	is *the* error term.

3. Data

The sample consists of non-financial companies that belong to FTSE All Share Index of the London Stock Exchange. Banks, insurance, pension and brokerage companies have been excluded, as their accounting methods are not always comparable with those of industrial companies. Accounting and financial data was collected from DataStream. Compensation data was collected from ExecuComp. Corporate governance data was obtained from BoardEx. Financial analyst data was collected from Thomson One Banker. Credit ratings reflect S&P's assessment of company credibility. The FTSE All Share Index population was matched with data from DataStream, ExecuComp, BoardEx and Thomson One Banker. Due to data constraints, the final sample consists of 401 companies. The period of investigation is 2005 to 2015. It is noted that UK listed companies implement IFRSs as of January 2005. This study has accounted for heteroscedasticity, autocorrelation, departure from normality and multicollinearity, where appropriate.

4. Research findings

4.1. Descriptive statistics

Table 1 presents the descriptive statistics for the main variables used in this study. The mean executive cash compensation (*lncomp*) is 0.185. The mean natural logarithm of market value of equity (*lnMV*) is 6.201. The mean *debt* is 0.351. The mean *growth* and return on assets is 0.147 and 0.032 respectively. The mean *beta* is 0.581. The mean income smoothing (*insm*) is 0.485. The mean actual minus expected rating (*amer*) is 0.101. The mean percentage of independent directors on the board (*ind*) is 0.591. The mean percentage of outstanding shares owned by insider shareholders (*insider*) is 0.198. The mean percentage of outstanding shares owned by shareholders that hold more than 5% of the share capital (*block*) is 0.304. The mean change in net assets (0.031). The mean equity and debt minus stock repurchase and debt repayment (*fin*) is 0.048. The mean change in cash ($\Delta cash$) is 0.011. Finally, the mean change in noncash current assets ($\Delta noncash$) is 0.009.

Please cite this article in press as: Emmanuel Iatridis, G. Accounting discretion and executive cash compensation: An empirical investigation of corporate governance, credit ratings and firm value. J. Int. Financ. Markets Inst. Money (2018), https://doi.org/10.1016/j.intfin.2018.02.008

Table 1
Descriptive statistics.

Variables	Mean	Std Deviation
lncomp	0.185	0.140
lnMV	6.201	1.309
debt	0.351	0.130
growth	0.147	0.620
ROA	0.032	0.054
beta	0.581	0.819
insm	0.485	0.233
amer	0.101	2.783
ind	0.591	0.129
insider	0.198	0.221
block	0.304	0.271
Δna	0.031	0.191
fin	0.048	0.151
Δcash	0.011	0.126
Δnoncash	0.009	0.143

The sample period is 2005 to 2015. The sample consists of 401 companies. *lncomp* is executive cash compensation scaled by the natural logarithm of total turnover. *lnMV* is the natural logarithm of market value of equity. *debt* is total debt scaled by total assets. *growth* is market to book value. *ROA* is return on assets. *beta* is the beta coefficient as obtained from DataStream. *insm* is income smoothing and is described in Section 2.2.1. *amer* is a firm's actual rating minus its expected rating as described in Section 2.4. *ind* is the percentage of independent directors on the board. *insider* is the percentage of outstanding shares owned by insider shareholders. *block* is the percentage of outstanding shares owned by shareholders that hold more than 5% of the share capital. *Δna* is the change in net assets. *fin* is equity and debt minus stock repurchase and debt repayment. *Δcash* is the change in cash. *Δnoncash* is the change in noncash current assets.

4.2. Executive compensation and corporate governance

Table 2 provides evidence in favour of H_1 and shows that executive compensation in the form of cash is negatively associated with corporate governance. Executive cash compensation is positively related to lagged stock movements (*l1r*) and exhibits a negative coefficient on the interaction *l1rbr*. It is also positively related to the current and lagged change in operating income, i.e. *Δoi* and *l1oi* respectively. In the same vein, executive compensation displays a negative coefficient on the interactions *oinegoi* and *l1oinegoi*. Likewise, executive compensation exhibits a positive association with the current and lagged change in net operating cash flows, i.e. *Δcf* and *l1cf* respectively. A negative coefficient is reported on the interactions *cfnegcf* and *l1cfnegcf*. Executive compensation shows a negative coefficient with regard to corporate governance, implying that the presence of governance monitoring mechanisms would tend to control or restrain executive compensation. Table 2 shows that the percentage of independent directors (*ind*) and non-executive directors (*nonexec*) on the board carry a negative coefficient (see also Almazan and Suarez, 2003; Chalevas, 2011). The same applies for firms with an internal audit committee (*intauditor*) and a compensation committee (*ccom*) and for those where the CEO and chairman is not the same person (*dual*). Also, firms with large size boards (*board*), firms that are audited by a big 4 auditor (*bigau*) and firms that are followed by many financial analysts (*analyst*) show a negative association with executive compensation. Shareholders that hold more than 5% of the share capital (*block*) would seek to ensure that executive compensation stays in line with company performance. Indeed, executive compensation is negatively related to *block*. In line with the predictions discussed in Section 2.1, Table 2 shows that executive compensation displays a negative association with company size (*lnMV*) and leverage (*debt*). This would imply that the stronger monitoring power of high debt and the preference to avoid adverse publicity have led to more conservative executive compensation. Finally, in their effort to maximise managers' productivity and performance, firms with high growth prospects (*growth*) tend to show a positive association with executive compensation.

4.3. Executive compensation and the informativeness of income smoothing

Table 3 provides evidence in favour of H_2 and shows that executive compensation in the form of cash is negatively associated with the informativeness of income smoothing. The coefficient on *insm x l1eps* is negative. The coefficients on *insm x eps* and *insm x eps3* are positive indicating a significant improvement in earnings informativeness. The negative coefficient on *lncomp x insm x eps3* reflects the negative association between executive cash compensation and the informativeness of income smoothing. This implies that income smoothing enhances earnings informativeness less for firms with high executive cash compensation. This also suggests that executive compensation may lead to higher levels of earnings manipulation. As shown by the positive coefficient on *ind x insm x eps3*, earnings informativeness is positively associated with board independence (see Sun, 2011). Likewise, the positive coefficient on *lnMV x eps3* implies that earnings informativeness is higher for firms that are visible in the marketplace and thus more careful in their financial behaviour and decision-making. In a similar vein, firms with lower growth options (*BM x eps3*) would be less inclined to employ practices of manipulation compared to high growth firms, which would be more motivated in order to reinforce their growth potential. Table 3 provides support

Please cite this article in press as: Emmanuel Iatridis, G. Accounting discretion and executive cash compensation: An empirical investigation of corporate governance, credit ratings and firm value. J. Int. Financ. Markets Inst. Money (2018), https://doi.org/10.1016/j.intfin.2018.02.008

Table 2
Model (1).

Executive Compensation and Corporate Governance	
Variables	Coefficients
r	0.065
	(0.064)
br	−0.025
	(0.053)
rbr	−0.064
	(0.146)
l1r	0.002**
	(0.0009)
l1br	0.127
	(0.145)
l1rbr	−0.005**
	(0.002)
Δoi	0.158***
	(0.041)
negoi	0.001
	(0.001)
oinegoi	−0.002**
	(0.001)
l1oi	0.005**
	(0.007)
l1negoi	−0.003
	(0.003)
l1oinegoi	−0.024**
	(0.010)
Δcf	0.288***
	(0.123)
negcf	0.012
	(0.286)
cfnegcf	−1.000***
	(0.183)
l1cf	0.157***
	(0.038)
11negcf	0.085
	(0.180)
l1cfnegcf	−0.863**
	(0.396)
ind	−0.145*
	(0.080)
nonexec	−0.376**
	(0.181)
intauditor	−0.008***
	(0.003)
Ccom	−0.421***
	(0.046)
dual	−0.400***
	(0.042)
mgtchange	0.054
	(0.180)
board	−0.014**
	(0.006)
insider	0.002
	(0.005)
block	−0.030*
	(0.016)
bigau	−0.060***
	(0.013)
crlist	0.197
	(0.152)
analyst	−0.023**
	(0.011)
lnMV	−0.443***
	(0.170)
debt	−0.238*
	(0.146)
growth	0.037***
	(0.014)

(*continued on next page*)

Please cite this article in press as: Emmanuel Iatridis, G. Accounting discretion and executive cash compensation: An empirical investigation of corporate governance, credit ratings and firm value. J. Int. Financ. Markets Inst. Money (2018), https://doi.org/10.1016/j.intfin.2018.02.008

Table 2 (*continued*)

Executive Compensation and Corporate Governance	
Variables	Coefficients
age	0.019
	(0.144)
Constant	0.093
	(0.161)
R^2 adj.	0.30

***, ** and * indicate statistical significance at the 1%, 5% and 10% level (two-tailed) respectively. The standard error is in parentheses. In Table 2, the dependent variable is *lncomp*, which is executive cash compensation scaled by the natural logarithm of total turnover. In Table 3, the dependent variable is *r*, which is the stock return. *r*, is the stock return. *br* is a dummy variable that takes 1 if *r* is negative and 0 otherwise. *l1r* is 1 year lagged *r*. *11br* is a dummy variable that takes 1 if *l1r* is negative and 0 otherwise. *Δoi* is the change in operating income scaled by total assets. *negoi* is a dummy variable that takes 1 if *Δoi* is negative and 0 otherwise. *l1oi* is 1 year lagged *Δoi*. *l1negoi* is a dummy variable that takes 1 if *l1oi* is negative and 0 otherwise. *Δcf* is the change in net cash flows from operating activities scaled by total assets. *negcf* is a dummy variable that takes 1 if *Δcf* is negative and 0 otherwise. *l1cf* is 1 year lagged *Δcf*. *11negcf* is a dummy variable that takes 1 if *l1cf* is negative and 0 otherwise. *ind* is the percentage of independent directors on the board. *nonexec* is the percentage of non-executive directors on the board. *intauditor* is a dummy variable that takes 1 if a firm has an internal audit committee and 0 otherwise. *ccom* is a dummy variable that takes 1 if a firm has a compensation committee and 0 otherwise. *dual* is a dummy variable that takes 1 if the CEO and chairman is not the same person and 0 otherwise. *mgtchange* is a dummy variable that takes 1 if the CEO has changed and 0 otherwise. *board* is the number of directors on the board. *insider* is the percentage of outstanding shares owned by insider shareholders. *block* is the percentage of outstanding shares owned by shareholders that hold more than 5% of the share capital. *bigau* is a dummy variable that takes 1 for firms that are audited by a big 4 auditor and 0 otherwise. *crlist* is a dummy variable that takes 1 for cross listed firms and 0 otherwise. *analyst* is the number of financial analysts following the firm. *lnMV* is the natural logarithm of market value of equity. *debt* is total debt scaled by total assets. *growth* is market to book value. *age* is the natural logarithm of the number of years since firm foundation. *l1eps* is 1 year lagged earnings per share scaled by the stock price at the beginning of the year. *eps* is the earnings per share scaled by the stock price at the beginning of the year. *eps3* is the sum of earnings per share in years t + 1, t + 2 and t + 3 scaled by the stock price at the beginning of year t. *r3* is the annually compounded stock return for years t + 1, t + 2 and t + 3. *beta* is the beta coefficient as obtained from DataStream. *insm* is income smoothing and is described in Section 2.2.1. *BM* is book to market value of equity. *epsdev* is the standard deviation of earnings per share for years t + 1, t + 2 and t + 3 scaled by the stock price at the beginning of the year. *loss* is a dummy variable that takes 1 for loss-making firms and 0 otherwise.

to this argument and shows that the coefficient on *BM x eps3* is positive. In contrast, the coefficients on *epsdev x eps3 and loss x eps3* are negative reflecting the negative association between earnings informativeness and earnings variability and negative earnings respectively (see Tucker and Zarowin, 2006).

4.4. Executive compensation and discretionary accruals

Table 4 provides evidence in favour of H_3 and shows that executive cash compensation is positively associated with discretionary accruals. This is evidenced by the positive coefficient on *lncomp*. The coefficients on the current and lagged bad

Table 3
Model (2).

Executive Compensation and the Informativeness of Income Smoothing Smoothing Smoothing	
Variables	Coefficients
l1eps	0.001
	(0.066)
eps	0.197
	(0.224)
eps3	0.120*
	(0.070)
r3	0.002***
	(0.000)
beta	0.196
	(0.279)
insm	0.285***
	(0.043)
insm x l1eps	−0.022**
	(0.011)
insm x eps	0.021***
	(0.008)
insm x eps3	0.038*
	(0.023)

Please cite this article in press as: Emmanuel Iatridis, G. Accounting discretion and executive cash compensation: An empirical investigation of corporate governance, credit ratings and firm value. J. Int. Financ. Markets Inst. Money (2018), https://doi.org/10.1016/j.intfin.2018.02.008

Table 3 (*continued*)

Executive Compensation and the Informativeness of Income Smoothing Smoothing Smoothing	
Variables	Coefficients
insm x r3	−0.031
	(0.050)
lncomp	0.182
	(0.272)
lncomp x insm	−0.030
	(0.013)
lncomp x eps3	0.004
	(0.010)
lncomp x insm x eps3	−0.139**
	(0.073)
ind	0.002
	(0.003)
ind x insm	0.083*
	(0.050)
ind x eps3	0.118
	(0.102)
ind x insm x eps3	0.005***
	(0.001)
lnMV	0.065
	(0.141)
lnMV x eps3	0.120***
	(0.024)
BM	0.010
	(0.010)
BM x eps3	0.034*
	(0.018)
epsdev	0.065
	(0.045)
epsdev x eps3	−0.043**
	(0.019)
loss	0.030
	(0.046)
loss x eps3	−0.265*
	(0.159)
Constant	0.117
	(0.131)
R^2 adj.	0.27

***, ** and * indicate statistical significance at the 1%, 5% and 10% level (two-tailed) respectively. The standard error is in parentheses. In Table 2, the dependent variable is *lncomp*, which is executive cash compensation scaled by the natural logarithm of total turnover. In Table 3, the dependent variable is *r*, which is the stock return. *r*, is the stock return. *br* is a dummy variable that takes 1 if *r* is negative and 0 otherwise. *l1r* is 1 year lagged *r*. *11br* is a dummy variable that takes 1 if *l1r* is negative and 0 otherwise. *Δoi* is the change in operating income scaled by total assets. *negoi* is a dummy variable that takes 1 if *Δoi* is negative and 0 otherwise. *l1oi* is 1 year lagged *Δoi*. *l1negoi* is a dummy variable that takes 1 if *l1oi* is negative and 0 otherwise. *Δcf* is the change in net cash flows from operating activities scaled by total assets. *negcf* is a dummy variable that takes 1 if *Δcf* is negative and 0 otherwise. *l1cf* is 1 year lagged *Δcf*. *11negcf* is a dummy variable that takes 1 if *l1cf* is negative and 0 otherwise. *ind* is the percentage of independent directors on the board. *nonexec* is the percentage of non-executive directors on the board. *intauditor* is a dummy variable that takes 1 if a firm has an internal audit committee and 0 otherwise. *ccom* is a dummy variable that takes 1 if a firm has a compensation committee and 0 otherwise. *dual* is a dummy variable that takes 1 if the CEO and chairman is not the same person and 0 otherwise. *mgtchange* is a dummy variable that takes 1 if the CEO has changed and 0 otherwise. *board* is the number of directors on the board. *insider* is the percentage of outstanding shares owned by insider shareholders. *block* is the percentage of outstanding shares owned by shareholders that hold more than 5% of the share capital. *bigau* is a dummy variable that takes 1 for firms that are audited by a big 4 auditor and 0 otherwise. *crlist* is a dummy variable that takes 1 for cross listed firms and 0 otherwise. *analyst* is the number of financial analysts following the firm. *lnMV* is the natural logarithm of market value of equity. *debt* is total debt scaled by total assets. *growth* is market to book value. *age* is the natural logarithm of the number of years since firm foundation. *l1eps* is 1 year lagged earnings per share scaled by the stock price at the beginning of the year. *eps* is the earnings per share scaled by the stock price at the beginning of the year. *eps3* is the sum of earnings per share in years t + 1, t + 2 and t + 3 scaled by the stock price at the beginning of year t. *r3* is the annually compounded stock return for years t + 1, t + 2 and t + 3. *beta* is the beta coefficient as obtained from DataStream. *insm* is income smoothing and is described in Section 2.2.1. *BM* is book to market value of equity. *epsdev* is the standard deviation of earnings per share for years t + 1, t + 2 and t + 3 scaled by the stock price at the beginning of the year. *loss* is a dummy variable that takes 1 for loss-making firms and 0 otherwise.

Please cite this article in press as: Emmanuel Iatridis, G. Accounting discretion and executive cash compensation: An empirical investigation of corporate governance, credit ratings and firm value. J. Int. Financ. Markets Inst. Money (2018), https://doi.org/10.1016/j.intfin.2018.02.008

Table 4
Model (4).

Executive Compensation and Discretionary Accruals	
Variables	Coefficients
lncomp	0.022*
	(0.012)
r	0.011
	(0.067)
br	0.066
	(0.216)
rbr	0.004*
	(0.002)
l1r	0.174
	(0.560)
l1br	0.012
	(0.021)
l1rbr	0.248*
	(0.148)
Δoi	0.005
	(0.012)
negoi	0.799
	(0.640)
oinegoi	0.001*
	(0.000)
l1oi	0.461
	(0.601)
l1negoi	0.034***
	(0.013)
l1oinegoi	0.499*
	(0.266)
Δcf	0.951
	(0.687)
negcf	0.303
	(0.222)
cfnegcf	0.319***
	(0.130)
l1cf	0.006
	(0.231)
11negcf	0.045
	(0.107)
l1cfnegcf	0.684**
	(0.317)
bel	0.162
	(0.167)
high	0.083
	(0.084)
bel x lncomp	0.003*
	(0.002)
high x lncomp	−0.058**
	(0.029)
lnMV	−0.009**
	(0.004)
debt	−0.072***
	(0.015)
growth	0.013
	(0.072)
lncomp x lnMV	−0.022*
	(0.013)
lncomp x debt	−0.036**
	(0.016)
lncomp x Δcf	−0.596***
	(0.013)
lncomp x growth	0.238*
	(0.127)

Please cite this article in press as: Emmanuel Iatridis, G. Accounting discretion and executive cash compensation: An empirical investigation of corporate governance, credit ratings and firm value. J. Int. Financ. Markets Inst. Money (2018), https://doi.org/10.1016/j.intfin.2018.02.008

Table 4 (*continued*)

Executive Compensation and Discretionary Accruals	
Variables	Coefficients
Constant	0.185
	(0.198)
R^2 adj.	0.21

***, ** and * indicate statistical significance at the 1%, 5% and 10% level (two-tailed) respectively. The standard error is in parentheses. In Tables 4 and 5, the dependent variable is *dac*, which is discretionary accruals and is described in Section 2.2.1. *lncomp* is executive cash compensation scaled by the natural logarithm of total turnover. *r* is the stock return. *br* is a dummy variable that takes 1 if *r* is negative and 0 otherwise. *l1r* is 1 year lagged *r*. *11br* is a dummy variable that takes 1 if *l1r* is negative and 0 otherwise. *Δoi* is the change in operating income scaled by total assets. *negoi* is a dummy variable that takes 1 if *Δoi* is negative and 0 otherwise. *l1oi* is 1 year lagged *Δoi*. *l1negoi* is a dummy variable that takes 1 if *l1oi* is negative and 0 otherwise. *Δcf* is the change in net cash flows from operating activities scaled by total assets. *negcf* is a dummy variable that takes 1 if *Δcf* is negative and 0 otherwise. *l1cf* is 1 year lagged *Δcf*. *11negcf* is a dummy variable that takes 1 if *l1cf* is negative and 0 otherwise. *bel* is a dummy variable that takes 1 if earnings before manipulation, i.e. reported earnings minus abnormal accruals, scaled by total assets, is less than zero or less than lagged reported earnings and 0 otherwise. *high* is a dummy variable that takes 1 if earnings before manipulation, i.e. reported earnings minus abnormal accruals, scaled by total assets, is more than zero or more than lagged reported earnings and 0 otherwise. *lnMV* is the natural logarithm of market value of equity. *debt* is total debt scaled by total assets. *growth* is market to book value. *amer* is a firm's actual rating minus its expected rating and is described in Section 2.4. *ig* is a dummy variable that takes 1 if a firm's actual credit rating and expected credit rating fall on opposite sides of the investment-grade cut-off and 0 otherwise. *BM* is book to market value of equity. *debt* is total debt scaled by total assets. *cfd* is a dummy variable that takes 1 if free cash flow is less than −0.1 and 0 otherwise. *loss* is a dummy variable that takes 1 for loss-making firms and 0 otherwise. *epsg* is a dummy variable that takes 1 for firms that reported increases in earnings per share for the last four quarters and 0 otherwise. *smpr* is a dummy variable that takes 1 if net profits exceed analyst forecasts by three cents and 0 otherwise. *mgtchange* is a dummy variable that takes 1 if the CEO has changed and 0 otherwise. *ind* is the percentage of independent directors on the board. *insider* is the percentage of outstanding shares owned by insider shareholders. *block* is the percentage of outstanding shares owned by shareholders that hold more than 5% of the share capital. *bigau* is a dummy variable that takes 1 for firms that are audited by a big 4 auditor and 0 otherwise.

news interaction variables, i.e. *rbr* and *l1rbr* respectively, show a positive association with discretionary accruals. The same holds for the current and lagged interaction variables on negative operating income and net operating cash flow change, i.e. *oinegoi* and *l1oinegoi*, *cfnegcf* and *l1cfnegcf* respectively.

Firms with cash executive compensation tend to exhibit high earnings manipulation as shown by the positive coefficient of *bel x lncomp* and the negative coefficient of *high x lncomp*. The reported coefficients show that companies with cash executive compensation and low (high) pre-managed earnings tend to manipulate earnings upwards (downwards). The negative coefficient on *lncomp x lnMV* suggests that the large size of companies with cash executive compensation would attract market participants' attention, which would thus limit the expression of opportunistic behaviors. Similar considerations hold for the negative coefficient on *lncomp x debt*, reflecting the earnings manipulation-decreasing effects of leverage.

The negative coefficient on *lncomp x Δcf* shows that companies with cash executive compensation and low liquidity display high discretionary accruals. A higher market to book value of equity, which would reflect higher growth potential and financial prospects, might urge firms to use earnings manipulation. Here, the growth interaction variable (*lncomp x growth*) carries a positive coefficient indicating that companies with cash executive compensation and high growth would display high discretionary accruals.

4.5. Earnings manipulation and drifting current credit ratings

Table 5 provides evidence in favour of H_4. As shown by the negative coefficient on *amer*, firms that pay cash compensation are likely to engage in earnings manipulation when their actual credit ratings differ from their expected ratings. The negative coefficient on *amer x ig* shows that firms that are marginally on the investment-grade cut-off tend to display a higher tendency for manipulation. This is in line with Alissa et al. (2013), who have found that, under the investment-grade cut-off concept, when the actual rating is lower (higher) than the expected rating, firms tend to exhibit higher (lower) discretionary accruals.

Table 5 shows that the book to market value of equity (*BM*) is negatively associated with discretionary accruals, implying that high growth firms would be more inclined to use earnings manipulation practices. Likewise, firms with higher earnings per share growth (*epsg*) tend to show higher discretionary accruals. Lower return on assets (*ROA*) and liquidity (*cfd*) are associated with higher discretionary accruals. Loss-making firms (*loss*) also tend to exhibit higher discretionary accruals. Firms with net profits that have slightly exceeded analyst forecasts (*smpr*) are likely to manage their profit figures, in order to report small positive rather than negative amounts (see Leuz et al., 2003). The coefficient on *mgtchange* is positive, suggest-

Please cite this article in press as: Emmanuel Iatridis, G. Accounting discretion and executive cash compensation: An empirical investigation of corporate governance, credit ratings and firm value. J. Int. Financ. Markets Inst. Money (2018), https://doi.org/10.1016/j.intfin.2018.02.008

Table 5
Model (5).

Earnings Manipulation and Drifting Current Credit Ratings	
Variables	Coefficients
amer	−1.085***
	(0.257)
ig	0.065***
	(0.015)
amer x ig	−0.605***
	(0.156)
lnMV	−0.019
	(0.041)
BM	−0.071*
	(0.042)
ROA	−0.003***
	(0.001)
debt	0.025
	(0.040)
cfd	−0.335***
	(0.020)
loss	0.110***
	(0.033)
epsg	0.002*
	(0.001)
smpr	0.472***
	(0.151)
mgtchange	0.409***
	(0.126)
ind	−0.004***
	(0.000)
insider	0.012
	(0.013)
block	0.016***
	(0.003)
bigau	−0.011***
	(0.004)
Constant	0.111
	(0.059)
R^2 adj.	0.34

***, ** and * indicate statistical significance at the 1%, 5% and 10% level (two-tailed) respectively. The standard error is in parentheses. In Tables 4 and 5, the dependent variable is *dac*, which is discretionary accruals and is described in Section 2.2.1. *Incomp* is executive cash compensation scaled by the natural logarithm of total turnover. *r* is the stock return. *br* is a dummy variable that takes 1 if *r* is negative and 0 otherwise. *l1r* is 1 year lagged *r*. *11br* is a dummy variable that takes 1 if *l1r* is negative and 0 otherwise. *Δoi* is the change in operating income scaled by total assets. *negoi* is a dummy variable that takes 1 if *Δoi* is negative and 0 otherwise. *l1oi* is 1 year lagged *Δoi*. *l1negoi* is a dummy variable that takes 1 if *l1oi* is negative and 0 otherwise. *Δcf* is the change in net cash flows from operating activities scaled by total assets. *negcf* is a dummy variable that takes 1 if *Δcf* is negative and 0 otherwise. *l1cf* is 1 year lagged *Δcf*. *11negcf* is a dummy variable that takes 1 if *l1cf* is negative and 0 otherwise. *bel* is a dummy variable that takes 1 if earnings before manipulation, i.e. reported earnings minus abnormal accruals, scaled by total assets, is less than zero or less than lagged reported earnings and 0 otherwise. *high* is a dummy variable that takes 1 if earnings before manipulation, i.e. reported earnings minus abnormal accruals, scaled by total assets, is more than zero or more than lagged reported earnings and 0 otherwise. *lnMV* is the natural logarithm of market value of equity. *debt* is total debt scaled by total assets. *growth* is market to book value. *amer* is a firm's actual rating minus its expected rating and is described in Section 2.4. *ig* is a dummy variable that takes 1 if a firm's actual credit rating and expected credit rating fall on opposite sides of the investment-grade cut-off and 0 otherwise. *BM* is book to market value of equity. *debt* is total debt scaled by total assets. *cfd* is a dummy variable that takes 1 if free cash flow is less than −0.1 and 0 otherwise. *loss* is a dummy variable that takes 1 for loss-making firms and 0 otherwise. *epsg* is a dummy variable that takes 1 for firms that reported increases in earnings per share for the last four quarters and 0 otherwise. *smpr* is a dummy variable that takes 1 if net profits exceed analyst forecasts by three cents and 0 otherwise. *mgtchange* is a dummy variable that takes 1 if the CEO has changed and 0 otherwise. *ind* is the percentage of independent directors on the board. *insider* is the percentage of outstanding shares owned by insider shareholders. *block* is the percentage of outstanding shares owned by shareholders that hold more than 5% of the share capital. *bigau* is a dummy variable that takes 1 for firms that are audited by a big 4 auditor and 0 otherwise.

ing that a change in the management is likely to be accompanied by *big bath* or other manipulation practices in order to give a positive signal of good managerial ability and financial prospects.

The percentage of independent directors sitting on the board of directors (*ind*) displays a negative relationship with earnings manipulation. Low concentration of ownership would indicate the existence of a more diverse group of stakeholders, and as such, companies would be more inclined to provide credible disclosures and respond to different information needs

Please cite this article in press as: Emmanuel Iatridis, G. Accounting discretion and executive cash compensation: An empirical investigation of corporate governance, credit ratings and firm value. J. Int. Financ. Markets Inst. Money (2018), https://doi.org/10.1016/j.intfin.2018.02.008

(Cormier et al., 2005). As shown by the positive coefficient on *block*, firms with high ownership concentration are more likely to use earnings manipulation (see also Kang and Gray, 2011). The negative coefficient on *bigau* indicates that firms that are audited by a big-4 auditor would tend to be more transparent and display lower discretionary accruals (see also Cano-Rodriguez, 2010).

4.6. Using earnings manipulation with the intent to return to expected credit ratings

In line with Alissa et al. (2013), the findings of this study show that for each window of one, three and five years the coefficient on actual minus expected ratings (*amer*) is negative (not reported here). This suggests that in time firms that deviate from their expected credit ratings tend to return back to their expected target.

Table 6 provides evidence in favour of H_5 and shows that firms with executive cash compensation are likely to engage in earnings manipulation with the intent of returning to an expected credit rating when the current ratings have drifted. The negative coefficient on *amer x mdac* shows that positive discretionary accruals (*dac*) for firms with actual ratings being lower than expected ratings, i.e. *amer* < 0, is associated with a more positive difference between $amer_{t+k}$ and $amer_t$, i.e. with a more positive *Δamer* (see also Alissa et al., 2013). This indicates that the mean reversion to expected ratings is reinforced by earnings manipulation.

Credit ratings should change when there is a change in a firm's credit risk. Increasing profitability, reducing debt or borrowing on more favourable terms, efficient capital spending and positive business prospects should improve credit ratings (Purda, 2007; Standard & Poor's (2010)). Consistent with the discussion presented above, Table 6 shows a negative coefficient on *Δdebt* and *Δbeta* and a positive coefficient on *Δcf* (see also Alissa et al., 2013).

4.7. Executive compensation and firm value

Table 7 provides evidence in favour of H_6 and shows that higher executive compensation in the form of cash is associated with lower firm value. A greater change in earnings (*Δoi*), net assets (*Δna*) and research and development (*ΔR&D*) is positively associated with company valuation. Higher interest expense (*Δinter*) is linked to higher levels of debt and is negatively related to firm value. It may be argued however that if this higher debt is effectively used and yields higher returns (than the cost of debt), it may subsequently lead to higher firm value. Higher levels of cash executive compensation (*lncomp*) displays a negative effect on firm value because it may reflect managers' engagement in myopic earnings manipulation practices.

Table 6
Model (8).

Using Earnings Manipulation with the Intent to Return to Expected Credit Ratings Return to Expected Credit Ratings	
Variables	Coefficients
amer	−0.247
	(0.992)
mdac	0.409
	(0.533)
amer x mdac	−1.128***
	(0.453)
Δdebt	−0.009***
	(0.003)
ΔROA	0.048
	(0.044)
Δbeta	−0.748***
	(0.233)
Δcf	0.097*
	(0.057)
Constant	0.076
	(0.176)
R^2 adj.	0.37

***, ** and * indicate statistical significance at the 1%, 5% and 10% level (two-tailed) respectively. The standard error is in parentheses. In Table 6, the dependent variable is $Δamer_{t+k}$, which is the difference between $amer_{t+k}$ and $amer_t$. *amer* is a firm's actual rating minus its expected rating and is described in Section 2.4. In Table 7, the dependent variable is $R - R_p$, where R is the stock return and R_p is returns of the portfolio matched with each sample firm based on size and book to market value as in Fama and French (1993). *mdac* is equal to *dac* if *amer* ≤ 0, and −1 *x* dac if *amer* > 0. *dac* is discretionary accruals and is described in Section 2.2.1. *Δdebt* is the change in total debt scaled by total assets. *ΔROA* is the change in the return on assets. *Δbeta* is the change in the beta coefficient as obtained from DataStream. *Δcf* is the change in net cash flows from operating activities scaled by total assets. *Δna* is the change in net assets. *Δoi* is the change in operating income scaled by total assets. *ΔR&D* is the change in research and development. *Δinter* is the change in interest expense. *Δdiv* is the change in dividends. *lncomp* is executive cash compensation scaled by the natural logarithm of total turnover. *fin* is equity and debt minus stock repurchase and debt repayment. *debt* is total debt scaled by total assets. *Δcash* is the change in cash. *Δnoncash* is the change in noncash current assets.

Please cite this article in press as: Emmanuel Iatridis, G. Accounting discretion and executive cash compensation: An empirical investigation of corporate governance, credit ratings and firm value. J. Int. Financ. Markets Inst. Money (2018), https://doi.org/10.1016/j.intfin.2018.02.008

Table 7
Model (9).

Executive Compensation and Firm Value	
Variables	Coefficients
Δna	0.305***
	(0.020)
Δoi	0.112*
	(0.066)
ΔR&D	0.355***
	(0.044)
Δinter	−0.171*
	(0.104)
Δdiv	0.011
	(0.019)
lncomp	−0.042**
	(0.021)
fin	0.637***
	(0.129)
debt	0.109
	(0.073)
Δcash	0.223**
	(0.115)
Δnoncash	0.777***
	(0.053)
lncomp x Δna	−0.092*
	(0.049)
lncomp x Δcash	−0.068**
	(0.033)
lncomp x Δnoncash	0.061
	(0.041)
debt x Δcash	−0.538***
	(0.040)
Constant	0.147
	(0.105)
R^2 adj.	0.32

***, ** and * indicate statistical significance at the 1%, 5% and 10% level (two-tailed) respectively. The standard error is in parentheses. In Table 6, the dependent variable is $\Delta amer_{t+k}$, which is the difference between $amer_{t+k}$ and $amer_t$. *amer* is a firm's actual rating minus its expected rating and is described in Section 2.4. In Table 7, the dependent variable is $R - R_p$, where R is the stock return and R_p is returns of the portfolio matched with each sample firm based on size and book to market value as in Fama and French (1993). *mdac* is equal to *dac* if $amer \leq 0$, and -1 *x dac* if $amer > 0$. *dac* is discretionary accruals and is described in Section 2.2.1. *Δdebt* is the change in total debt scaled by total assets. *ΔROA* is the change in the return on assets. *Δbeta* is the change in the beta coefficient as obtained from DataStream. *Δcf* is the change in net cash flows from operating activities scaled by total assets. *Δna* is the change in net assets. *Δoi* is the change in operating income scaled by total assets. *ΔR&D* is the change in research and development. *Δinter* is the change in interest expense. *Δdiv* is the change in dividends. *lncomp* is executive cash compensation scaled by the natural logarithm of total turnover. *fin* is equity and debt minus stock repurchase and debt repayment. *debt* is total debt scaled by total assets. *Δcash* is the change in cash. *Δnoncash* is the change in noncash current assets.

Equity and debt minus stock repurchase and debt repayment (*fin*) carries a positive coefficient suggesting that higher net capital employed would normally be expected to increase firm growth and financial prospects. Likewise, the positive coefficients on the change in cash (*Δcash*) and the change in noncash current assets (*Δnoncash*) indicate that higher liquidity would positively affect net working capital and firm value. It may be argued thought that excessive cash may create fertile grounds for earnings manipulation, however this would call for further investigation.

The negative coefficient on *lncomp x Δna* reflects the nature of the association between executive compensation and firm value as net assets increase. If cash compensation increases the potential for using cash or net assets in general for opportunistic objectives, for example investing in projects with negative NPV, financial performance and firm value will decline (see Dittmar and Mahrt-Smith, 2007; Jung et al., 2012). The coefficient on *lncomp x Δcash* is negative suggesting that higher free cash flows may be associated with higher cash compensation, which might serve opportunistic purposes neglecting positive NPV projects. This would in turn negatively affect company valuation (see Jensen, 1986). Higher debt would be associated with higher cash outflows and would subsequently affect company valuation negatively. Indeed, the coefficient on *debt x Δcash* is negative (see Faulkender and Wang, 2006).

5. Conclusions

This study focuses on executive compensation that takes the form of cash. It examines the association between executive compensation and corporate governance, income smoothing, discretionary accruals and firm value. It also investigates the possibility of employing earnings manipulation practices when current credit ratings differ from their expected ratings.

Please cite this article in press as: Emmanuel Iatridis, G. Accounting discretion and executive cash compensation: An empirical investigation of corporate governance, credit ratings and firm value. J. Int. Financ. Markets Inst. Money (2018), https://doi.org/10.1016/j.intfin.2018.02.008

This study shows that executive compensation in the form of cash is negatively associated with corporate governance. Analyst following, company size and debt are negatively related to executive compensation. In contrast, a positive association has been reported for high growth prospects and current and lagged change in operating income and net operating cash flows.

The findings show that executive cash compensation is negatively associated with the informativeness of income smoothing and, subsequently, positively associated with discretionary accruals. This has been found to be more evident for firms that display lower liquidity and seek to reinforce their growth prospects. Large company size and debt however have been found to limit this effect.

Firms that pay cash compensation are likely to engage in earnings manipulation when their actual credit ratings differ from their expected ratings. They are also likely to engage in earnings manipulation with the intent of returning to an expected credit rating when the current ratings have drifted. Firms that are marginally on the investment-grade cut-off tend to display a higher tendency for manipulation. Finally, this study has found that higher executive cash compensation is associated with lower firm value because it may reflect managers' engagement in earnings manipulation practices.

The findings of this study are useful for shareholders and for regulators that determine corporate governance rules. For example, shareholders may require a downward change in executive compensation if effective corporate governance mechanisms are not in place. Likewise, regulators would be determined to improve corporate governance regulation in order to reinforce transparency and effectiveness in managerial performance evaluation. This study also contributes by examining the extent to which executive cash compensation is associated with income smoothing and shows that the latter may increase opportunistic income smoothing and thus reduce the informativeness of income smoothing.

The findings of the study are useful for capital providers, who would be reluctant to provide financing to firms, whose behaviour gives rise to earnings manipulation suspicions. The question is how accounting regulation should be improved to prevent and eliminate phenomena of earnings and investor manipulation. Thus, this study is useful for regulatory and other market authorities, especially when they prepare or review accounting and financial regulation on reporting firm financial performance and reducing the scope for earnings manipulation. The findings of this study may also be of use to investors when assessing the verifiability of different sets of accounting information, especially in settings with higher information asymmetry. Especially, in countries with weak investor protection mechanisms, the disclosure of difficult-to-verify accounting information would be highly valued by the stock market and would attract investors and financial analysts following the reduction of uncertainty and information asymmetry.

This study is also useful for credit rating agencies and users of credit ratings. It contributes by providing evidence that firms tend to employ earnings manipulation in order to attain their expected ratings. It also suggests that firms may exercise accounting discretion in order to move credit ratings toward expected levels especially in case of significant rating variations. Finally, this study contributes by providing evidence of the negative effects of the opportunistic use of cash and subsequently of executive cash compensation on firm value.

The convex payoff attribute of executive compensation might motivate managers to take risks and adopt short-sighted income-increasing strategies (Bebchuk and Spamann, 2010; Chang and Chen, 2013). At times of market turmoil, this is likely to make firms more vulnerable. Managerial compensation is likely to be adjusted depending upon the aggressiveness of market conditions and the risk preferences of managers. Executive compensation, especially cash related, has exhibited a significant decrease after the recent financial crisis. The crisis has entailed a number of new rules and legal requirements in several countries with regard to the nature, structure and disclosure of executive compensation. The effectiveness of these regulatory reforms with regard to the financial and ethical quality of executive compensation would depend on the institutional and cultural background of each country (Hill, 2011). Different levels of tolerance for executive compensation and disclosure exist among common-law and code-law jurisdictions separately as well as among different common-law and code-law settings (Ferrarini and Moloney, 2005; Henrekson and Jakobsson (2012)). A 'problem of legitimacy' has therefore been created, especially in light of the economic consequences of the financial crisis, due to the size and the terms of executive compensation (Plender, 2008). The accounting standard setting bodies and the market authorities need to take more action to reinforce the level of transparency regarding terms, performance attributes and benchmarks and reduce the scope for managerial opportunism (Barontini et al., 2013).

References

Abbott, L., Parker, S., Peters, G., 2004. Audit committee characteristics and restatements. Audit. J. Pract. Theory 23 (1), 69–87.
Abernethy, M., Kuang, Y., Qin, B., 2015. The influence of ceo power on compensation contract design. Acc. Rev. 90 (4), 1265–1306.
Ahmed, A., Duellman, S., 2013. Managerial overconfidence and accounting conservatism. J. Acc. Res. 51 (1), 1–30.
Alissa, W., Bonsall, S., Koharki, K., Penn, M., 2013. Firms' use of accounting discretion to influence their credit ratings. J. Acc. Econ. 55, 129–147.
Allen, M., 1981. Power and privilege in the large corporation: corporate control and managerial compensation. Am. J. Sociol. 86 (5), 1112–1123.
Almazan, A., Suarez, J., 2003. Entrenchment and severance pay in optimal governance structures. J. Financ. 58 (2), 519–548.
Andrews, A., Linn, S., Yi, H., 2010. Corporate Governance and Executive Perquisites. Working Paper. US Securities and Exchange Commission and the University of Oklahoma.
Armstrong, C., Ittner, C., Larcker, D., 2012. Corporate governance, compensation consultants, and CEO pay levels. Rev. Acc. Stud. 17 (2), 322–351.
Ball, R., Kothari, S., Robin, A., 2000. The effect of international institutional factors on properties of accounting earnings. J. Acc. Econ. 29 (1), 1–51.
Banker, R., Darrough, M., Huang, R., Plehn-Dujowich, J., 2013. The relation between CEO compensation and past performance. Acc. Rev. 88 (1), 1–30.
Barontini, R., Bozzi, S., Ferrarini, G., Ungureanu, M., 2013. Directors' remuneration before and after the crisis: measuring the impact of reforms in Europe. In: Belcredi, M., Ferrarini, G. (Eds.), Boards and Shareholders in European Listed Companies: Facts, Context and Post-Crisis Reforms (International Corporate Law and Financial Market Regulation). Cambridge University Press, Cambridge.

Please cite this article in press as: Emmanuel Iatridis, G. Accounting discretion and executive cash compensation: An empirical investigation of corporate governance, credit ratings and firm value. J. Int. Financ. Markets Inst. Money (2018), https://doi.org/10.1016/j.intfin.2018.02.008

Beasley, S., Carcello, J., Hermanson, D., 1999. Fraudulent Financial Reporting: 1987–1997: An Analysis of U.S. Public Companies. Research Report, COSO.
Bebchuk, L., Spamann, H., 2010. Regulating bankers? Pay. Georgetown Law J. 98, 247–287.
Ben Sita, B., Dah, A., Hallak, W., 2013. Evidence on managerial entrenchment effects on firm value. Int. J. Financ. Serv. Manage. 6 (2), 93–104.
Berrone, P., Gomez-Mejia, L., 2009. Environmental performance and executive compensation: an integrated agency-institutional perspective. Acad. Manage. J. 52 (1), 103–126.
Beyer, A., Guttman, I., Marinovic, I., 2014. Optimal contracts with performance manipulation. J. Acc. Res. 52 (4), 817–847.
Brandes, P., Dharwadkar, R., Lemesis, G., 2003. Effective employee stock option design: reconciling stakeholder, strategic, and motivational factors. Acad. Manage. Exec. 17 (1), 77–93.
Cano-Rodriguez, M., 2010. Big auditors, private firms and accounting conservatism: Spanish evidence. Eur. Acc. Rev. 19 (1), 131–159.
Cao, Y., Myers, J., Myers, L., Omer, T., 2015. Company reputation and the cost of equity capital. Rev. Acc. Stud. 20 (1), 42–81.
Carcello, J., Neal, T., Palmrose, Z., Scholz, S., 2011. CEO involvement in selecting board members, audit committee effectiveness, and restatements. Contemp. Acc. Res. 28 (2), 396–430.
Cerbioni, F., Parbonetti, A., 2007. Corporate governance and intellectual capital disclosure: an analysis of European biotechnology companies. Eur. Acc. Rev. 16, 791–826.
Chaigneau, P., 2018. The optimal timing of CEO compensation. Financ. Res. Lett. 24, 90–94.
Chalevas, C., 2011. The effect of the mandatory adoption of corporate governance mechanisms on executive compensation. Int. J. Acc. 46, 138–174.
Chang, G., Chen, F., 2013. CEO behavior and subprime mortgage crisis. Int. J. Bus. Financ. Res. 7 (3), 13–25.
Chava, S., Kumar, P., Warga, A., 2010. Managerial agency and bond covenants. Rev. Financ. Stud. 23, 1120–1148.
Chen, X., Cheng, Q., Lo, K., 2010. On the relationship between analyst reports and corporate disclosures: exploring the roles of information discovery and interpretation. J. Acc. Econ. 49, 206–226.
Chen, X., Cheng, Q., Wang, X., 2015. Does increased board independence reduce earnings management? Evidence from recent regulatory reforms. Rev. Acc. Stud. 20 (2), 899–933.
Clarkson, P., Li, Y., Richardson, G., 2004. The market valuation of environmental capital expenditures by pulp and paper companies. Acc. Rev. 79 (2), 329–353.
Clarkson, P., Li, Y., Richardson, G., Vasvari, F., 2008. Revisiting the relation between environmental performance and environmental disclosure: an empirical analysis. Acc. Organiz. Soc. 33 (4–5), 303–327.
Comer, J., 1998. Corporate Fraud. Aldershot, Gower.
Core, J., Holthausen, R., Larcker, D., 1999. Corporate governance, chief executive officer compensation, and firm performance. J. Financ. Econ. 51, 371–406.
Cormier, D., Magnan, M., 2003. Environmental reporting management: a European perspective. J. Acc. Public Policy 22 (1), 43–62.
Cormier, D., Michel, M., Van Velthoven, B., 2005. Environmental disclosure quality in large german companies: economic incentives, public pressures or institutional conditions? Eur. Acc. Rev. 14 (1), 3–39.
Dah, A., Abosedra, S., Matar, G., 2012. CEO compensation and firm value. J. Bus. Econ. Res. 10 (12), 689–694.
Davila, A., Penalva, F., 2006. Governance structure and the weighting of performance measures in CEO compensation. Rev. Acc. Stud. 11, 463–493.
Dechow, P., Richardson, S., Tuna, I., 2003. Why are earnings kinky? An examination of the earnings management explanation. Rev. Acc. Stud. 8, 355–384.
Dechow, P., Richardson, S., Sloan, R., 2008. The persistence and pricing of the cash component of earnings. J. Acc. Res. 46, 537–566.
Deegan, C., 2004. Environmental disclosures and share prices – a discussion about efforts to study this relationship. Acc. Forum 28 (1), 87–97.
Dhaliwal, D., Li, O., Tsang, A., Yang, G., 2011. Voluntary non-financial disclosure and the cost of equity capital: the initiation of corporate social responsibility reporting. Acc. Rev. 86 (1), 59–100.
Dikolli, S., Mayew, W., Nanda, D., 2014. CEO tenure and the performance-turnover relation. Rev. Acc. Stud. 19 (1), 281–327.
Dittmar, A., Mahrt-Smith, J., 2007. corporate governance and the value of cash holdings. J. Financ. Econ. 83, 599–634.
Dyck, A., Morse, A., Zingales, L., 2010. Who blows the whistle on corporate fraud? J. Financ. 65, 2213–2253.
Eisenhardt, K., 1989. Agency theory: an assessment and review. Acad. Manage. Rev. 14 (1), 57–74.
Faccio, M., Lang, L., Young, L., 2001. Dividends and Expropriation. Am. Econ. Rev. 91, 54–78.
Fama, E., French, K., 1993. Common risk factors in the returns on stocks and bonds. J. Financ. Econ. 33, 3–56.
Faulkender, M., Wang, R., 2006. Corporate financial policy and the value of cash. J. Financ. 61, 1957–1990.
Feito-Ruiz, I., Renneboog, L., 2017. Takeovers and (excess) CEO compensation. J. Int. Financ. Market. Institut. Money. 50, 156–181.
Ferrarini, G., Moloney, N., 2005. Executive remuneration in the EU: the context for reform. Oxford Rev. Econ. Policy 21, 304–323.
Fields, T., Lys, T., Vincent, L., 2001. Empirical research on accounting choice. J. Acc. Econ. 31 (1–3), 255–307.
Florackis, C., 2008. Agency costs and corporate governance mechanisms: evidence for UK firms. Int. J. Manage. Financ. 4 (1), 37–39.
Foo, L., 2007. Stakeholder engagement in emerging economies: considering the strategic benefits of stakeholder engagement in a cross-cultural and geopolitical context. Corporate Governance 7 (4), 379–387.
Francis, J., 2001. Discussion of empirical research on accounting choice. J. Acc. Econ. 31 (1–3), 309–319.
Fuller, J., Jensen, M., 2002. Just say no to wall street: putting a stop to the earnings game. J. Appl. Corporate Financ. 14, 41–46.
Gao, Y., Kim, J., Tsang, D., Wu, H., 2017. Go before the whistle blows: an empirical analysis of director turnover and financial fraud. Rev. Acc. Stud. 22 (1), 320–360.
Gaver, J., Gaver, K., 1998. The relation between nonrecurring accounting transactions and CEO cash compensation. Acc. Rev. 73 (2), 235–253.
Ghosh, A., 2006. Determination of executive compensation in an emerging economy: evidence from India. Emerg. Market. Financ. Trade 42, 66–90.
Graham, J., Harvey, C., 2001. The theory and practice of corporate finance: evidence from the field. J. Financ. Econ. 60 (2–3), 187–243.
Graves, S., Waddock, S., 1994. Institutional owners and corporate social performance. Acad. Manage. J. 37 (4), 1034–1046.
Ham, C., Lang, M., Seybert, N., Wang, S., in press-a. CFO narcissism and financial reporting quality. J. Acc. Res.
Ham, C, Lang, M., Seybert, N., Wang, S., in press-b. Narcissism is a bad sign: CEO signature size, investment, and performance. Rev. Acc. Stud.
Haniffa, R., Cooke, T., 2005. The impact of culture and governance on corporate social reporting. J. Acc. Public Policy 24, 391–430.
Hartzell, J., Starks, L., 2003. institutional investors and executive compensation. J. Financ. 58 (6), 2351–2374.
Healy, P., 1985. The effect of bonus schemes on accounting policies. J. Acc. Econ. 7, 85–107.
Healy, P., Palepu, K., 2001. Information asymmetry, corporate disclosure, and the capital markets: a review of the empirical disclosure literature. J. Acc. Econ. 31, 405–440.
Henrekson, M., Jakobsson, U., 2012. The Swedish corporate control model: convergence, persistence or decline? Corporate Governance: Int. Rev. 20 (2), 212–227.
Hill, J., 2011. Regulating Executive Remuneration After the Global Financial Crisis: Common Law Perspectives. Sydney Law School, Legal Studies Research Paper No. 11/91.
Hillegeist, S., Penalva, F., 2004. Stock Option Incentives and Firm Performance. Working Paper. INSEAD.
Ho, S., Lam, K., Sami, H., 2004. The investment opportunity set, director ownership, and corporate policies: evidence from an emerging market. J. Corporate Financ. 10 (3), 383–408.
Hojen, V., 2007. Equity-Based Compensation and Firm Performance. Working Paper. Aarhus University.
Holthausen, R., Larcker, D., Sloan, R., 1995. Annual bonus schemes and the manipulation of earnings. J. Acc. Econ. 19, 29–74.
Hovakimian, A., Kayhan, A., Titman, S., 2009. Credit Rating Targets. Working Paper. University of Texas at Austin.
Hsu, C., Novoselov, K., Wang, R., in press. Does accounting conservatism mitigate the shortcomings of CEO overconfidence? Acc. Rev.
Ioannou, I., Serafeim, G., Cheng, B., 2014. Corporate social responsibility and access to finance. Strateg. Manage. J. 35 (1), 1–23.
Jaggi, B., Low, P., 2000. Impact of culture, market forces, and legal system on financial disclosures. Int. J. Acc. 35 (4), 495–519.

Please cite this article in press as: Emmanuel Iatridis, G. Accounting discretion and executive cash compensation: An empirical investigation of corporate governance, credit ratings and firm value. J. Int. Financ. Markets Inst. Money (2018), https://doi.org/10.1016/j.intfin.2018.02.008

Jensen, M., Meckling, W., 1976. Theory of the firm: managerial behaviour, agency costs and ownership structure. J. Financ. Econ. 3, 305–360.
Jensen, M., 1986. Agency costs of free cash flow, corporate finance, and takeovers. Am. Econ. Rev. 76, 323–329.
Jensen, M., 1993. The modern industrial revolution, exit, and the failure of internal control systems. J. Financ. 48 (3), 831–880.
Jones, M., 2010. Accounting for the environment: towards a theoretical perspective for environmental accounting and reporting. Acc. Forum 34 (2), 123–138.
Jung, B., Sun, K., Yang, Y., 2012. Do financial analysts add value by facilitating more effective monitoring of firms' activities? J. Acc. Audit. Financ. 27 (1), 61–99.
Kang, H., Gray, S., 2011. The content of voluntary intangible asset disclosures: evidence from emerging market companies. J. Int. Acc. Res. 10 (1), 109–125.
Karolyi, G., 2012. Corporate governance, agency problems and international cross-listings: a defence of the bonding hypothesis. Emerg. Market. Rev. 13 (4), 516–547.
Khan, R., Dharwadkar, R., Brandes, P., 2005. Institutional ownership and CEO compensation: a longitudinal examination. J. Bus. Res. 58 (8), 1078–1088.
Kim, H., Liao, R., Wang, Y., 2015. Active block investors and corporate governance around the world. J. Int. Financ. Market. Institut. Money 39, 181–194.
Kisgen, D., 2006. Credit ratings and capital structure. J. Financ. 61 (3), 1035–1072.
Kisgen, D., 2009. Do firms target credit ratings or leverage levels? J. Financ. Quant. Anal. 44 (6), 1323–1344.
Klein, A., 2002. Audit committee, board of director characteristics and earnings management. J. Acc. Econ. 33, 375–400.
Kothari, S., Leone, A., Wasley, C., 2004. Performance matched discretionary accrual measures. J. Acc. Econ. 39, 163–197.
LaFond, W., Watts, R., 2008. The information role of conservatism. Acc. Rev. 83 (2), 447–478.
Lambert, R., 2001. Contracting theory and accounting. J. Acc. Econ. 32 (1–3), 3–87.
Lang, L., Litzenberger, R., 1989. Dividend announcements: cash flow signaling vs. free cash flow hypothesis. J. Financ. Econ. 24, 181–191.
Laux, C., Laux, V., 2009. Board committees, CEO compensation, and earnings management. Acc. Rev. 84 (3), 869–891.
Leuz, C., Nanda, D., Wysocki, P., 2003. Earnings management and investor protection: an international comparison. J. Financ. Econ. 69 (3), 505–528.
Li, F., Minnis, M., Nagar, V., Rajan, M., 2014. Knowledge, compensation, and firm value: an empirical analysis of firm communication. J. Acc. Econ. 58 (1), 96–116.
McConnell, J., Servaes, H., 1990. Additional evidence on equity ownership and corporate value. J. Financ. Econ. 27, 595–612.
McKnight, P., Weir, C., 2009. Agency costs, corporate governance mechanisms and ownership structure in large uk publicly quoted companies: a panel data analysis. Quart. Rev. Econ. Financ. 49, 139–158.
Michenaud, S., 2008. Corporate Investment and Analyst Pressure. Working Paper. Rice University, Houston, TX.
Milne, M., Patten, D., 2002. Securing organizational legitimacy; an experimental decision case examining the impact of environmental disclosures. Acc. Audit. Acc. J. 15 (3), 372–405.
Mitton, T., 2004. Corporate governance and dividend policy in emerging markets. Emerg. Market. Rev. 5 (4), 409–426.
Myers, J., Myers, L., Skinner, D., 2007. Earnings momentum and earnings management. J. Acc. Audit. Financ. 22, 249–284.
Nasser Abdallah, A., Ismail, A., 2017. Corporate governance practices, ownership structure, and corporate performance in the GCC countries. J. Int. Financ. Market. Inst. Money 46, 98–115.
Nohel, T., Tarhan, V., 1998. Share repurchases and firm performance: new evidence on the agency costs of free cash flow. J. Financ. Econ. 49, 187–222.
Otto, C., 2014. CEO optimism and incentive compensation. J. Financ. Econ. 114 (2), 366–404.
Parthasarathy, A., Menon, K., Bhattacherjee, D., 2006. Executive compensation, firm performance and governance: an empirical analysis. Econ. Polit. Weekly 41 (39), 4139–4147.
Patten, D., 2005. The accuracy of financial report projections of future environmental capital expenditures: a research note. Acc. Organiz. Soc. 30 (5), 457–468.
Peasnell, K., Pope, P., Young, S., 2005. Board monitoring and earnings management: do outside directors influence abnormal accruals? J. Bus. Financ. Acc. 32 (7–8), 1311–1346.
Pinkowitz, L., Stulz, R., Williamson, R., 2006. Does the contribution of corporate cash holdings and dividends to firm value depend on governance? A cross-country analysis. J. Financ. 61, 2725–2753.
Plender, J., 2008. Mind the gap: why business may face a crisis of legitimacy. Financ. Times (UK) 8, 9.
Premuroso, R., Skantz, T., Bhattacharya, S., 2012. Disclosure of outsourcing in the annual report: causes and market returns effects. Int. J. Acc. Informat. Syst. 13 (4), 382–402.
Purda, L., 2007. Stock market reaction to anticipated versus surprise rating changes. J. Financ. Res. 30 (2), 301–320.
Ramaswamy, K., Li, M., Veliyath, R., 2002. Variations in ownership behavior and propensity to diversify: a study of the Indian corporate context. Strateg. Manage. J. 23 (4), 345–358.
Segal, B., Segal, D., 2016. Are managers strategic in reporting non-earnings news? Evidence on timing and news bundling. Rev. Acc. Stud. 21 (4), 1203–1244.
Silberhorn, D., Warren, R., 2007. Defining corporate social responsibility: a view from big companies in Germany and the UK. Eur. Bus. Rev. 19 (5), 352–372.
Simnett, R., Vanstraelen, A., Chua, W., 2009. Assurance on sustainability reports: an international comparison. Acc. Rev. 84 (3), 937–967.
Solomon, J., Solomon, A., 2006. Private social, ethical and environmental disclosure. Acc. Audit. Acc. J. 19 (4), 564–591.
Spathis, C., Doumpos, M., Zopounidis, C., 2002. Detecting falsified financial statements: a comparative study using multicriteria analysis and multivariate statistical techniques. Eur. Acc. Rev. 11 (3), 509–535.
Standard & Poor's, 2010. Guide to Credit Rating Essentials: What are Credit Ratings and How Do They Work?. Standard & Poor's Financial Services LLC.
Summers, S., Sweeney, J., 1998. Fraudulently misstated financial statements and insider trading: an empirical analysis. Acc. Rev. 73 (1), 131–146.
Sun, J., 2011. The effect of analyst coverage on the informativeness of income smoothing. Int. J. Acc. 46, 333–349.
Taylor, B., 2004. Leading the boardroom revolution. Corporate Governance: Int. Rev. 12, 415–425.
Throop, G., Starik, M., Rands, G., 1993. Sustainable strategy in a greening world: integrating the natural environment into strategic management. Adv. Strateg. Manage. 9, 63–92.
Tucker, J., Zarowin, P., 2006. Does income smoothing improve earnings informativeness? Acc. Rev. 81, 251–270.
Vafeas, N., 2005. Audit committees, boards, and the quality of reported earnings. Contemp. Acc. Res. 22, 1093–1122.
Van Der Laan Smith, J., Adhikari, A., Tondkar, R., 2005. Exploring differences in social disclosures internally: a stakeholder perspective. J. Acc. Public Policy 24, 123–151.
Watts, R., Zimmerman, J., 1990. Positive accounting theory: a ten-year perspective. Acc. Rev. 65, 131–156.
Watts, R., 2003. Conservatism in accounting, part i: explanations and implications. Acc. Horizons 17, 207–221.
Xie, B., Davidson, W., DaDalt, P., 2003. Earnings management and corporate governance: the roles of the board and the audit committee. J. Corporate Financ. 9, 295–316.
Yermack, D., 1995. Do corporations award CEO stock options effectively? J. Financ. Econ. 39, 237–269.
Yu, F., 2008. Analyst coverage and earnings management. J. Financ. Econ. 88, 245–271.
Yu, C., 2014. CEO overconfidence, CEO compensation, and earnings manipulation. J. Manage. Acc. Res. 26 (2), 167–193.

Please cite this article in press as: Emmanuel Iatridis, G. Accounting discretion and executive cash compensation: An empirical investigation of corporate governance, credit ratings and firm value. J. Int. Financ. Markets Inst. Money (2018), https://doi.org/10.1016/j.intfin.2018.02.008