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Master's Thesis

CEO Turnover, Corporate Tax Avoidance and Big Bath Accounting

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"It is only the farmer who faithfully plants seeds in the Spring,

who reaps a harvest in Autumn." *B. C. Forbes*

Rotterdam, October 2017

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Abstract

This thesis discusses the association between CEO turnover and corporate tax avoidance. Examining the effective tax rate in the year when turnover occurs. The results provide an indication that a newly appointed CEO inflates firm's effective tax rate. There is weak evidence that CEO turnover is positively associated with higher effective tax rate in the year when succession takes place. Furthermore, the results of big bath accounting as a moderating variable shows that effective tax rate, when measured using cash ETR, is higher for firms that engage in big bath accounting to manage their earnings. This implies that new CEOs prefer to engage in strategies that would defer taxes but not affect accounting earnings.

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1.   Introduction

It has been over two decades since first empirical research on corporate tax avoidance was conducted. Most of these earlier studies, focused more on examining firm characteristics-level as determinants for tax avoidance (e.g., Gupta and Newberry 1997, Mills 1998, Rego 2003). Hanlon and Heitzman (2010) noticed that research on corporate tax avoidance that consider manager's perspective remains largely unexplored in tax literature. One noticeable exception is the study by Dyreng et al. (2010) who find that top executives have significant effect on corporate tax avoidance. Subsequent studies extended Dyreng et al. (2010) by investigating the relation between Chief Executive Officer (CEO) turnover and the effective tax rate (ETR), ETR serves as a proxy for corporate tax avoidance. Prior studies on the relation between CEO turnover and corporate tax avoidance examine the ETR in the year before, after the CEO turnover occurred (Koester et al. 2016), and the effect ETR has on CEO turnover (Chyz and Gaertner, 2016). This study considers an alternative approach to the investigation of the association between CEO turnover and the ETR, particularly by examining the ETR in the year when succession occurred. Anecdotal evidence shows that new CEOs will manage the ETR the moment they enter their new office. For instance, when Tim Cook became Apple's CEO in 2011, Apple paid less than €10 millions in corporate tax in Ireland on that year – an effective tax rate of about 0.05% on its overall annual profits. In subsequent years, Apple Sales Internationals recorded continued an increase in profits, but their taxable profit considered taxable in Ireland under the terms of the tax ruling did not follow suit. Therefore, this effective tax rate decreased further to only 0.005% in 2014 (European Commission Press Release on Brussels, 30 August 2016).

Accordingly, this thesis aims to answer the following question "Could CEO turnover be associated with a higher firm ETR in the year when the turnover takes place and is the association conditional on the level of big bath accounting?". Big bath is condition in which new CEOs often use large write-offs and attribute these losses to their predecessor (Murphy and Zimmerman, 1993). Answering this question is important for several reasons. First, focusing on firm's ETR in the year when CEO turnover event occur might provide an explanation to whether a newly appointed CEO engages in other form of bath behavior. More specifically, new CEOs might increase the firms' ETR and attribute this increase to the previous CEOs. This is beneficial given that it makes target in the subsequent years more easily achievable, and hence enable CEO to the

improvement in the firm performance. Second, the indication that a new CEO engages in this behavior will serve as a new evidence to support the assumption that tax is an important metric in evaluating manager's performance. Third, answering this question explores the role of big bath accounting as a moderator in the association between CEO turnover and corporate tax avoidance.

The empirical results suggest that there is a weak evidence that the ETR is higher in the year when there is a CEO turnover. While the association is insignificant when measured using the GAAP ETR, the coefficients estimate is positive and significant association when measured using the Cash ETR. However, applying year fixed effects in the model changed the coefficients significance level. The regression results also showed big bath accounting has incremental effect on the association between CEO turnover and higher ETR in the year when the turnover takes place. The significant results however are not observed when measured based on the GAAP ETR, this findings are relevant with the fact that GAAP ETR does not capture the changes in accounting earnings caused by accelerated depreciation like big bath accounting (Koster et al. 2016).

The findings contribute mainly to the literature in corporate tax avoidance. This thesis contributes to the discussion on the association between CEO turnover and corporate tax avoidance. This research extends prior research (e.g. Gallemore et al. 2014; Christensen et al. 2014; Koester et al. 2016) by focusing on the ETR in the succession year, instead of before or after the turnover. To the my best of knowledge, no studies have considered the association. The findings also reveal big bath accounting is a factor that might determine whether a firm engages in corporate tax avoidance. Linking the big bath accounting to corporate tax avoidance is often not considered despite its potential to explain the association.

In addition, my study also adds to the literature on the determinants of CEO turnover. This thesis extending Chyz and Gaertner (2016) and examining whether CEO turnover leads to a change in firm ETR. I contribute to their study by showing that the new CEOs are concern about their firms' tax rate, and therefore aim to manage the ETR at the very first day they became CEO.

The remainder of this thesis is organized as follows. Section 2 provides the background, include definitions and theories related to CEO turnover and corporate tax avoidance. Section 3 discusses literatures which relates to this topic and is followed by the development of hypotheses. Section 4 presents the research methodology and data related. Section 5 describes the empirical result and interpretation that follows. Finally, Section 6 concludes this thesis.

2.   Background

2.1.   Corporate tax avoidance

2.1.1.   Definition

Graetz (2002) define tax shelters – a largely similar concept to tax avoidance – as transactions that are "done by very smart people that, absent tax considerations would be very stupid." Even so, Desai and Dharmapala (2009) emphasize that defining corporate tax avoidance is non-trivial, given that there are no universally accepted definitions of, or constructs for, tax avoidance or tax aggressiveness. Thus, whether a tax avoidance is considered legal can only be determined after the transaction has taken place. Therefore, tax avoidance represents both certain tax positions and uncertain tax positions which might or might not be considered as legal (Hanlon and Heitzman 2010). As to view that promptly classified tax avoidance as legal tax planning and tax evasion as illegal tax planning, Weisbach (2003) suggests that simple classification of tax avoidance as legal tax planning and tax evasion as illegal tax planning is rather naïve as it is practically impossible to determine the legality of tax planning structure in such an easy way. Since it is difficult to distinguish between firm's tax favored-activities that considered legal or illegal, therefore, this thesis follows definition suggested by Dyreng et al. (2008) in which tax avoidance broadly covers anything that reduces the firm's taxes relative to its pre-tax accounting income.

2.1.2.   Theories

This section focuses on some theories which provide background on the reasons firms engage in tax avoidance from the perspective of top individual executives.

2.1.2.1. Agency Theory

When considering the perspective of the manager, classical economic theory turned to the Agency Theory. This theory suggests that the potential conflicts arise when managers who are expected to act on shareholder's behalf, behave opportunistically by acting in their own interest (Jensen and Meckling, 1976). Ideally, when manager's interests are aligned with shareholders' interests using performance compensation incentives, the manager will engage in a more aggressive corporate tax avoidance to promote the interests of the shareholders they represent. This, however, can backfire as managers who are expected to increase firm's share-profit might act out of control and engage in aggressive tax avoidance activities to earn higher compensation. This action costs both the manager and the firm. Agency theory have been used in previous study to examine corporate tax

avoidance (Slemrod, 2004; Chen and Chu, 2005; Crocker and Slemrod, 2005). Their findings underlined the importance of firm to consider the strategic behavior of multiple parties and to take into account the link between internal control mechanisms. Internal control mechanisms in a form of contracting, providing incentives and engaging decisions making process can be done by the the firm's owner regarding tax activities. However, consistent with Hanlon and Heitzman (2010), "tax avoidance is not, in and of itself, a reflection of agency problems". Therefore, agency-view of tax avoidance alone is neither undisputed nor it is the only interesting theoretical basis in examining the relation between decision-making related to taxes by individual and corporate tax avoidance (Blaylock, 2012). As a result, it is necessary to complement the agency theory with additional theories when studying individual effects on corporate tax avoidance.

2.1.2.2. Upper Echelons Theory

Agency theory predicts that managers are motivated to act opportunistically to foster their own interests rather than those of shareholders (Jensen and Meckling, 1976). In addition, the economic theory predicts that incentives for top management should drive corporate outcomes (Wallace, 1997). In combination, these theories should provide explanation on managers' motive to act in the interest of the shareholders to enhance firm value by reducing tax. This also increases manager's compensation. Prior studies on the relation between executives' incentives and corporate tax avoidance provide some mixed results. For instance, Phillips (2003) documented no significant reduction in firm's ETR after firm's using after-tax incentives to compensate their CEOs, Gaertner (2014) find a significant negative association between the use of after-tax incentives for CEOs and firm's ETR. Yet, the mixed results of these prior studies raise an inquiry that does compensation is the only factor that influences the level of which top executives involved in tax avoidance activities.

Upper echelons theory postulate that manager's characteristics (i.e., age, education, experience) determine firm's strategic choices (i.e., risk-taking, product innovation, capital intensity) which in turn determine firm's performance (Hambrick and Mason, 1984). Extending the upper echelons theory, Dyreng et al. (2010) introduced another approach to understand the role of top executives in corporate tax avoidance. Unlike earlier studies which concentrate on executives' compensation practices and its potential implication for tax avoidance, they find that apart from the compensation issues, managers themselves have impacts on their companies' tax

avoidance. Their findings shed light on a classic perception that CEO is usually a non-tax expert and unlikely to directly engage in company's tax activities. A typical CEO has a deep understanding of the nature of the industry and would be more involved in firm's operation and financial strategies, leaving tax matter to the CFO or the tax director. However, Dyreng et al. (2010) note that top executives are able to influence their company's decisions regarding tax, and to determine the level of company's tax avoidance. Top executives can set a certain "tone at the top" which indirectly affect the way their company handle tax. They can motivate or even urge individuals working in tax department to engage in tax avoidance activities. Although the study by Dyreng et al. (2010) documented strong evidence regarding CEOs' influence on corporate tax policies, their study was unable to determine which personal characteristics of these CEOs drive this effect. Other studies have also attempted to identify which personal characteristics of the top executives influence corporate tax policies. Some of these studies (e.g. Olsen and Stekelberg, 2016; Khan et al. 2017) provide background to the topic of interest in this thesis.

2.2. CEO Turnover

A CEO is responsible for the success or failure of the company given his/her ability to change the course of business and the performance of the firm. As such, CEO turnover is one of the most important events in firm's agenda. The market might view the event as a channel through which a firm can signal strategic change in the direction of the firm, including firm's investment strategies or financial practices. After controlling for firm performance and exogenous CEO turnover, Murphy and Zimmerman (1993) found that there is hardly any firm's policy that can be attributed to the former CEO following a managerial succession. The findings showed that a new CEO to take full control and make new decisions on the firm's policy. Bertrand and Schoar (2003) also found that individual manager affects the performance and behavior of a firm. For a reason that a single person could have a significant effect on the course and performance of a firm, CEO turnover becomes the subject of interest for many researchers. However, as prior research suggests the succession of top management is often highly endogenous (Fee et al. 2013). It is therefore necessary to differentiate the type of turnover (forced vs. voluntary turnover) and the origin of incoming CEO (insider vs. outsider CEO) to better capture the effect the newly appointed CEO has on firm policies, including on corporate tax avoidance.

2.2.1. The origin of incoming CEO: Insider-Outsider CEO

Concerning the nature of CEO, one might expect most of the top management appointees come from inside the company (Kotter, 1982). Based on the intuition that the selection for CEO successor depends on his/her abilities, an insider CEO with a long tenure has an advantage in term of their firm-specific knowledge over an outsider. The advantage would give an insider a chance to make better and more suited decisions for the firm. Similarly, Dalton and Kessner (1985) argue that unless outsider candidates have the ability that insider candidates do not have, their likelihood of being chosen will be lower than insider candidates.

However, this is not always the case. The study of Chan (1996) examines the effect of competition from outside on insider motivation. The author found the motivation to exert extra effort by lower-level internal manager would decrease since the relation between the marginal effects of effort on the probability of getting promoted is negatively related to the number of contestants. Chan argued that the firm might choose an insider despite of his/her limitations to mitigate the negative effect of such an open competition on insider. Consequently, to increase the probability to give the position to external candidates, these candidates need to possess the quality that can increase firm's performance (Chan, 1996).

2.2.2. The type of turnover: Voluntary-Forced turnover

Prior literature on CEO turnover also examined the relation of this particular event to firm performance and the type turnover: voluntary and forced turnover. For instance, Denis and Denis (1995) found that firms experienced a voluntary top management turnover have different performance as compare to firms that their top managers were forced to step down.

Voluntary turnover refers to a normal succession of CEO within a firm due to retirement, death or other natural causes. To the extent that the departed CEO is not of low quality, such a turnover is not expected to cause any significant changes in the firm performance. The board, however, might choose to appoint a new CEO with at least the same or higher quality than the predecessor, but the increase (decrease) in manager quality need not necessarily be associated with poor (high) prior performance.

Forced turnover is the opposite of voluntary turnover and is associated with non-natural causes of turnover such as a firing of CEO. Prior research has associated this type of turnover with a firm's performance. CEOs were more likely to be terminated when industry performance was

poor (Jenter and Kanaan, 2015). Board is more likely to choose a candidate with specific skills and characteristics who is expected to immediately turn things around. Thus, it is reasonable to expect that there will be a dramatic change in firm policies following a forced turnover.

2.3.   Big bath accounting

The term big bath refers to management decision to use accounting tools with incentives to reduce current reported earnings and thereby increase future earnings. While the definition of big bath remains unclear, some authors attempted to provide extensive definition of big bath. For example (Itoh, 2007 p.207) defined big bath as "the attempt to increase reported earnings in subsequent periods by charging items that may have a negative future impact on expenses in the current period, further worsening current period business results in an accounting period in which results are bad". Another definition by Moore (1972 p. 63) give a clearer definition that "the bath is a 'clean up'" of balance sheets account. Assets are written down or written off, and provisions are made for estimated future losses and future expenses. These actions decrease income or increase losses for the current period while relieving future income expenses that would otherwise have had to be absorbed. In more simple terms, taking a bath is done by inflating future income by depressing current income. A big bath itself typically occurred "during the periods of organizational stress or reorganization" or when "a firm must report a loss" (Scott 2009, p.405). This suggests that the likelihood that big bath occur is high when there is a change in management, because the change gives firms an opportunity to alter their financial condition by removing factors that are considered to have negative effects on firm's future performance. Schilit (2002) illustrates the big bath accounting as the creation of cookie-jar reserves by overstating expenses, thereby reducing earnings in the first year of a newly appointed CEO. Releasing the reserves will result in an increase in future earnings, turning losses into profits. Doing so allow a CEO to make an impression that he/she has successfully turned the company around.

3. Literature Overview and Hypotheses Development

Some studies have examined the determinants of corporate tax avoidance, in which most of these studies focused on examining the effect of firm characteristics on corporate tax avoidance. Hanlon and Heitzman (2010) noted that the research on the effect of individual corporate decisions makers on firm's tax avoidance strategies remains as a gap in the tax literature. This thesis aims to fill this gap. While firm characteristics as determinants for corporate tax avoidance has been widely examined and discussed in many studies, in this study, I will focus on the effect of individual CEO's influence on corporate tax policies. In this section, I will discuss few studies which have attempted to identify specific mechanisms through which individual executives influence corporate tax policies.

3.1. Empirical evidence on corporate tax avoidance

3.1.1. Dyreng et al. (2010)

The first study that investigates the effect of the individual executive on corporate tax avoidance is Dyreng et al. (2010). Thus, it is essential to review their study in this thesis. Dyreng et al. (2010) evaluates the potential impact each individual executive (i.e., CEO, CFO and other executives) who manage the company directly or indirectly has on the planning of tax activities. The authors track the movement of executives over firms using technique developed by Bertrand and Schoar (2003) which enable them to isolate the effect of executives from the firm effect. Dyreng et al. (2010) found that not only do executives have incremental effects on corporate tax avoidance, it turns out that they play a statistically and significant role in determining which level of tax avoidance their firms engaged in. They base their findings to the notion that top executives may affect firm's tax policies by setting the "tone at the top." Their study has at least two important contributions to the tax literature. First, they validated ETR as a measure for corporate tax avoidance, in doing so they were able to find the association between the executives' effect and the reduction (increase) in both firm's GAAP ETR and Cash ETR. Second, although the authors are unable to document which personal characteristics of executives can explain the "manager-effect" of tax avoidance, their findings shed light on research in the tax avoidance. Dyreng et al. (2010) consider their finding as a departure from a neoclassical view that the tax avoidance within a firm is driven by firm characteristics as well as executive compensation. Their finding also extends the research in corporate tax avoidance by including individual executives' effect as determinants for tax avoidance.

3.1.2.   Khan et al. (2017)

With respect to the agency theory, Khan et al. (2017) study the effect of institutional ownership on corporate tax avoidance. Their expectation is to provide new evidence on corporate tax avoidance based on the principal-agency view. The intuition behind their study is that shareholders are expected to balance the potential benefit of engaging in tax avoidance and the potential negative of facing the scrutiny from the tax authority. Moreover, Dyreng et al. (2010) document a significant effect of top executives on corporate tax avoidance; thus, managers are expected to weigh the benefits they receive from firm's net profit and significant effect of tax authority's penalties to manager's private cost (e.g. Gallemore et al.2014). Institutional investors (i.e. quasi-indexers) are expected to pay attention for manager's interest so that a manager would act in line with shareholders' interest to increase the after-tax income by avoiding more taxes. The manager did so even when this action might attract negative attention from public and government which then could lead to unwanted consequences for their private lives. Thus, when the assessment of shareholders on the trade-off between costs and benefits of corporate tax avoidance is different from managers' assessment, then it is likely that institutional ownership affects the level in which a firm engages in tax avoidance activities. The authors are able to build causal effect on the association between tax avoidance and institutional ownership by exploiting data on exogenous shocks to the institutional ownership in Russel 1000 and 2000 index. Using ETR, both GAAP ETR and Cash ETR, as primary proxies for tax avoidance, they find that institutional investors are able to influence managerial action through "say on pay". This implies that the possibility of engaging in tax avoidance increases as institutional ownership increase. The results hold when they use book-tax difference (BTD) as another measure for tax avoidance. Hence, the authors' findings provide additional evidence regarding the role of manager's in corporate tax avoidance (Dyreng et al. 2010). That is a factor that influences the level in which a manager would engage in corporate tax avoidance. Their findings are in line with Hanlon and Heitzman (2010) and further explore corporate income tax avoidance within agency-principal view.

3.1.3.   Olsen and Stekelberg (2016)

Another study that investigates how individual CEO affects corporate tax avoidance is a recent study by Olsen and Stekelberg (2016). They recognize the approach by Dyreng et al. (2010) that executives' ability to set the "tone at the top" serves as an indirect channel by which individual can influence firm's tax policies. Thus, the authors argue that individual CEO can influence corporate

tax avoidance via direct and indirect involvement in firm's tax management. The authors examine an aggressive form of corporate tax avoidance, namely tax sheltering and link it to CEO narcissistic personality. Their empirical test shows that the likelihood of companies to engage in corporate tax sheltering increases when the CEO is a narcissist. Narcissism studied in psychology literature has been consistently related to risk-taking behavior and desires to seek recognition and attention. For instance, Olsen et al. (2014) examined the influence of this specific personality trait on accounting decisions and found that firms with narcissistic CEO engaged in higher earnings management than firms without narcissistic CEO. Within the concept of corporate tax avoidance, Olsen and Stekelberg (2016) showed that narcissistic CEOs are a dominant factor to explain the level of engagement firms have in corporate tax shelter. Their argument was based on assumption that behavioral tendencies of narcissistic CEOs encourage them to be more involved in both direct and indirect firm's decisions, which affect the likelihood of engaging in tax avoiding activities.

3.2. Empirical evidence on corporate tax avoidance and CEO turnover

3.2.1. Gallemore et al. (2014)

Recent research on corporate tax avoidance put more attention on the determinants of corporate tax avoidance based on the agency-principal view with emphasis on the role of top executives. One question that these research attempt to answer is on the reason some firms seem to aggressively engage in corporate tax avoidance while others do not. The study of Gallemore et al. (2014) provide a possible answer to this question, they propose that reputational cost act as a natural brake for firm's tax avoidance activities. The authors argue that managers who view that their engagement in aggressive corporate tax avoidance will cause negative consequences for them and the firm will reduce such activities. This assumes that managers will decide to engage in corporate tax avoidance based on a rational calculation of the costs and benefits of these activities. Hence, the objective of their study is to examine whether engaging in aggressive corporate tax avoidance influences aspects that have real consequences for the firm. These aspects include the decline in firm's sales which lead to an increase in advertising cost, the increase of firm's ETR due to the scrutiny from the Internal Revenue Service (IRS), and the likelihood of manager's turnover. To test their hypotheses, the authors limit their sample to firms that participated in tax sheltering. Surprisingly, they did not find any reputational effect of tax sheltering which led them to conclude that reputational cost plays limited role in preventing tax avoidance activities. In addition, the

authors expand their research by examining whether reputational cost affects the competence of top executives, specifically the one that relates to their employment. The non-significant results indicate that there is no change in CEO turnover in three years following tax sheltering. This result provides important background to this thesis' topic; that is, engaging in aggressive tax avoidance does not affect the manager's likelihood to replaced. This implies that shareholders are in favor of those managers who are able to avoid paying relatively high tax.

3.2.2. Koester et al. (2016)

Koester et al. (2016) examine the relation between the executives' ability to efficiently manage corporate resources and the corporate tax avoidance activities. They predicted that executives with greater ability would engage in higher corporate tax avoidance through several channels. First, they suggest that since executives with greater ability have deeper knowledge regarding their firm's strategies and operation, they can identify and exploit any transactions which led to a reduction in tax payment. Second, the authors argued that executives with high ability were more capable of reducing firm's cash outflows by setting the "tone at the top" which emphasized on cost reduction. Finally, the executives with greater ability are able to manage firm's resources more efficiently by investing company's cash in activities with potential return rather than paying taxes. The authors used measure by Demerjian et al. (2012) to document a strong association between the changes in firm's future performance and stock market reactions following a CEO turnover. Next, in order to empirically study the relation between managerial ability and corporate tax avoidance, the authors conduct additional tests to minimize the possibility of endogenous relation and build a strong association between the two variables. Overall, the results indicate that managers with high ability to manage firm's resources efficiently have significant influence on the corporate tax. In one of their test, Koester et al. (2016) perform a difference-in-difference test to specifically examine the changes in firm's ETR surrounding CEO turnover. This specific test is based on the intuition that due to the difference in ability between the departing and incoming CEO, firms with CEO turnover should exhibit changes in their ETR following the event. The results of difference-in-difference test using 404 observations indicate that the new CEO with higher ability to manage resources more efficiently avoid more taxes as compare to their lower-ability predecessor. Accordingly, the results of this test indicate that corporate tax level is one important metric for CEO performance. This implies that incoming CEOs have the incentive to engage in strategies that would affect their firm's tax rate.

3.2.3. Chyz and Gaertner (2016)

Chyz and Gaertner (2016) examined whether paying relatively high or relatively low tax contributes to involuntary CEO turnover. Their study specifically address the notion that reputational costs are a factor that restrict firms from engaging in higher corporate tax avoidance. As such, firms with relatively low tax payments should experience higher forced CEO turnover than firms with normal tax payments. Simultaneously, they also examined the relation between corporate tax avoidance and forced CEO turnover from agency-principal perspective by indicating that since CEOs are expected to act toward shareholder interests (i.e. increase share-profit), their actions that are considered not to promote shareholders' interest would have consequences on manager's position. This latter view implies that firms with relatively high tax payments should experience higher forced turnover than a firm with a normal tax payments. This view is in contrast to the view that was previously indicated. The authors predict that CEOs are more likely to be replaced when their firms pay too much tax, because paying tax means transferring wealth from shareholders to public which is perceived as a reduction in shareholder's wealth. Hence, they hypothesized that forced CEO turnover are more likely to happen for firms with relatively low ETR as well for firms with relatively high ETR. They use observations consisting of 5,108 firms with forced CEO turnover from 1993-2006. Consistent with prior literature on CEO turnover (e.g. Fee et al. 2013), turnover is classified based on the news report. With some adjustments, their final observation set yielded 1,459 observation of CEO turnover. The authors followed Dyreng et al. (2010) who used both GAAP ETR and Cash ETR to measure for tax avoidance activities and they divided their observations on five quintiles based on these rates. The result shows a U-shape association between ETR and forced CEO turnover which supported both hypotheses. Overall, the results provide support for two contrasting views on the relation between corporate tax avoidance and CEO turnover. First, the evidence showed support for the commonly held view in the tax literature that perceived reputational cost serves as a factor that restrains firms and managers from engaging in higher corporate tax avoidance. Second, they also support the opposite view that managers who are paying relatively high tax are more likely to be terminated. This latter result implies that managers should avoid conflict with the shareholders and act toward shareholders' interest by avoiding taxes and provide higher earnings.

3.3. Hypotheses development

3.3.1. CEO turnover and corporate tax avoidance

Since CEO turnover often occurs when firms are performing poorly, it is reasonable to expect that there is an improvement in firms' performance following the turnover. In this case, the board will appoint new CEO with qualifications and capabilities that best fit the circumstance faced by the firm. This is in line with Huson et al. (2004)'s improved management hypothesis which suggests that managers have their own management styles and specific abilities that come from different career paths and personal background. Firms are therefore able to select a CEO that match their strategies when there is a change in leadership position. The hypothesis therefore predicted that CEO turnover would impact firm's future performance and strategies (Du and Lin, 2011).

Within the context of corporate tax avoidance, it can be expected that the change in top executives will affect the level to which firms would engage in corporate tax avoidance. The incoming CEO can exploit the momentum of CEO turnover to engage in tax strategies that can benefit themselves. The rationale behind this argument is that in times of succession an incoming CEO has the opportunity to inflate ETR. Tax is an important factor in manager's performance evaluation (Chyz and Gaertner, 2016) and shareholders are more favorable to those CEOs who could make the firm pay less taxes (Gallemore et al. 2014; Koester et al. 2016; Chyz and Gaertner, 2016). This means that one of shareholders' criteria in considering new CEOs will be ability to manage tax. Shareholders expect the new CEO to lower firm tax rate and generate more profit. A new CEO, in the effort to fulfill shareholders' expectation, will adjust inflate ETR upon entering the office. Doing so will give the new CEO several advantages. First, they can attribute the poor tax performance on that year to prior management. This in turn allows them to set a relatively low benchmark of firm ETR in subsequent years. Second, they can make the firm's tax rates in subsequent years more achievable given the low benchmark. Next, they will be able to fulfill shareholders' expectation that the firm should pay low taxes and finally, secure their position as CEO. Hence, I hypothesize:

Hypothesis 1: CEO turnover is positively associated with higher firm effective tax rate in the year of CEO change.

3.3.2. Moderating effect of big bath accounting

The association between big bath accounting and corporate tax avoidance is a bit problematic to observe, due to the limited number of accounting research that examine this association. Frank et al. (2009) examined the association between tax aggressive and financial reporting, their empirical results show that firms with aggressive financial reporting also reported tax at similar level. The authors suggest that on some occasions, managers have the chances to report both financial and tax aggressively. Their suggestion is based on prior literatures (e.g. Phillips et al. 2003; Hanlon 2005) which suggest that managers are capable to exploit the discretion in GAAP to manage their earnings up but leave the tax unaffected. Moreover, Mc Gill and Outslay (2004) suggest that tax planning can permanently reduce the gap between financial and tax income. In combination, these studies suggest that managers are equipped with the ability either to manage earnings up while leave tax unchanged or to manage tax down and keep book income at acceptable level. This view is in line with the improved management hypothesis (Huson et al. 2004). The hypothesis underlies that each CEO has his/her own management styles and specialization that they obtained from different career path and characteristics. Therefore, based on CEOs abilities, shareholders will be able to select CEO that matches their expectation to generate more profit. Hence, the selected CEO is obliged to prove their capability by meeting shareholders' expectation. To this extent, following the reasons as stated in hypothesis 1, I predict that new CEOs engage in tax planning by manage tax rate up while accelerated earnings down using big bath accounting. As such, the second hypothesis is:

Hypothesis 2: The association between CEO turnover and higher firm effective tax rate in the year of CEO change is strengthened by the presence of big bath accounting.

4.   Methodology

This section covers the methodology used in this thesis. The section starts with an explanation of the selection of observations and data sources used in this thesis. Next, I discussed the model development and end the section with the explanation of related variables.

4.1.   Sample selection and data sources

Combining the knowledge from extensive academic literature and the regressions results, I attempted to empirically answer the research question: "Could CEO turnover be associated with a higher firm ETR in the year when the turnover takes place and is the association conditional on the level of big bath accounting?" The sample for CEOs were all obtained from S&P 1,500 managers (including S&P500, S&P Mid Cap 400, and S&P Small Cap 600 indices) listed in ExecuComp database from 1992 to 2016. The CEO turnover for each year can be seen when changes in ExecuComp identify a new CEO in a company, that is when the CEO at company i in the end of year t is different with the CEO listed in company i in the year $t+1$. This process yielded a total of 2,531 turnover occurrences.

Figure 1. CEO turnover trend
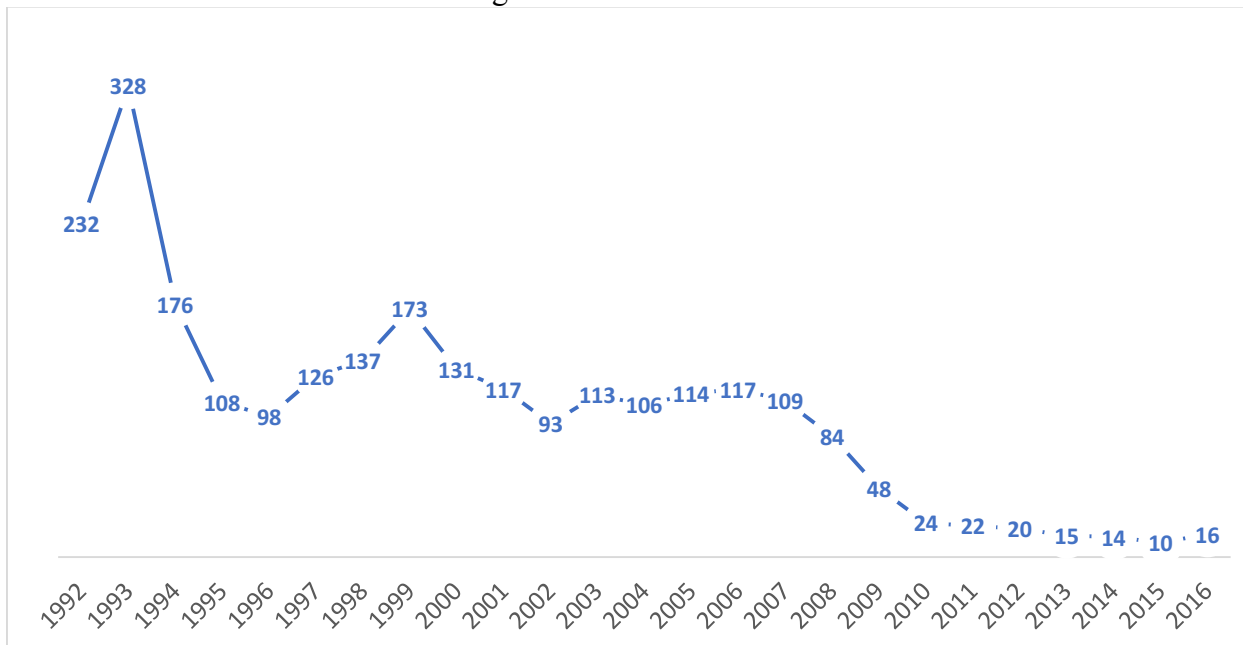
Figure 1 show CEO's turnover trends from 1992 to 2016 with the highest turnover occurred in 1993 and the lowest in 2015.

Table 1

Sample selection process

All Compustat firm-year observations from 1992-2016		317,743
Less:		
Financials and utilities	118,939	
Firms missing pre-tax income	12,405	
Non-positive pre-tax income	86,905	
Firms missing GAAP ETR	198	
Non-positive GAAP ETR	6,454	
Firms missing cash ETR	12,882	
Non-positive cash ETR	2,774	
Firms missing size	29	
Firms missing capital expenditure	1,325	
Firms missing change in sale	5	
Firms missing leverage	234	
Firms missing cash holdings	10	
Firms missing intangible assets	5,893	
Firms missing ebitda	69	
Total firm-year observations		69,621
Observations after merging		74,637
Not-matched after merging	64,686	
Final observations		**9,951**

Table 1 provides detail on how I selected the appropriate sample for this research. Due to better accessibility of some essential database and consistent with most tax research (e.g., Mills and Newberry 2005; Hanlon 2005), I excluded firms incorporated outside the US, firms in the utility industry (SIC codes 4900-4999), and financial institutions (SIC codes 6000-6999). Firm-year level accounting data for the U.S. companies were available through the COMPUSTAT Fundamentals Annual database as well as corresponding firm-level variables. Initially, there are 317,749 of firm year observations. I then excluded firms in the utility industry and financial institutions. Next, in order to have a more reliable result I dropped those firms with missing values

in each variable. This approach was consistent with the procedure done in Koester et al. (2016). Finally, I merged this accounting data with executives' data obtained from Execucomp. The final samples contained 9,951 observations.

4.2.   Model development

To test hypothesis 1, I followed and modified the model in Huson et al. (2004) and Du and Lin (2011). The model is as follows:

$$ETR_{i,t} = \beta_0 + \beta_1 Turnover_{i,t} + \beta_2 Outsider_{i,t} + \beta_3 Voluntary_{i,t} + \beta_4 Controls + Industry\ FE + Year\ FE + \varepsilon_{i,t} \tag{1}$$

Where
- *ETR* is effective tax rates and it measures the level to which a firm engage in corporate tax avoidance.
- *Turnover*$_{i,t}$ is a variable for which 1 refers to firm *i* that had a CEO turnover in year *t*, otherwise 0.
- *Outsider*$_{i,t}$ is a variable for which is 1 refers to firm *i* that had an outsider CEO turnover in year *t*, otherwise 0.
- *Voluntary*$_{i,t}$ is a variable for which is 1 refers to firm *i* that had a voluntary CEO turnover in year t, otherwise 0.
- Controls is a set of variables which were recognized in existing literature as determinants for corporate tax avoidance.
- Industry fixed effects control for possible differences across industries regarding CEO turnover and corporate tax avoidance.
- Year fixed effects control for aggregate trends in each year.
- $\varepsilon_{i,t}$ is the error term.

    Hypothesis 2 aim to test whether big bath accounting strengthens the association between CEO turnover and higher firm effective tax rate in the year the CEO is replaced. To empirically test the prediction, the regression model is developed as follows:

$$ETR_{i,t} = \beta_0 + \beta_1 Turnover_{i,t} + \beta_2 Outsider_{i,t} + \beta_3 Voluntary_{i,t} + \beta_4 BigBath\_Acc_{i,t} + \beta_5 Turnover_{i,t}$$
$$*BigBath\_Acc_{i,t} + \beta_6 Turnover_{i,t}*Outsider_{i,t}*BigBath\_Acc_{i,t} + \beta_7 Turnover_{i,t}*Voluntary_{i,t}*$$
$$BigBath\_Acc_{i,t} + \beta_8 Controls + Industry\ FE + Year\ FE + \varepsilon_{i,t} \tag{2}$$

Where

- *BigBath_Acc* is the variable for which is 1 refers to firm *i* that engage in big bath accounting in year *t*

- *Turnover *BigBath_Acc* is an interaction term which shows the difference between the effect of CEO turnover on effective tax rate between firms *i* which is indicated or not indicated as a firm that engage in big bath accounting in the year *t*

- *Turnover *Outsider*BigBath_Acc* is an interaction term which shows the difference on the effect of CEO turnover in firms where the new CEO is indicated as an outsider on effective tax rate between firm *i* which is indicated or not indicated as a firm that engage in big bath accounting in the year *t*

- *Turnover *Voluntary*BigBath_Acc* is an interaction term which shows the difference on the effect of CEO turnover in firms which indicate as having voluntary turnover on the effective tax rate for firms *i* which is indicated or not indicated as a firm that engage in big bath accounting in the year *t*

- Other variables are as define in the Equation 1

4.3. Variable description

4.3.1. Dependent variables

The dependent variable is corporate tax avoidance. As there were numbers of proxies to captures firm's tax avoidance, Hanlon and Heitzman (2010) suggested that researchers needed to select the most appropriate proxy to capture this factor. To the extent that the reported taxable income in most countries including the U.S. is confidential, Desai and Dharmapala (2009) suggested calculating tax returns using financial statements. As such, ETR was used in accordance to prior literature (Dyreng et al. 2010; Hanlon and Heitzman 2010; Khan et al. 2017). ETR was used as a measure not only because of its availability but also because it is widely used by a various other users of accounting information (e.g., scholar, firms, tax authorities) to recognize tax avoidance. I followed prior literatures (e.g. Dyreng et al. 2010) and use both GAAP ETR and Cash ETR as measures for corporate tax avoidance. GAAP ETR is the ratio of tax expense, while cash ETR is the ratio of cash taxes to pre-tax income. Both measures provided different insights on how company's management engaged in corporate tax avoidance. For instance, while GAAP ETR captures manager's likelihood to reduce tax expense for financial accounting purpose, cash ETR

captures the effect of managers' activities concerning the reduction of actual cash tax paid (Dyreng et al. 2010). The computation of GAAP ETR and Cash ETR in this study was done according to the computation in Gaertner (2014) and Chyz and Gaertner (2016). GAAP ETR is computed as total income tax expense (*TXT*) divided by pre-tax book income (*PI*). Cash ETR is computed as cash tax paid (*TXPD*) divided by pre-tax book income (*PI*). GAAP ETR and Cash ETR are reset to one when values are greater than one. Both measures are set to missing when the value is non-positive.

4.3.2. Independent variables

The independent variable of interest is CEO turnover. I recognized CEO turnover when changes in ExecuComp identify a new CEO in a company, more specifically I observed the changes in the combination of CEO identifier, and item "CO_PER_ROLL"— a unique number that combines executive and company — in ExecuComp. I followed prior literature on CEO turnover that classified the origin of incoming CEO: insider vs. outsider and the type of CEO turnover: forced vs. voluntary, as I described further below.

4.3.2.1. Inside-Outside CEO turnover

Huson et al. (2004) and Du and Lin (2011) classified the origin of CEO turnover as an outsider when a newly appointed CEO worked for one year or less for the company, otherwise they were considered as insider. Hence, the indicator variable equal to one if the origin of incoming CEOs is outsider, and zero otherwise.

4.3.2.2. Forced-Voluntary CEO turnover

For the classification of the type of CEO turnover I followed Du and Lin (2011) who used Execucomp to classify the type of CEO turnover. CEO turnover is classified as voluntary if the reason a CEO left the company is either "retired" or "deceased", for other reasons they were classified as non-voluntary. Hence, the indicator variable equal to one if the type of CEO turnover is voluntary, and zero otherwise.

4.3.3. Moderating variable

Big bath accounting as moderating variable was added in the regression model 2 to capture whether the association between CEO turnover and higher ETR in the year when turnover occur is conditional on the level and presence of big bath accounting. I followed Elliot and Shaw (1988) and Burg et al. (2014) who classified all firm-years with special items *(SPI)* less than minus one percent of total assets *(AT)* as big bath accounting years.

4.3.4. Control variables

Control variables were included to control for other effects on corporate tax avoidance. These variables have been considered as important determinants of corporate tax avoidance. However, Dyreng et al. (2010) noted that selecting variables required a considerable thought because the more variables that were included in control, the less variation left to be "pick up" by the executive effect. Thus, following prior literature (i.e. Dyreng et al. 2010) relevant variables that needed to be included in controls are as follow:

Size *(SIZE)* of firm is important determinant for corporate tax avoidance. The theory of political cost (Watts and Zimmerman, 1986) proposed that political cost, such as taxes, is higher for larger firms. In addition, major firms have greater sources to be able to influence the political process for their advantage, which will affect their tax planning activities. Size is the natural log of total assets *(at)*.

According to Berger (1993), R&D *(RnD)* activities were favorable from tax perspective. Firms with high R&D provided managers with an opportunity to reduce effective tax rates (Dyreng et al. 2010). As a result, I included R&D as a control variable. R&D is computed as research and development expense (*xrd*) divided by net sales (*sale*).

Advertising expense *(ADVERTISING)* was included to account for publicity. Dyreng et al. (2008) suggested that companies with higher advertising engaged in less corporate tax avoidance because they were afraid of negative public attention. Advertising expense is computed as advertising expense (*xad*) divided by net sales (*sale*).

Selling, general and administrative (*SGnA*) was included because it could capture the type of activity a manager would engage in tax avoidance. As Dyreng et al. (2010) noted, SG&A might represent the type of manager who preferred to cut all kind of cost, including taxes. SG&A expense is computed as selling, general, and administrative expense (*xsga*) divided by net sales (*sale*).

Capital expenditure *(CPTLXPNDTR)* controlled for the effect of capital intensive industries to corporate tax avoidance, due to the reason that these firms received tax incentives from their new investments (Dyreng et al. 2008). Capital expenditure is computed as reported capital expenditures (*capx*) divided by gross property, plant, and equipment (*ppegt)*.

Changes in sales *(CHNGEinSALE)* were considered as a determinant for corporate tax avoidance because small firms and high-growth companies were exhibiting relatively high

effective tax rate (Dyreng et al. 2008). Changes in sales scaled by total assets and computed as the annual percentage change in net sales (($sale_t$ -$sale_{t-1}$)/at).

Leverage (*LEVERAGE)* was included because debt affect firm's incentives to engage in tax activities. Interest expenses are deductible from income tax. Therefore, the changes in leverage would not be captured by non-conforming tax avoidance measures such as ETR. However, the deduction could impact firm's strategies which would influence its tax planning. This implied that leverage was an important determinant for corporate tax avoidance (Cheng et al. 2012). Leverage is computed as the sum of long-term debt (*dltt*) and long-term debt in current liabilities (*dlc*) divided by total assets (*at*).

The ratio of cash *(CASHHOLDINGS)* was controlled for because when firms were more tax aggressive, the ratio of their cash savings would increase (Wang, 2015). Moreover, tax avoidance activities can facilitate rent extraction (Desai et al. 2007). The ratio of cash holdings is computed as cash and cash equivalents (*che*) divided by total assets (*at*).

Foreign operations *(FOREIGNOPT)* were included in the control variables because the income generated from this kind of operations affect companies' book income but might not affect its tax liability, due to the different treatments of foreign profits which were not subjected to the U.S. income tax (Rego, 2003). An indicator for firms with foreign operations is a non-zero value for pre-tax income from foreign operations (*pifo*).

Net operating loss *(NOL)* was controlled for to account for the effect from the utilization of prior operating loss that were carried forward which could reduce the current firms' tax liability. NOL is an indicator for firms that have a non-missing value of tax loss carry-forward (*tlcf)*.

Due to the variation of rules for the amortization of intangible assets between book and tax accounting, Chen et al. (2010) noted the importance to control for intangible assets *(INTANG)*. Intangible assets are the ratio of intangible assets (*intan*) to total assets (*at*).

Property, plant and equipment *(PPnE)* captured a firm capital intensity. Firms with high capital intensity due to investment in fixed assets have higher chance to engage in tax planning activities (Gupta and Newberry, 1997). Accordingly, I included firms' gross PPE to total assets in control variables and computed this variable as gross property, plant, and equipment (*ppegt*) divided by total assets (*at*).

Dyreng et al. (2010) found positive association between effective tax rate and executives effect on accounting income. It was measured based on earnings before interest, tax, depreciation

and amortization *(EBITDA)*. EBITDA is computed as earnings before interest, taxes, depreciation, and amortization (*oibdp*) scaled by lagged total assets (*at*).

Dyreng et al. (2010) also controlled for stock option exercises. However, I did not include it as control variable because it is only available in Execucomp through 2006. Including this variable might reduce firm year observations by half.

Lastly, I included year fixed effects and industry fixed effects in the regression model. Year fixed effects eliminated macroeconomics characteristics on the coefficient of interests which have influenced on all firms in each year. Similarly, I also added industry fixed effect to capture variations attributable to this source.

5.   Empirical Results

5.1.   Descriptive Statistics

Table 2 discusses the descriptive statistics of the dependent, independent, and control variables. Each of these variables is reported by the number of observations, mean, standard deviation, minimum and maximum value. The average GAAP ETR is 34.4% which is relatively close to the 35% of U.S statutory tax rate, within range of 33% found in Khan et al. (2017), and 36.5% found in Chyz and Gaertner (2016).

Table 2
Descriptive statistics

Variable	n	Mean	Median	S.D.	Min	Max
GAAP ETR	9,951	0.344	0.355	0.128	0	1
CASH ETR	9,951	0.292	0.274	0.193	0	1
TURNOVER	9,951	0.151	0	0.358	0	1
BIGBATH_ACC	9,951	0.211	0	0.408	0	1
SIZE	9,951	7.518	7.369	1.572	2.809	13.590
RnD	9,951	0.036	0.002	0.064	0	1.754
ADVERTISING	9,951	0.012	0	0.030	0	0.361
SGnA	9,951	0.245	0.205	1.649	-0.033	163.967
CPTLXPNDTR	9,951	0.127	0.104	0.089	0	2.495
CHNGEinSALE	9,951	0.023	0.083	2.067	-83.738	5.962
LEVERAGE	9,951	0.206	0.194	0.173	0	2.338
CASHHOLDINGS	9,951	0.139	0.078	0.156	0	0.897
FOREIGNOPT	9,951	0.627	1	0.484	0	1
NOL	9,951	0.727	1	0.445	0	1
INTANG	9,951	0.182	0.123	0.186	0	0.921
PPnE	9,951	0.530	0.449	0.367	0.007	3.464
EBITDA	9,951	2.600	0.180	147.314	-0.494	14481.480

The mean cash ETR is approximately 29.2% which is comparable to Koester et al. (2016)'s Cash ETR value of 27.5% and to Chyz and Gaertner (2016)'s raw cash ETR (quintiles 2, 3 and 4) value of 29.5%. These numbers are consistent with most prior tax literature, which show that the average GAAP ETR is higher than cash ETR. Data for control variables also show that values for each of these variables is in line with values found in prior studies (e.g. Dyreng et al. 2010; Gaertner, 2014) with the exception for the values for EBITDA. The differences are most probably due to divergence in sample size and selection.

Table 3
Pearson Correlation Matrix

VARIABLES		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
GAAP_ETR	(1)	1																		
CASH_ETR	(2)	0.409*	1																	
TURNOVER	(3)	0.034*	0.046*	1																
OUTSIDER	(4)	-0.002	-0.030*	0.014	1															
VOLUNTARY	(5)	0.064*	0.058*	0.030*	-0.074*	1														
BIGBATH_ACC	(6)	0.108*	0.229*	0.005	0.042*	-0.013	1													
SIZE	(7)	-0.079*	-0.032*	-0.131*	-0.222*	0.103*	0.050*	1												
RnD	(8)	-0.172*	-0.105*	-0.002	0.154*	-0.080*	0.107*	-0.067*	1											
ADVERTISING	(9)	0.013	0.023*	0.019	-0.065*	0.032*	0.047*	0.062*	-0.050*	1										
SGnA	(10)	-0.018	-0.015	-0.003	0.006	-0.012	0.006	-0.028*	0.048*	0.025*	1									
CPTLXPNDTR	(11)	0.056*	-0.043*	0.113*	0.128*	-0.057*	-0.037*	-0.202*	0.090*	0.026*	0.044*	1								
CHNGEinSALE	(12)	0.034*	0.004	-0.057*	-0.009	-0.010	-0.018	0.035*	-0.040*	-0.017	-0.005*	0.020*	1							
LEVERAGE	(13)	0.066*	0.004	-0.028*	-0.084*	0.077*	0.062*	0.303*	-0.237*	0.024*	-0.034*	-0.168*	0.004	1						
CASHHOLDINGS	(14)	-0.156*	-0.119*	0.021*	0.197*	-0.150*	0.001	-0.270*	0.536*	0.025	0.037*	0.182*	-0.039*	-0.413*	1					
FOREIGNOPT	(15)	-0.141*	-0.007	-0.073*	-0.024*	0.007	0.114*	0.255*	0.206*	0.060*	0.024*	-0.146*	0.003	-0.009	0.078*	1				
NOL	(16)	0.009	0.013	0.003	-0.028*	0.008	-0.040*	-0.017	-0.021*	-0.024*	-0.020*	0.023*	0.003	-0.031*	0.002	-0.093*	1			
INTANG	(17)	0.019	0.001	-0.081*	-0.007	-0.100*	0.091*	0.157*	-0.008	0.021*	0.001	-0.095*	0.002	0.211*	-0.219*	0.119*	-0.008	1		
PPnE	(18)	0.021*	-0.025*	0.009	-0.120*	0.101*	-0.049*	0.093*	-0.267*	-0.042*	-0.041*	-0.211*	-0.003	0.162*	-0.348*	-0.127*	-0.002	-0.438*	1	
EBITDA	(19)	0.014	0.021	0.004	-0.010	0.003	0.019	0.029*	-0.006	-0.002	-0.001	-0.005	0.006	0.002	-0.009	0.007	0.009	-0.012	0.021*	1

To test the correlation of each variable, I conducted a Pearson's correlation test. The results are as shown in Table 3. Both corporate tax avoidance measurements, *GAAP_ETR* and *Cash_ETR* were positively correlated with *TURNOVER*. The correlation between these variables showed a significant correlation at 5% level of confidence where the highest correlation of 0.536 exists between *CASHHOLDINGS* and *RnD*. Hair et al. (2006) suggested that when the correlation coefficient of control variables was between ± 0.25 and 0.75 then the correlation showed an indication of a moderate level collinearity. I further test for multicollinearity using VIFs test in subsequent section to account for this.

5.2. Regression result and analysis

5.2.1. Test for Hypothesis 1

First I tested for multicollinearity. The result of VIF tests, showed that the presence of multicollinearity can be ruled out as no value is above 10. Second, I performed Breusch-Pagan test to check for heteroscedasticity. The results showed that heteroscedasticity cannot be ruled out as the test showed a significance value at 1% level. To tackle such problem, I used robust standard error in the regression. Lastly, I conducted the Jarque-Bera test that tested for the normal distribution of the residuals. As evident from table 8 in Appendix 4, the null hypothesis that residuals are normally distributed is rejected, this condition is probably due to the large number of observations.

Table 4 present the OLS regression results, panel A with GAAP ETR as dependent variable and panel B with Cash ETR as dependent variable. The first hypothesis predicted that CEO turnover is associated with higher effective tax rate in the year of the succession. I expected that the coefficient of interest; $β_1$ is positive. To test this prediction, the dependent variable is examined by using five different models. Model (a) was a baseline regression model that only includes a CEO turnover effect. Model (b) presented the results of a regression that include both CEO turnover effect and firm characteristics which were known for being the determinants of the firm's effective tax rate. Model (c) added the industry effect to the CEO turnover variable and includes several control variables. Model (d) added the year effect to the CEO turnover effect and lastly, Model (e) estimated the full model as specified in Equation (1). In each model, I also conducted additional tests to look into the potential driver for the coefficient of CEO turnover by categorizing CEO turnover based on the origin of incoming CEOs: outsider vs. insider, and the type of CEO turnover: voluntary vs. non-voluntary.

Table. 4 Regression Result

Panel A

Variables	(a) Coefficient (s.e.)	(b) Coefficient (s.e.)	(c) Coefficient (s.e)	(d) Coefficient (s.e.)	(e) Coefficient (s.e.)
			Dependent variable: GAAP ETR		
TURNOVER	0.011***	0.004	0.002	-0.003	-0.004
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
OUTSIDER	0.001	0.003	0.005	0.001	0.003
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
VOLUNTARY	0.023***	0.019***	0.020***	0.007*	0.009**
	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)
SIZE		-0.008***	-0.010***	-0.007***	-0.009***
		(0.001)	(0.001)	(0.001)	(0.001)
RnD		-0.191***	-0.040	-0.210***	-0.045
		(0.033)	(0.050)	(0.033)	(0.050)
ADVERTISING		0.075**	-0.008	0.069**	-0.002
		(0.033)	(0.044)	(0.033)	(0.043)
SGnA		-0.001***	-0.001***	-0.001***	-0.001***
		(0.000)	(0.000)	(0.000)	(0.000)
CPTLXPNDTR		0.072***	0.066***	0.036**	0.026
		(0.016)	(0.017)	(0.015)	(0.017)
CHNGEinSALE		0.002**	0.002**	0.002***	0.002***
		(0.001)	(0.001)	(0.001)	(0.001)
LEVERAGE		0.023***	0.026**	0.017*	0.018*
		(0.009)	(0.011)	(0.009)	(0.011)
CASHHOLDINGS		-0.109***	-0.117***	-0.074***	-0.078***
		(0.012)	(0.015)	(0.013)	(0.015)
FOREIGNOPT		-0.023***	-0.006	-0.022***	-0.004
		(0.003)	(0.004)	(0.003)	(0.004)
NOL		-0.001	0.000	0.001	0.001
		(0.003)	(0.003)	(0.003)	(0.003)
INTANG		-0.003	-0.029**	0.027***	0.009
		(0.010)	(0.013)	(0.010)	(0.014)
PPnE		-0.019***	-0.026***	-0.015***	-0.019**
		(0.005)	(0.009)	(0.005)	(0.009)
EBITDA		0.000***	0.000***	0.000***	0.000***
		(0.000)	(0.000)	(0.000)	(0.000)
Year Fixed Effect	No	No	No	Yes	Yes
Industry Fixed Effect	No	No	Yes	No	Yes
Observations	9,951	9,951	9,951	9,951	9,951
R-squared	0.005	0.066	0.151	0.080	0.163

Panel B

VARIABLES	Dependent variable: CASH ETR				
	(a) Coefficient (s.e.)	(b) Coefficient (s.e.)	(c) Coefficient (s.e.)	(d) Coefficient (s.e.)	(e) Coefficient (s.e.)
TURNOVER	0.024***	0.022***	0.019***	0.010	0.010
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
OUTSIDER	-0.011**	-0.004	0.001	-0.003	0.002
	(0.004)	(0.004)	(0.005)	(0.004)	(0.005)
VOLUNTARY	0.030***	0.020***	0.018***	0.010	0.010
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
SIZE		-0.008***	-0.006***	-0.007***	-0.004**
		(0.001)	(0.002)	(0.001)	(0.002)
RnD		-0.167***	0.018	-0.188***	0.017
		(0.043)	(0.061)	(0.043)	(0.060)
ADVERTISING		0.149**	-0.060	0.134**	-0.063
		(0.058)	(0.074)	(0.057)	(0.073)
SGnA		-0.001***	-0.001***	-0.001***	-0.001***
		(0.000)	(0.000)	(0.000)	(0.000)
CPTLXPNDTR		-0.133***	-0.051*	-0.172***	-0.099***
		(0.026)	(0.027)	(0.030)	(0.030)
CHNGEinSALE		0.000	0.000	0.000	0.001
		(0.001)	(0.001)	(0.001)	(0.001)
LEVERAGE		-0.038***	-0.003	-0.042***	-0.008
		(0.013)	(0.015)	(0.013)	(0.015)
CASHHOLDINGS		-0.212***	-0.155***	-0.170***	-0.106***
		(0.018)	(0.021)	(0.018)	(0.022)
FOREIGNOPT		0.008*	0.010*	0.006	0.008
		(0.004)	(0.005)	(0.004)	(0.005)
NOL		0.005	0.008*	0.004	0.006
		(0.005)	(0.005)	(0.005)	(0.005)
INTANG		-0.085***	-0.051***	-0.054***	-0.012
		(0.014)	(0.018)	(0.014)	(0.019)
PPnE		-0.073***	-0.017	-0.071***	-0.015
		(0.007)	(0.012)	(0.007)	(0.012)
EBITDA		0.000***	0.000***	0.000***	0.000***
		(0.000)	(0.000)	(0.000)	(0.000)
Year Fixed Effect	No	No	No	Yes	Yes
Industry Fixed Effect	No	No	Yes	No	Yes
Observations	9,951	9,951	9,951	9,951	9,951
R-squared	0.006	0.040	0.125	0.058	0.142

Robust standard error in the parentheses
*** p<0.01, ** p<0.05, * p<0.1

The R-squared of the full model at both tables are 16.3% and 14.2% respectively. These values are comparable to Dyreng et al. (2010) who applied relatively the same control variables and firm effect variables in their model 3. The increase in R-squared with the addition of control and fixed effect variables appeared to be in line with prior literatures (e.g. Dyreng et al. 2010, Koester et al. 2016). The low R-squared of below 10% for model (a), (b), and (d) suggested that these models have limited explanatory power. However, this is not uncommon in the CEO turnover literature (e.g. Brickley, 2003). Adding the industry fixed effect to the model increases the R-squared significantly, whereas adding the year fixed effect only increases the R-squared by 1.8%. This implies that industry fixed effect is a better fit model.

Regarding the coefficient of interest (β_1), it is evident that the *TURNOVER* coefficient in the full model -0.004 which is contradicts the prediction of positive coefficient for β_1. This negative sign indicates that the ETR, when measured using GAAP ETR, is lower for firms that experienced a CEO turnover compare to firms that does not experience a CEO turnover. However, since the coefficient is insignificant, thus no inferences can be drawn of this negative sign. *TURNOVER* was positive and significant in all the different models that used cash ETR. This changed when the year fixed effect was added, as *TURNOVER* were significant only in the first three models. Those results should be interpreted with caution because adding the year fixed effect did not significantly change the R-square, implying a low contribution to the model fit. Having this result in mind, one should not only focus only on the estimation with the year fixed effect but should also take into account the industry fixed effect. In this regard, using the estimations obtained from model (c), the coefficient value of *TURNOVER* was as high as 1.9%. Nevertheless, the results did not hold when the year fixed effect was included in the model. Hence, the results only provide a weak evidence to support hypothesis 1.

I also examined whether the origin of incoming CEOs and the type of turnover were associated with effective tax rate. *OUTSIDER* represents the origin of incoming CEO and *VOLUNTARY* represents the type of turnover. Due to the limitation in the literature that examined these associations, it was difficult to build prediction for these tests. However, the results can provide some insights regarding the association between CEO turnover and effective tax rate variable. In the models where the R-squared is over than 10%, which is the case with model (c) and model (e), the *OUTSIDER* coefficients in models with the GAAP ETR (panel A) were 0.005 and 0.003, while the coefficients in models with Cash ETR (panel B) were 0.001 and 0.002,

respectively. The positive sign indicates that the ETR is higher when the origin of incoming CEOs is from outside the companies. However, all coefficients were not significant, thus no inference can be drawn from this positive sign. Using the estimation provided by model (c) and model (e), the coefficients of *VOLUNTARY* in the models with GAAP ETR (panel A) were 0.020 and 0.009, which were significant at the 1% and 5% level respectively. It can be inferred that in the year where firms experience a voluntarily CEO turnover, the tax rate measured by the GAAP ETR increased from 0.9% to 2%. For the models with Cash ETR, the coefficients for *VOLUNTARY* in model (c) and model (e) were 0.018 and 0.010 respectively. These scores suggested that the effective tax rate in the year when firms experience a voluntary CEO turnover increased from 1% to 1.8%. Again, these estimations should be carefully interpreted because the coefficients were not significant in the full model. Hence, the results provided moderately strong evidence that voluntary CEO turnover was associated with a higher ETR.

The coefficients of control variables, namely *SIZE, CASHHOLDINGS* and *SGnA,* were significant and negative in all the models. The negative sign for *SIZE* indicated that there was a negative relation between firm size and ETR, implying that corporate tax avoidance increased as firm size went up. The results were in line with Richard and Lanis (2007) who documented a significant negative association between effective tax rate and firm size, measured as natural logarithm of total assets. These results, however, contradicted other studies (e.g. Minnick and Noga, 2010; Koester et al. 2016). The mixed results on the relation between firm size and effective tax rate has long been identified in prior literature (e.g. Dyreng et al. 2010). Similarly, the negative sign for *CASHHOLDINGS* showed that firms which were able to avoid more tax have more cash. This finding was in line with the study by Wang (2015) who investigated the association between corporate tax aggressiveness and cash holdings and found that the increase in tax avoidance would eventually make the level of firm's cash saving increase. In addition, Hanlon et al. (2013) found that corporation's tax risk can significantly increase company's cash holdings. Likewise, the negative coefficient of *SGnA* indicated that firms with greater selling, general and administrative expense had lower effective tax rate. The finding was comparable to the one in Dyreng et al. (2010) who documented a negative relation between SG&A and the GAAP ETR. The authors also found a positive relation between SG&A and the Cash ETR which contradicted the results found here. The difference probably came about due to the selection of executives' sample and year of observations.

The variables of *CPTLXPNDTR*, *PPnE* and *CHNGEinSALE* in the full model had different effects to the different effective tax rate measures. The coefficient of *CPTLXPNDTR* is negative and significant in the model with Cash ETR. The effect, however, was not significant in the model with GAAP ETR. The negative coefficient of *CPTLXPNDTR* assumed the existence of a negative relation between the independent variable and the tax rate. Firms with higher capital expenditure had lower effective tax rate. An identical result can be found in Koester et al. (2016). The effect of *PPnE* on GAAP ETR was negative and significant, but was not significant in the model with Cash ETR. The greater the ratio of property plant and environment to total assets, the lower firms' ETR was. This finding was in accordance with Christensen et al. (2014). The coefficient of *CHNGEinSALE* was positive, but only significant in the model with GAAP ETR. Furthermore, the positive sign of *CHNGEinSALE* suggested a positive relation between current sales growth and tax rate. Despite the difference in the coefficients significance level, Dyreng et al. (2010) also found positive relation between the annual percentage change in sales and the GAAP ETR.

The significant relation between firm characteristics as measured by R&D expense and advertising expense with both tax rate measures was not present when a time varying control measure was included. This means that the relation between the ETR and these variables was due to the variation over firm across time. The same pattern was observed when examining the relation between firms with foreign operations and the ratio of intangible to total assets. This pattern was found in Koester et al. (2016).

NOL were not significant in all the models, which was also the case in Khan et al. (2017). In general, these results were consistent with expectations and prior literature in corporate tax avoidance.

5.2.2. Test for Hypothesis 2

This section discusses the findings from the regression Equation 2 which corresponds to the test of hypothesis 2. Hypothesis 2 predicted that big bath accounting strengthened the association between CEO turnover and the high effective tax rate in the year of the succession. To test for this prediction, the big bath accounting variable was interacted with CEO turnover and thus, the interaction term of *TURNOVER_BIGBATH* or β_5 was expected to be positive. I tested the dependent variable using five different models which are as presented in Table 5.

Adding the big bath accounting variable to the equation improved the predictive power of the model as shown by the slight increase of the R-squared. The positive coefficient of big bath accounting indicated that the effective tax rate is higher in the year when firms experience more profit from engaging in big bath accounting. Hence, the findings underlined the role of big bath accounting as a determinant for corporate tax avoidance. This association is rarely examined in the prior tax literature.

The interaction term *TURNOVER_BIGBATH* in both measures was positive but not significant for the model with GAAP ETR. Meanwhile, when the effective tax rate was measured using Cash ETR, the coefficient was significant in all the model. The coefficients in model (c) and model (e) were 0.050 and 0.057 respectively. These coefficients could be interpreted as the difference in effective tax rate between firms that did not engage in big bath accounting in the year when firms experience a CEO turnover with those that did was approximately 5%. Despite the non-significant coefficient on GAAP ETR, taken as a whole, these findings supported the hypothesis 2 that big bath accounting moderated the association between CEO turnover and effective tax rate.

In addition, *TURNOVER_OUT_BIGBATH* is the interaction term which estimates the difference on firm's ETR between firms that were indicated and not indicated engage in big bath accounting, when the incoming CEOs are outsider. The interaction term coefficients in both measures was negative, this sign indicates that the ETR in the year when firms experienced CEO turnover is lower when the new CEOs are outsider and firms were indicated engaged in big bath accounting. Furthermore, *TURNOVER_VOL_BIGBATH* is the interaction term which estimates the difference on firm's ETR between firms that were indicated and not indicated engage in big bath accounting in the year when firms experienced a voluntary turnover. Both measures showed negative sign, implies that the ETR is lower in the year when firms having a voluntarily CEO turnover and were indicated engage in big bath accounting. However, both the interaction term *TURNOVER_OUT_BIGBATH* and *TURNOVER_VOL_BIGBATH* scores were not significant. Therefore, the findings did not support the explanation that big bath accounting moderated the association between CEO turnover and the effective tax rate given the origin of incoming CEOs and the type of CEO turnover perspective. Finally, the results on the control variables were relatively consistent with previous models and therefore are in line prior research in this area.

Table 5. Regression with Moderating Variable

Panel A

Variables	(a) Coefficient (s.e.)	(b) Coefficient (s.e.)	(c) Coefficient (s.e.)	(d) Coefficient (s.e.)	(e) Coefficient (s.e.)
			Dependent variable: GAAP ETR		
TURNOVER	0.010***	0.001	-0.001	-0.007*	-0.007**
	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)
OUTSIDER	0.000	0.002	0.004	0.000	0.002
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
VOLUNTARY	0.023***	0.019***	0.020***	0.006*	0.009**
	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)
BIGBATH_ACC	0.034***	0.041***	0.042***	0.041***	0.042***
	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)
TURNOVER_BIGBATH	0.007	0.013	0.016	0.014	0.017
	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
TURNOVER_OUT_BIGBATH	-0.012	-0.012	-0.018	-0.015	-0.021
	(0.023)	(0.023)	(0.022)	(0.023)	(0.023)
TURNOVER_VOL_BIGBATH	0.008	0.013	0.005	0.012	0.004
	(0.028)	(0.027)	(0.025)	(0.027)	(0.026)
SIZE		-0.008***	-0.011***	-0.007***	-0.009***
		(0.001)	(0.001)	(0.001)	(0.001)
RnD		-0.224***	-0.0772*	-0.243***	-0.082*
		(0.033)	(0.047)	(0.034)	(0.047)
ADVERTISING		0.048	-0.021	0.041	-0.016
		(0.034)	(0.046)	(0.034)	(0.044)
SGnA		-0.001***	-0.001***	-0.001***	-0.001***
		(0.000)	(0.000)	(0.000)	(0.000)
CPTLXPNDTR		0.076***	0.066***	0.041***	0.026
		(0.016)	(0.017)	(0.015)	(0.017)
CHNGEinSALE		0.002***	0.002***	0.002***	0.002***
		(0.001)	(0.001)	(0.001)	(0.001)
LEVERAGE		0.018**	0.019*	0.012	0.012
		(0.009)	(0.010)	(0.009)	(0.011)
CASHHOLDINGS		-0.105***	-0.111***	-0.069***	-0.071***
		(0.012)	(0.014)	(0.013)	(0.015)
FOREIGNOPT		-0.026***	-0.008**	-0.025***	-0.006*
		(0.003)	(0.003)	(0.003)	(0.003)
NOL		0.000	0.000	0.002	0.002
		(0.003)	(0.003)	(0.003)	(0.003)
INTANG		-0.008	-0.033**	0.022**	0.007
		(0.009)	(0.013)	(0.010)	(0.014)
PPnE		-0.018***	-0.026***	-0.015***	-0.020**
		(0.005)	(0.009)	(0.005)	(0.009)
EBITDA		0.000***	0.000***	0.000***	0.000***
		(0.000)	(0.000)	(0.000)	(0.000)
Year Fixed Effect	No	No	No	Yes	Yes
Industry Fixed Effect	No	No	Yes	No	Yes
Observations	9,951	9,951	9,951	9,951	9,951
R-squared	0.017	0.084	0.169	0.098	0.181

Panel B

VARIABLES	Dependent variable: Cash ETR				
	(a) Coefficien (s.e.)	(b) Coefficient (s.e.)	(c) Coefficient (s.e.)	(d) Coefficient (s.e.)	(e) Coefficient (s.e.)
TURNOVER	0.015***	0.011**	0.008	-0.003	-0.004
	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)
OUTSIDER	-0.013***	-0.007	-0.002	-0.006	-0.001
	(0.004)	(0.004)	(0.005)	(0.004)	(0.005)
VOLUNTARY	0.029***	0.019***	0.017***	0.008	0.008
	(0.005)	(0.005)	(0.006)	(0.006)	(0.006)
BIGBATH_ACC	0.104***	0.110***	0.108***	0.109***	0.107***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
TURNOVER_BIGBATH	0.045*	0.047**	0.050**	0.054**	0.057**
	(0.024)	(0.024)	(0.023)	(0.024)	(0.023)
TURNOVER_OUT_BIGBATH	-0.048	-0.046	-0.045	-0.051	-0.049
	(0.035)	(0.034)	(0.033)	(0.034)	(0.033)
TURNOVER_VOL_BIGBATH	0.046	0.045	0.051	0.035	0.039
	(0.042)	(0.041)	(0.038)	(0.041)	(0.039)
SIZE		-0.008***	-0.006***	-0.008***	-0.004**
		(0.001)	(0.002)	(0.001)	(0.002)
RnD		-0.257***	-0.079	-0.278***	-0.080
		(0.045)	(0.056)	(0.046)	(0.055)
ADVERTISING		0.077	-0.091	0.060	-0.097
		(0.058)	(0.074)	(0.057)	(0.073)
SGnA		-0.001***	-0.001***	-0.001***	-0.001***
		(0.000)	(0.000)	(0.000)	(0.000)
CPTLXPNDTR		-0.119***	-0.049*	-0.157***	-0.097***
		(0.026)	(0.026)	(0.029)	(0.030)
CHNGEinSALE		0.000	0.001	0.001	0.001
		(0.001)	(0.001)	(0.001)	(0.001)
LEVERAGE		-0.054***	-0.021	-0.056***	-0.023
		(0.013)	(0.014)	(0.013)	(0.014)
CASHHOLDINGS		-0.200***	-0.141***	-0.157***	-0.088***
		(0.017)	(0.020)	(0.018)	(0.021)
FOREIGNOPT		0.000	0.004	-0.002	0.002
		(0.004)	(0.005)	(0.004)	(0.005)
NOL		0.008*	0.009*	0.007	0.007
		(0.004)	(0.005)	(0.004)	(0.005)
INTANG		-0.099***	-0.061***	-0.067***	-0.018
		(0.013)	(0.018)	(0.014)	(0.019)
PPnE		-0.073***	-0.019*	-0.071***	-0.016
		(0.007)	(0.011)	(0.007)	(0.011)
EBITDA		0.000***	0.000***	0.000***	0.000***
		(0.000)	(0.000)	(0.000)	(0.000)
Year Fixed Effect	No	No	No	Yes	Yes
Industry Fixed Effect	No	No	Yes	No	Yes
Observations	9,951	9,951	9,951	9,951	9,951
R-squared	0.061	0.099	0.179	0.116	0.195

Robust standard error in the parentheses
*** p<0.01, ** p<0.05, * p<0.1

6.   Conclusion

Evidence from earlier studies indicates that firm characteristics are linked to corporate tax avoidance. Recent research on corporate tax avoidance (e.g. Dyreng et al. 2010), however, also found that top executives play important roles in determining the level to which firm engage in corporate tax avoidance. Since Dyreng et al. (2010), studies on tax avoidance have put more attention on the individual effect on corporate tax avoidance. Some studies (e.g. Gallemore et al. 2014; Christensen et al. 2014; Koester et al. 2016) even brought the study on corporate tax avoidance up one level by examining the relation between corporate tax avoidance and CEO turnover through the ETR before or after the event takes place. This thesis differentiates from past studies by focusing on the ETR in the year when turnover occur. As such, the assumption is that tax is an important metric in manager's performance evaluation (Chyz and Gaertner, 2016) and CEOs would manage the ETR early in their tenure. In addition, to make their target more attainable, in the first year, CEOs will be more likely to engage in behavior known as "big bath" (Pourciau, 1993). This thesis seeks to empirically answer the following research question:

"Could CEO turnover be associated with a higher firm ETR in the year when the turnover takes place and is the association conditional on the level of big bath accounting?

Chyz and Gaertner (2016) find that the probability of CEOs being forced to step out is higher when their firms paying relatively high or relatively low taxes. This finding implies that CEOs are expected to keep their taxes payment at an acceptable level. However, since shareholders might consider tax payment as a way to reduce their wealth, Chyz and Gaertner (2016) predicted that the likelihood of CEOs to leave is higher when their firms pay higher taxes. The prediction implies that shareholders are more favorable to CEOs who pay lower taxes. Koester et al. (2016) found that ETR is lower in the three years after a new CEO steps into office. Hence, to accomplish their target of lower ETR and fulfill shareholders expectation, CEOs have the incentive to manage the ETR upward in their first year so that they can blame their predecessor for unfavorable condition and make the target more attainable in subsequent years. Hence, the first hypothesis would be:

H. 1: CEO turnover is positively associated with the higher firm effective tax rate in the year of CEO change

The results, however only provided weak evidence to support hypothesis 1. When considering models with GAAP ETR, it can be seen that CEO turnover has no significant association with higher ETR. Meanwhile, when considering models with Cash ETR, CEOs turnover showed a positive and significant influence on the ETR. However, the result is sensitive to the additional variable of year fixed effect. Possible explanations for the variation over the results are as follows. First, while GAAP ETR captures the changes in tax accounting accrual, on the other hand, Cash ETR captures changes resulting from tax deferral strategies. This indicates that new CEOs are avoiding actions which might affect accounting earnings. For instance, if new CEOs report a higher accounting earnings, firms will pay more taxes, which is something that shareholders are not in favor of. Second, the non-significant result in Cash ETR upon the inclusion of the year fixed effect implies that ETR is affected by the economic conditions on that year.

The results also indicated that the positive and significant association between CEO turnover and higher ETR in the year when turnover happened is more pronounced when the type of turnover is voluntary. A possible explanation for this effect is that a higher ability executives have a better understanding on firm operational (Demerjian et al. 2012, 2013) this will allow a manager to align his business decisions and tax strategies (Koester et al. 2016) and therefore, able to reduce their tax payments through a better tax-planning. Since forced turnover is more likely to happen when industry performance was poor (Jenter and Kanaan, 2015), thus the incoming CEOs were selected because of their abilities to turn things around. Therefore, compared to voluntary turnover these forced turnover CEOs because of their greater abilities were able to engage in a much higher tax strategies that in turn will decrease firm's ETR. This view is relevant with Denis and Denis (1995) who found significant decreases in firms' total assets, employees and capital expenditures after a forced CEO turnover.

This thesis also examines firm's ETR in the year when CEO turnover take place and how it is different between firms that are indicated and firms that are not indicated as firms that use big bath accounting. The hypothesis is based on the earnings management hypothesis (Clayton et al. 2005) which argues that managers can influence and exploit firms' strategies for their personal benefit. In addition, a firm performance in the first year of appointment of the new CEO is typically attributed to the previous CEO. Hence, there is a speculation that new CEOs take advantage of this condition and engage in behavior where they can blame their predecessor for poor performance.

This behavior might take the form of an increase losses and simultaneously increase tax payment. Accordingly, I seek to test the following hypothesis:

H. 2: The association between CEO turnover with higher firm effective tax rate in the year of CEO change is strengthened by the presence of big bath accounting

The results showed that big bath accounting has positive association with both measures of ETR. Consistent with hypothesis 2, big bath accounting strengthens the association between CEO turnover and higher ETR in the year of succession. Significant association, however, only applied to models with Cash ETR. The non-significant moderating influence of the big bath accounting in the models with GAAP ETR is in line with the result from hypothesis 1. This result validates the previous findings which suggest that new CEOs in their first year will avoid strategies that would affect accounting earnings. A strategy like the big bath accounting will accelerate depreciation, which in turn will defer taxes. Consequently, the changes in book income resulting from the big bath accounting will not alter the GAAP ETR measure but will alter the Cash ETR measure (Hanlon and Heizman, 2010; Koester et al. 2016). This finding is relevant with Phillips et al. (2003) and Hanlon (2005) who suggested that GAAP provide discretion that managers can exploit to manage earnings upward while leave the taxable income unaffected.

Contributions

This thesis contributes to studies that examine the relation between CEO turnover and corporate tax avoidance in several ways. First, I find weak evidence that CEO turnover is positively associated with higher ETR. This indicates that new CEOs are engaging in other form of bath behavior, by raising the ETR and attributing the negative outcome to former management. Second, my findings underline the importance of tax rate as a necessary variable to evaluate firm performance (Chyz and Gaertner, 2016). New CEOs consider tax as one of important earnings instrument that need to manage since their first day at the office. Third, I find that big bath accounting strengthened the association between CEO turnover and higher ETR in the year of CEO change. The finding is in line with the prediction that new CEOs engage in activities to increase ETR and accelerates losses in their first year. The association, however, is only significant when tax rate is measured using Cash ETR. This led to fourth contribution that suggests that new CEOs might not be concerned with actions that can affect accounting earnings, as reflected by non-significant influence on the GAAP ETR. Rather, they are engaging in a strategy to defer taxes which in turn impact the Cash ETR.

The findings are helpful for investors in order to better understand the financial situations over firms that experience CEO turnover. This can serve as a way to weigh the cost and benefit of investing at those firms. In addition, the findings also provide useful information about potential costs that firms might need to incur when they decide to hire a new CEO.

For practitioners, ignoring the debate over legality of tax avoidance, the findings might help tax authorities in identifying which firms engage in corporate tax avoidance. Based on the pattern that surrounded CEO turnover, firms begin to avoid taxes after new CEOs worked for more than a year. In addition, it also informs the auditor to use the turnover event as a starting point for auditing a firm.

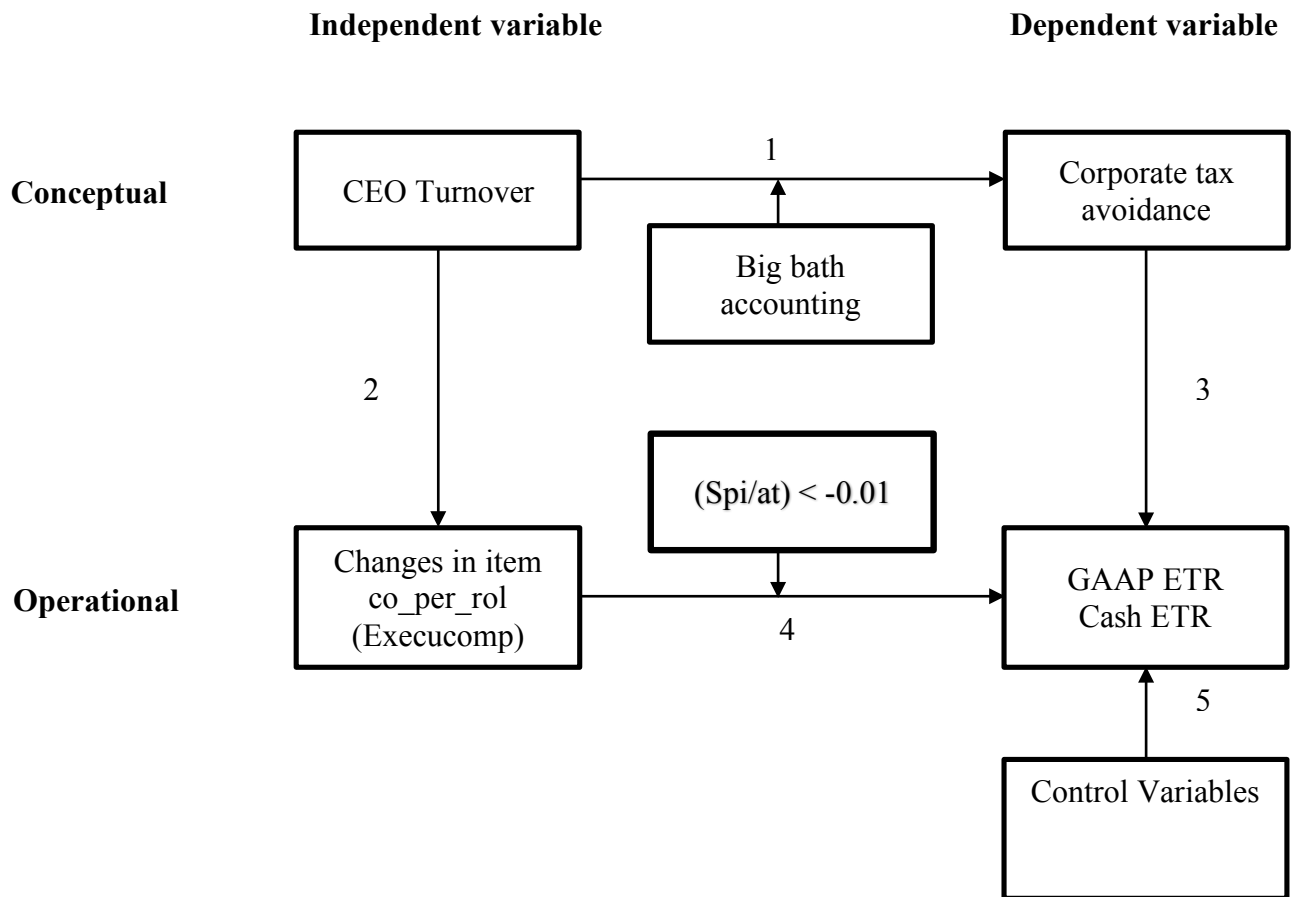**Limitations and future research**

Prior literature (e.g. Fee et al. 2013) considers CEO turnover as endogenous. Therefore, I include the origin of CEO and the type of CEO turnover to better examined which conditions drive CEO turnover coefficient. However, classification of CEO turnover type is not as widely investigated in most prior studies on CEO turnover. Hence, I used the information provided by Execucomp but this implies that future research might consider using hand-collected data approach, as suggested in prior studies (e.g. Hazarika et al. 2012; Burg et al. 2014) to classify the type of CEO turnover. This approach provides better estimates to the effect of CEO turnover.

While the CEO turnover observations that were collected span from year 1992 to 2016, however these observations were also susceptible to macroeconomic conditions in a particular year e.g. financial crisis years. Furthermore, I find that the year fixed effect significantly influence the results. Therefore, to better isolate the year fixed effect, future research can divide in a way that exclude observations from years indicated as part of financial crisis.

As indicated in finding by Dyreng et al. (2010), determinants with consistent impact on ETR are difficult to find. Hence, there is a possibility that some variables, such as top executive's compensation, are omitted from my model. Armstrong et al. (2012) found evidence that the compensation for executives (i.e. tax director) is positively associated with GAAP ETR but is not associated with Cash ETR. Therefore, I suggest future research to include the compensation scheme for new CEOs in their studies on the relation between CEO turnover and corporate tax avoidance.

7. Appendix

Appendix 1: Libby boxes

	Independent variable	Dependent variable

Conceptual

CEO Turnover → (1) → Corporate tax avoidance

Big bath accounting

Operational

Changes in item co_per_rol (Execucomp) → (4) → GAAP ETR / Cash ETR

(2) connects CEO Turnover to Changes in item co_per_rol

(3) connects Corporate tax avoidance to GAAP ETR / Cash ETR

(Spi/at) < -0.01

(5) connects Control Variables to GAAP ETR / Cash ETR

Control Variables

Appendix 2: An overview of studies on the relation between CEO turnover corporate tax avoidance

Literature	Related Findings
Dyreng et al. (2010)	By tracking the movement of executives over firms, they find that detached from compensation text, top individual executives play significant role in determining the level to which firm engage in corporate tax avoidance.
Gallemore et al. (2014)	- Reputational concern is not a constraint factor that limits firms to engage in corporate tax avoidance. - There is no evidence that firms bear reputational cost for paying low taxes having their CEOs replaced. The ETR for firms accused being engage in tax shelter is approximately the same before and after the revelation
Christensen et al. (2015)	- Examine the changes in tax avoidance that surround CEO turnover, the changes measure is by comparing the ETR in three years before and three years after the turnover event. - The findings indicate that firms are engage in less tax avoidance when the replaced CEOs are Democrat and the incoming CEOs are Republican
Koester et al. (2016)	- Conduct a difference-in-differences test to examine the changes in tax rate surrounding CEO turnover - The findings show a decline in firms' tax rate in three year after turnover took place relative to three years before turnover. The tax rate measure is the Cash ETR - The results indicate that incoming CEOs with greater manager ability engage in higher corporate tax avoidance
Chyz and Gaertner (2016)	- Examines the effect of corporate tax avoidance on forced CEO turnover. - The findings show that the likelihood for CEO to get terminated is higher when their firms pay relatively high or low taxes are - Reputational cost act as a factor that constraint managers and firms to engage in higher corporate tax avoidance, however additional test indicates that the relation between paying too low tax with the probability of CEO being replaced only exist when there is a high scrutiny in tax aggressiveness - Tax payments represent a wealth transfer from shareholders to federal suggest that shareholders are more favorable CEOs who can pay low taxes. The results are aligned with the prediction that the likelihood of CEOs being forced turnover is higher when firms pay relatively high taxes.

Appendix 3: Variable definitions

Variable	Definition	Source/Calculation
GAAP ETR	The financial accounting tax rate	COMPUSTAT: (TXT / PI)
CASH ETR	The cash effective tax rate	COMPUSTAT: (TXPD/PI)
TURNOVER	Indicator variable equal to one if the firm's having a CEO turnover	EXECUCOMP: CO_PER_ROL–CO_PER_ROL $_{t-1}$
OUTSIDER	Indicator variable equal to one if the incoming CEO is an outsider	EXECUCOMP: (BECAMECEO-JOINED_CO) < 366
VOLUNTARY	Indicator variable equal to one if the type of CEO turnover is voluntary	EXECUCOMP: REASON "RETIRED"; "DECEASED"
BIGBATH_ACC	A variable indicating a firm engage in big bath accounting	COMPUSTAT: (SPI/AT) < -0.01
SIZE	The natural log of total assets	COMPUSTAT: log(AT)
RnD	Research and development expense	COMPUSTAT: XRD/SALE
ADVERTISING	Advertising expense	COMPUSTAT: XAD/SALE
SGnA	Selling, general and administrative expense	COMPUSTAT: XSGA/SALE
CPTLXPNDTR	Capital expenditure	COMPUSTAT: CAPX/PPEGT
CHNGEinSALE	The annual percentage change in sales	COMPUSTAT: (SALE-SALE $_{t-1}$)/AT
LEVERAGE	Leverage	COMPUSTAT: (DLTT+DLC)/AT
CASHHOLDINGS	Cash holdings	COMPUSTAT: CHE/AT
FOREIGNOPT	An indicator for firms with foreign operations	COMPUSTAT: non-missing, non-zero values of PIFO
NOL	Net operating losses	COMPUSTAT: a non-missing value of TLCF
INTANG	Intangible assets	COMPUSTAT: INTAN/AT
PPnE	Property, plant and equipment	COMPUSTAT: PPEGT/AT
EBITDA	Earnings before income taxes, depreciation and amortization	COMPUSTAT: OIBDP/AT $_{t-1}$

Appendix 4: Regression Assumptions

Table 6: Multicollinearity

Variable	VIF	1/VIF
CASHHOLDINGS	2.06	0.486
PPnE	1.80	0.557
INTANG	1.70	0.589
RnD	1.52	0.657
SIZE	1.32	0.757
LEVERAGE	1.32	0.759
FOREIGNOPT	1.19	0.840
CPTLXPNDTR	1.17	0.858
OUTSIDER	1.10	0.910
VOLUNTARY	1.06	0.946
BIGBATH_ACC	1.04	0.962
TURNOVER	1.04	0.964
ADVERTISING	1.03	0.972
NOL	1.01	0.987
CHNGEinSALE	1.01	0.991
SGnA	1.01	0.993
Mean VIF	1.26	

This table is the result of VIF test that concern to multicollinearity. Rule of thumbs implies when the value of the variance inflation factor (VIF) is below 10, the existence of multicollinearity can be ruled out. Hence, the table shows the assumptions of multicollinearity is not violates.

Table 7: Homoscedasticity

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of GAAP_ETR

chi2(1)	=	5.13
Prob > chi2	=	0.0235

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of CASH_ETR

chi2(1)	=	233.01
Prob > chi2	=	0.000

The results of heteroscedasticity test are as shown above. Both p-value less than 0.05, which means there is no constant variance in the residuals. To tackle the issues, robust standard error then applied to the regression.

Table 8: Normality

Skewness/Kurtosis tests for Normality
Ho: Normal distribution

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	------ joint ------	
				adj chi2(2)	Prob>chi2
Resid	9,951	0.000	0.000	.	.

The findings above show the results from of normality test. The significant of p-values means the null hypothesis that residuals are normally distributed is rejected. However, rule of thumb stated that when dealing with big samples normality is not much of a concern (Torres-Reyna, 2007). Hence, normality considered is not a problem here.

References

Armstrong, C. S., Blouin, J. L., & Larcker, D. F. (2012). The incentives for tax planning. *Journal of Accounting and Economics*, *53*(1), 391-411.

Berger, P. (1993). Explicit and Implicit Tax Effects of the R & D Tax Credit. *Journal of Accounting Research*, *31*, 131-71.

Bertrand, M., & Schoar, A. (2003). Managing with Style: The Effect of Managers on Firm Policies. *The Quarterly Journal of Economics*, *118*(4), 1169-1208.

Blaylock, B. S. (2012). Do Managers Extract Economically Significant Rents Through Tax Aggressive Transactions? *Working Paper, Oklahoma State University*.

Brickley, J. A. (2003). Empirical research on CEO turnover and firm-performance: a discussion. *Journal of Accounting and Economics*, *36*(1-3), 227-233.

Burg, V., Pierk, J., & Scheinert, T. (2014). Big Bath Accounting and CEO Overconfidence. *SSRN Electronic Journal*.

Chan, W. (1996). External Recruitment versus Internal Promotion. *Journal of Labor Economics*, *14*(4), 555-570.

Cheng, C. S., Huang, H. H., Li, Y., & Stanfield, J. (2012). The Effect of Hedge Fund Activism on Corporate Tax Avoidance. *The Accounting Review*, *87*(5), 1493-1526.

Chen, K., & Chu, C. Y. (2005). Internal control versus external manipulation: a model of corporate income tax evasion. *RAND Journal of Economics*, *36*(1), 151-164.

Christensen, D. M., Dhaliwal, D. S., Boivie, S., & Graffin, S. D. (2014). Top management conservatism and corporate risk strategies: Evidence from managers' personal political orientation and corporate tax avoidance. *Strategic Management Journal*, *36*(12), 1918-1938.

Chyz, J., & Gaertner, F. B. (2016). Can Paying 'Too Much' Tax Contribute to Forced CEO Turnover? *SSRN Electronic Journal*.

Copeland, R. M., & Moore, M. L. (1972). The financial bath: Is it common? *MSU Business Topics*, 63-69.

Crocker, K. J., & Slemrod, J. (2005). Corporate tax evasion with agency costs. *Journal of Public Economics*, *89*(9-10), 1593-1610.

Dalton, D. R., & Kesner, I. F. (1985). ORGANIZATIONAL PERFORMANCE AS AN ANTECEDENT OF INSIDE/OUTSIDE CHIEF EXECUTIVE SUCCESSION: AN EMPIRICAL ASSESSMENT. *Academy of Management Journal*, *28*(4), 749-762.

Demerjian PR, Lev B, Lewis MF, McVay SE (2013) Managerial ability and earnings quality. Accounting Rev. 88(2):463–498.

Denis, D. J., & Denis, D. K. (1995). Performance Changes Following Top Management Dismissals. *The Journal of Finance*, *50*(4), 1029.

Desai, M. A., & Dharmapala, D. (2006). Corporate tax avoidance and high-powered incentives. *Journal of Financial Economics*, *79*(1), 145-179.

Desai, M. A., & Dharmapala, D. (2009). Earnings Management, Corporate Tax Shelters, and Book-Tax Alignment. *National Tax Journal*, *62*(1), 169-186.

Desai, M., Dyck, A., & Zingales, L. (2007). Theft and taxes. *Journal of Financial Economics*, *84*(3), 591-623.

Du, C., & Lin, T. (2011). CEO Turnover, Equity-Based Compensation and Firms Investment Decisions. *Journal of Business & Economics Research*, *9*(8), 19.

Dyreng, S. D., Hanlon, M., & Maydew, E. L. (2008). Long-Run Corporate Tax Avoidance. *The Accounting Review*, *83*(1), 61-82.

Dyreng, S. D., Hanlon, M., & Maydew, E. L. (2010). The Effects of Executives on Corporate Tax Avoidance. *The Accounting Review*, *85*(4), 1163-1189.

Elliott, J. A., & Shaw, W. H. (1988). Write-Offs As Accounting Procedures to Manage Perceptions. *Journal of Accounting Research*, *26*, 91.

Fee, C. E., Hadlock, C. J., & Pierce, J. R. (2013). Managers with and without Style: Evidence Using Exogenous Variation. *Review of Financial Studies*, *26*(3), 567-601.

Frank, M. M., Lynch, L. J., & Rego, S. O. (2009). Tax Reporting Aggressiveness and Its Relation to Aggressive Financial Reporting. *The Accounting Review*, *84*(2), 467-496.

Gaertner, F. B. (2014). CEO After-Tax Compensation Incentives and Corporate Tax Avoidance. *Contemporary Accounting Research*, *31*(4), 1077-1102.

Gallemore, J., Maydew, E. L., & Thornock, J. R. (2014). The Reputational Costs of Tax Avoidance. *Contemporary Accounting Research*, *31*(4), 1103-1133.

Godfrey, J., Mather, P., & Ramsay, A. (2003). Earnings and Impression Management in Financial Reports: The Case of CEO Changes. *Abacus*, *39*(1), 95-123.

Graetz, M. J. (2002). 100 Million Unnecessary Returns: A Fresh Start for the U.S. Tax System. *The Yale Law Journal*, *112*(2), 261.

Gupta, S., & Newberry, K. (1997). Determinants of the variability in corporate effective tax rates: Evidence from longitudinal data. *Journal of Accounting and Public Policy*, *16*(1), 1-34.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2016). *Multivariate data analysis* (6th ed.). New Jersey: PrenticeHall International Inc.

Hambrick, D. C., & Mason, P. A. (1984). Upper Echelons: The Organization as a Reflection of Its Top Managers. *Academy of Management Review*, *9*(2), 193-206.

Hanlon, M. (2005). The Persistence and Pricing of Earnings, Accruals, and Cash Flows When Firms Have Large Book-Tax Differences. *The Accounting Review*, *80*(1), 137-166.

Hanlon, M., & Heitzman, S. (2010). A review of tax research. *Journal of Accounting and Economics*, *50*(2), 127-178.

Hanlon, M., Maydew, E.L. and Saavedra, D. (2013), "Tax risk and corporate cash holdings", working paper, July 11, available at SSRN: http://ssrn.com/abstract=2292020

Hazarika, S., Karpoff, J. M., & Nahata, R. (2012). Internal corporate governance, CEO turnover, and earnings management. *Journal of Financial Economics*, *104*(1), 44-69.

Huson, M. R., Malatesta, P. H., & Parrino, R. (2004). Managerial succession and firm performance. *Journal of Financial Economics*, *74*(2), 237-275.

Itoh, K. (2007). Corporate Valuation. *Nihon Keizai Shimbun-sha*.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305-360.

Jenter, D., & Kanaan, F. (2015). CEO Turnover and Relative Performance Evaluation. *The Journal of Finance*, *70*(5), 2155-2184.

Khan, M., Srinivasan, S., & Tan, L. (2017). Institutional Ownership and Corporate Tax Avoidance: New Evidence. *The Accounting Review*, *92*(2), 101-122.

Koester, A., Shevlin, T., & Wangerin, D. (2017). The Role of Managerial Ability in Corporate Tax Avoidance. *Management Science*, *63*(10), 3285-3310.

McGill, G. A., & Outslay, E. (2004). Lost in Translation: Detecting Tax Shelter Activity in Financial Statements. *National Tax Journal*, *57*(3), 739-756.

Mills, L. F. (1998). Book-Tax Differences and Internal Revenue Service Adjustments. *Journal of Accounting Research*, *36*(2), 343.

Minnick, K., & Noga, T. (2010). Do corporate governance characteristics influence tax management? *Journal of Corporate Finance*, *16*(5), 703-718.

Murphy, K. J., & Zimmerman, J. L. (1993). Financial performance surrounding CEO turnover. *Journal of Accounting and Economics*, *16*(1-3), 273-315.

Newman, H. A. (1989). Selection of short-term accounting-based bonus plans. *Accounting Review*, 758-772.

Olsen, K. J., & Stekelberg, J. (2016). CEO Narcissism and Corporate Tax Sheltering. *The Journal of the American Taxation Association*, *38*(1), 1-22.

Phillips, J., Pincus, M., & Rego, S. O. (2003). Earnings Management: New Evidence Based on Deferred Tax Expense. *The Accounting Review*, *78*(2), 491-521.

Pourciau, S. (1993). Earnings management and nonroutine executive changes. *Journal of Accounting and Economics*, *16*(1-3), 317-336.

Rego, S. O. (2003). Tax-Avoidance Activities of U.S. Multinational Corporations. *Contemporary Accounting Research*, *20*(4), 805-833.

Richardson, G., & Lanis, R. (2007). Determinants of the variability in corporate effective tax rates and tax reform: Evidence from Australia. *Journal of Accounting and Public Policy*, *26*(6), 689-704.

Schilit, H. O. (2002). *FINANCIAL SHENANIGANS: How to detect accounting gimmicks & fraud in financial reports*. S.l.: MCGRAW-HILL EDUCATION.

Scott, W. R. (2009). *Financial Accounting Theory*. Toronto: Pearson.

Slemrod, J. (2004). The Economics of Corporate Tax Selfishness. *National Tax Journal*, *57*(4), 877-899.

"State aid: Ireland gave illegal tax benefits to Apple worth up to €13 billion." *European Commission - PRESS RELEASES* Feb. 2017.

Torres-Reyna, O. (2007, December). Linear Regression using Stata (v.6.3).Retrieved October 14, 2017, from https://www.princeton.edu/~otorres/Regression101.pdf

Wallace, J. S. (1997). Adopting residual income-based compensation plans: Do you get what you pay for? *Journal of Accounting and Economics*, *24*(3), 275-300.

Wang, L. (2015). Tax enforcement, corporate tax aggressiveness, and cash holdings. *China Finance Review International*, *5*(4), 339-370.

Weisbach, D. A. (2003). Corporate Tax Avoidance. *In Proceedings. Annual Conference on Taxation and Minutes of the Annual Meeting of the National Tax Association*, *96*, 9-16. National Tax Association.