

# **The Relation between Earnings Quality and Hedging with Derivatives and the Determinants of Hedge Accounting**

## **Master Thesis**

**Name: Erden ÖNEN**

**Student Number: 429044**

Master in Accounting, Auditing & Control

Specialization: Accounting & Auditing

Erasmus School of Economics

**Thesis Supervisor: Dr. M.H.R. (Michael) ERKENS**

**ABSTRACT:** This paper investigates the relation between derivatives for hedging purposes and earnings volatility. In addition, it examines if hedge accounting is beneficial to mitigate earnings volatility and what are the determinants of hedge accounting. This thesis also investigates the relation between discretionary accruals and derivatives for hedging purposes including the effects of hedge accounting method on the discretionary accruals. The findings show that derivative instruments increase the earnings volatility. On the other hand, hedge accounting has no significant mitigating effect on earnings volatility. The results provide evidence that firms with higher leverage and growth rate are reluctant to prefer hedge accounting. However, as the absolute value of derivatives and asset size increases, the likelihood of employing hedge accounting goes up. Results also indicate that GDP per capita of the countries in where headquarter of companies are located is also an important determinant of hedge accounting. Finally, the results illustrate that there is no relation between discretionary accruals and derivatives.

**Keywords:** Earnings Quality, Risk Management, Earnings Volatility, Derivatives, Hedging, Hedge Accounting and Discretionary Accruals.

**TABLE OF CONTENTS**

- 1. INTRODUCTION:.....1
- 2. THEORETICAL BACKGROUND AND LITERATURE REVIEW: .....6
  - 2.1 Theoretical Background: .....6
    - 2.1.1 Risk Management and Derivatives: .....6
    - 2.1.2 Hedge Accounting: .....13
    - 2.1.3. Earnings Management: .....15
  - 2.2. Literature Review: .....21
    - 2.2.1. Relation between Derivatives and Earnings Management: .....21
    - 2.2.2. Determinants of Hedge Accounting:.....24
- 3. HYPOTHESIS DEVELOPMENT:.....26
- 4. RESEARCH DESIGN: .....31
  - 4.1. Sample and Data Collection: .....31
  - 4.2. Empirical Model and Variables: .....32
- 5. EMPIRICAL RESULTS AND ANALYSIS: .....37
- 6. CONCLUSIONS:.....42
- 7. REFERENCES:.....45

## **1. INTRODUCTION:**

This thesis investigates if hedging with derivatives and hedge accounting affect earnings quality. In more detail, this thesis accepts earnings smoothness as a proxy for earnings quality and investigates how the earnings quality is affected by the changes of derivatives in the financial statements and if hedge accounting is an effective tool to mitigate the volatility. Secondly, since hedge accounting is not a mandatory practice, this thesis also examines which factors are important for applying hedge accounting for non-financial companies.

After earnings were empirically shown to be important for investors' decisions, earnings quality has been considered as one of the main issues for the accounting profession. Higher quality earnings provide reliable information about the firm's financial performance for decision-makers and times series properties of earnings such as persistence, predictability and variability play a vital role in determining the earnings quality (Schipper & Vincent 2003; Dechow et al. 2010). In particular, smooth earnings create a positive impact on the decisions made by financial statements users (Schipper & Vincent 2003). Therefore, it is a common assumption in accounting and finance literature that corporate managers have incentives to smooth earnings in the presence of market imperfections such as taxes, distress costs, or information asymmetry (Choi & Upadhyay 2015).

Accruals mainly draw the attention of researchers in the earnings quality literature. Accruals and cash flow are the components of earnings and earnings quality can be measured by the extent to how accruals map into the future operating cash flow realization (Dechow & Dichev; 2002). The main concept of accruals basis accounting is that revenues are recorded when they are earned opposed to expenses which are recorded when the expense occurs. As a consequence of this concept, managers make some predictions about future cash flows and most earnings quality constructs were derived from relation among income, cash flows and predicted accruals (Schipper & Vincent 2003). The ratio of cash from operations to income, changes in total accruals, the level and accuracy of discretionary accruals, the persistent relation between accruals and cash flows are crucial indicators for earning quality. Hence, most of the researchers have

focused on detecting discretionary accruals and tried to explain the reasons and results of managerial discretions. The results of the prior studies explicitly illustrate that discretionary accruals are the main tools for managing the earnings in accordance with the managers' targets. (Healy 1985; Guidry et al. 1999; Holthausen et al. 1995; Bannister & Newman 1996)

Although discretionary accruals are in the spotlight about earnings management, survey studies illustrate that the vast majority of managers focus on earnings volatility while they are making decisions about derivatives for hedging (Berkman et al., 1997, Alkebäck et al. 2003, Bartram et al., 2009). However, there is no unambiguous conclusion about how hedging implementations and valuation of derivatives affect earnings or accrual management despite the wide-ranging employment of derivatives as risk management instruments. Barton (2001) and Pincus & Rajgopal (2002) find evidence that derivatives are used as a substitute tool for discretionary accruals in smoothing earnings. More recently, Choi & Upadhyay (2015) concludes that derivative hedging and discretionary accruals have a complementary relation in the post-FAS 133 period. Beneda (2013) finds evidence of a strong association between low earnings volatility and derivative instruments usage for hedging. Contrary to studies claiming that derivatives are used to smooth earnings, practitioners and researchers focusing on fair value measurement of derivatives criticize derivatives for being prone to manipulations and making an adverse contribution to the artificial volatility of net income (Gebhardt 2012; Dechow et al. 2010). These arguments about the effects of derivatives on earnings volatility and the interaction with discretionary accruals underpin the motivation of this thesis.

As the volatility arising from derivatives usage is undesirable for companies, hedge accounting was introduced to provide a remedy for the problem. Hedge accounting requires an effectiveness criterion for recognizing the changes in fair value of hedging instruments in profit and loss. Therefore it is expected to mitigate earnings volatility caused by fair value accounting for financial instruments (Francis 1990). Hughen (2010) also claims that hedge accounting is beneficial because it allows the user to avoid the increase in earnings volatility arising from fair value accounting. Contrary to derivatives not designated for hedge accounting, hedge accounting provides offset gain or losses since the only ineffective portion is reported in earnings. (Hughen, 2010) IAS 39 which is regulating the hedge accounting standards mandates that the hedging relationship should be 'highly effective' and effectiveness should be assessed throughout the duration of the hedge (Glaum & Klöcker 2011). IAS 39 describes highly effective hedging as the offset in the range of 80-125 percent and firms must perform prospective and retrospective

effectiveness test to measure offset in order to employ hedge accounting (Deloitte 2012). If any test results are ineffective, hedge accounting must be terminated from the date on which effectiveness was last proved (Glaum & Klöcker 2011). In this case, IAS 39 mandates that gain or loss which are previously recognized in other comprehensive income should be transferred to income statement immediately (IAS 2011). Hence, it can be interpreted that volatility of earnings are highly dependent on the reliability of effectiveness tests. As a consequence, this thesis investigates if hedge accounting is a useful or an adequate method for reducing the volatility stemming from the usage of derivatives. Besides, to my knowledge, there is no previous research on how hedge accounting method influences the decision about discretionary accruals. Therefore, this thesis also focuses on the relation between hedge accounting method and discretionary accruals.

This thesis also examines the determinants of applying hedge accounting. Since hedge accounting is not an obligation and firms have an option for employing hedge accounting, managers make choices regarding their expectations about the value of hedging item and risk management strategies. According to the research investigating determinants of hedge accounting in Swiss and German non-financial companies, although more than 90% of the entities in the sample manage financial risks with derivative financial instruments, only 72% of the entities apply hedge accounting (Glaum & Klöcker 2011). They conclude that larger, frequent derivative user and experienced firms are more likely to apply hedge accounting (Glaum & Klöcker 2011). Pirchegger (2006) develops a model revealing that the relation between duration of risk exposure and compensation is important for hedge accounting preferences. On the other hand, some firms do not prefer hedge accounting to avoid bearing costs due to the extra documentation requirement (Glaum & Klöcker 2011). Besides, growing companies would prefer to invest directly in business growth rather than allocating their resources on accounting systems and accounting experts to implement hedge accounting (Glaum & Klöcker 2011). According to DeMarzo & Duffie (1995), risk-averse managers may be reluctant to apply hedging in order to avoid the increased transparency since hedge accounting requires more detailed documentation and reporting. Based on the determinants investigated in prior literature, this thesis investigates how firm-level determinants such as debt ratio, growth rate, asset size, the amount of derivatives affect the determinants of applying hedge accounting. In addition to prior studies, this thesis also focuses on how GDP per capita as a country level factor alters the decision of employing hedge accounting.

The sample used in this thesis is randomly selected from non-financial companies listed in the EuroStoxx 600 index which is representing the largest 600 companies in Eastern and Western Europe. For an ultimate sample of 86 companies operating in various industries, reporting under IFRS between 2008 and 2009, the data for fair values of derivatives are hand collected from annual reports. Additional archival company data on earnings volatility, discretionary accruals and control variables are obtained from Compustat Global (non-U.S. firms). In order to test country level determinant for hedge accounting, a ranking list which is based on GDP per capita is generated and the data are obtained from the World Bank database.

The results provide evidence about the effects of derivatives usage for hedging purposes on earnings volatility. The findings show that as firms hold more derivative instruments on the balance sheet, the earnings volatility also increases for the same firms. However, the results are not statistically significant to reinforce the relation between hedge accounting and earning volatility. In terms of discretionary accruals, the results are not statistically significant to identify an unambiguous relation between the amount of derivatives on the balance sheet and the discretionary accruals. In addition, I do not find that employing hedge accounting have an impact on discretionary accruals.

Regarding the determinants of hedge accounting, findings of this thesis provide a significant contribution to understanding how companies make a decision about applying hedge accounting. The results show that the likelihood of using hedge accounting increases when the absolute fair value of derivatives on the balance sheet and asset size surge. On the other hand, firms with a higher level of leverage and growth rates are more reluctant to apply hedge accounting. Finally, I find evidence that the firms with headquarters located in the countries with a lower level of GDP per capita are more likely to apply hedge accounting.

Since the determinants of hedge accounting are not comprehensively explained in the literature, this thesis makes a contribution by enlightening the both firm level and country-level determinants of hedge accounting. In particular, despite the fact that all firms are international and based in European countries, the results demonstrate that “negligible” differences in GDP per capita play a vital role in hedge accounting preference. Secondly, the findings corroborate the theories that derivatives for hedging purposes have a detrimental impact on earnings volatility. Also, prior research were mainly conducted by using data about the companies in the

US and the sample in this thesis provide an international evidence for the comparison of the results.

This study is relevant because there have been several amendments to standards about financial instruments after the financial crisis in 2008 to make standards plainer and more convenient. Firstly, The International Accounting Standards Board (IASB) has published versions of IFRS 9 that introduced new measurement and classification requirements in 2009 and 2010 (IASB 2016). Secondly, a new hedge accounting model was introduced in 2013. Finally, IASB completed the final element of amendments with the publication of IFRS 9 Financial Instruments in July 2014 (IASB 2016). However, IFRS 9 will be effective for annual periods beginning on or after 1 January 2018 (IASB 2016). Examining whether derivatives are being used to achieve smooth earnings and understanding the determinants of hedge accounting is relevant to standard settlers who are occasionally claimed to fall behind reacting to developments in financial markets. In addition, the results of this thesis may also provide insights into the impacts of hedge activities on earnings quality which is beneficial for investors to get accurate information about financial statements.

This thesis is organized as follows: Next chapter describes the theory about risk management, derivatives, hedge accounting and earnings management. Furthermore, it describes the prior literature about the relation between derivatives and earnings management and ultimately it ends with the determinants of hedge accounting. Chapter 3 explains the developed hypotheses development for the thesis. Chapter 4 describes sample selection, research design and measurement techniques. The empirical results are reported in Chapter 5 and conclusions are presented in Chapter 6.

## **2. THEORETICAL BACKGROUND AND LITERATURE REVIEW:**

### **2.1 Theoretical Background:**

#### **2.1.1 Risk Management and Derivatives:**

Risk can be described in different ways, but the common explanation is uncertainty about meeting goals or the potential loss and incomplete control over the outcomes of decisions (Malz, 2011). Risk management is the effort to identify these uncertainties in order to make better choices to achieve goals and meet them more effectively (Malz 2011). Risk management is such a broad area that it has been studied by many disciplines such as engineering, public security, the military, public health and finance (Malz 2011). Despite the diversity of disciplines which are interested in managing the risk, the questions to find the answers are quite similar (Malz 2011). The main issues can be summarized as following: Which events cause most harm? Which event is the most probable one? What is the cost of mitigating the different types of risks? (Malz 2011)

Specifically, corporate risk management tries to find solutions about the questions above by using different methods and strategies to prevent any decline in the firm value or to benefit from the advantages of making an appropriate decision about risks. Gastineau et al. (2001) define corporate risk management as a process of assessing and modifying trade-offs between reward and risks. Since there is a common belief that higher expected returns are accompanied by a greater level of risks, the effectiveness of risk management depends on the results of decisions about the trade-offs (Gastineau et al. 2001). The risk management strategies can be categorized in terms of whether the trade-offs are done for the purpose of arbitrage, speculation, or hedging (Gastineau et al. 2001).

Shleifer & Vishny (1997 p.35) defines arbitrage as “the simultaneous purchase and sale of the same or essentially similar asset in two different markets for advantageously different price”. Imperfect market conditions give rise to arbitrage as the core of the transaction is benefiting value differences in various markets. Theoretically, arbitrage does not contain any risk; thus, the logic behind arbitrage strategies is to seize the opportunity to make gains by taking no risk (Shleifer & Vishny 1997). However, in practice, arbitrage trades are not entirely risk-free transactions due to the requirement of a certain amount of capital and presence of settlement



risks; therefore, arbitrage is likely to be ineffectual for short term or low amount of transactions (Shleifer & Vishny 1997).

Contrary to the popular belief that risk management aims reduction of the risk, some firms tend to prefer an intentional enhancement in the level of risk to make an extra gain. At this point, speculation is the second strategy for corporate risk management. Speculation is an action to increase expected reward while raising the degree of uncertainty about achieving that outcome at the same time (Gastineau et al. 2001). It is unlikely that corporations use the term “speculation” for their risk management strategies although risk taking activities can be evaluated as reasonable (Gastineau et al. 2001). However, a firm applying to speculate should assess the reward–risk trade-off carefully (Gastineau et al. 2001). The perceived core competencies and advantages should be taken into account because shareholders surely want the firm to bear certain business risks, but they do not want the firm to speculate in markets where the company has no access to information or competitive advantage about transaction costs (Gastineau et al. 2001).

Hedging is the last strategy for corporate risk management. It means the actions that are taken to reduce the risk and it is the broadest and the most widely used strategy in risk management (Gastineau et al. 2001). Hedging is such a common risk management strategy that the terms “hedging” and “risk management” are used somewhat interchangeably in the existing literature (Barnes 2001). In order to hedge the risk, firms employ different instruments and techniques in accordance with their targets and structures. The hedging techniques can be split into two broad categories namely operational hedging and financial hedging. Operational hedging techniques represent diversification of the markets in which the firm is operating, the region in which the firm is located and geographic distribution of subsidiaries across markets and regions (Allayannis et al. 2001). On the other hand, financial hedging means applying financial strategies to manage the risk exposures stemming from market imperfections (Moles, 2013). According to Modigliani & Miller (1958), hedging strategies about risks are not required in perfect market conditions. However, in the real financial market conditions, firms face a variety of imperfections that can make volatility costly (Guay & Kothari 2003). These imperfections underpin the incentives of risk management and base on comprehensive literature about risk management theory. The incentives behind hedging can be summarized as tax incentives, financial distress costs, managerial incentives and information asymmetry.

Tax incentives: In one of the first studies explaining determinants of hedging, Smith & Stulz (1985) argue that since the corporate tax liability function is convexly shaped, firms can decrease the expected corporate tax liability and increase expected the post-tax value of the firm under the low hedging costs conditions. In subsequent research, Nance et al. (1993) also find the evidence that firms with more convex tax schedule apply hedge intensively and firms using hedge instruments have significantly more tax credit.

Financial Distress Costs: Hedging can be considered as a safeguard to mitigate bankruptcy probability in financial distress condition. Smith & Stulz (1985) explain this aspect of hedging by arguing that firms dealing with financial distress can encounter the problem by reducing the variance of the firm value with hedging strategies. By mitigating the volatility of cash flows, hedging also lowers the probability of bankruptcy cost which leads to a benefit for shareholders. Therefore, hedging provides an increase in the borrowing capacity which is an important indicator for companies to tackle financial problems. Decreasing bankruptcy probability helps firms increase the debt capacity and allows them to get a necessary loan at lower costs. (Geczy et al. 1997)

Managerial Incentives: In order to motivate managers, the managerial compensation contract must be based on the value of the firm which leads to an increase in managers' expected utility. Managers' expected utility depends on the distribution of the firm's payoffs and hedging causes changes in the managers' expected utility by affecting the firms' payoffs. Smith et al. (1985) and Stulz (1984) also assume that as managers maximize their expected lifetime utility and their income is an increasing function of the changes in the value of the firm, they tend to pursue active hedging policy.

Information Asymmetry: As a widely known issue, information asymmetry is believed to be a major incentive for using hedging strategies. DeMarzo & Duffie (1995) claim that hedging has a positive impact on reducing the amount of "noise" and increasing the informational content in the firm's profits. According to Breeden & Viswanathan (2008), superior managers are more likely to hedge uncertainties to ensure shareholders about their abilities.

Firms try to hedge their financial risks by using different techniques and instruments. Based on the firms' structures and preferences, firms tend to adjust the financial positions or employ derivative instruments. Firstly, by diversifying their investment and financing choices,

firms try to avoid risky events or mitigate the harm of results. A firm can also manage the financial risk by adjusting its assets and liabilities to decrease the exposure to movements in financial prices (Nance et al. 1993). For instance, using convertible debt or preferred stock rather than straight debt instruments tends to reduce the sensitivity of equity value to firm value changes or the probability of financial stress (Nance et al. 1993). The key feature is that diversifying financial position happens naturally in the course of making the routine investment or finance decisions and it often appears without any noticeable comment in the financial statements (Gastineau et al. 2001).

Secondly, one of the oldest methods of hedging the risk is insurance. Insurance contracts are often purchased by corporations to mitigate the risk (Mayers & Smith 1982). Insurance preferences can be evaluated as another part of financing decision (Mayers & Smith 1982). The purchase of insurance contract not only helps corporates to guarantee a particular set of real investment decisions but also leads to assurance for firms by being included in other corporate agreements such as subcontracting or bond contracts (Mayers & Smith 1982).

Derivatives are one of the most common instruments for financial risk management. According to the definition in paragraph 9 of IAS 39, “derivative is a future date settled financial instrument or other contract that its value changes in response to the change in a specified interest rate, financial instrument price, commodity price, foreign exchange rate, index of prices or rates, credit rating or credit index, or other variable, provided in the case of a non-financial variable that the variable is not specific to a party to the contract” (IFRS 2014). Another common and straightforward definition of derivative is “specific types of instruments that derive their value over time from the performance of underlying assets such as equities, bonds, commodities” (NAPF 2013). The types of derivatives are broadly classified as over-the-counter (OTC) products which are unstandardized and not traded on organized exchange markets and exchange-traded products (Berkman et al. 1997). By using derivatives, companies are generally trying to minimize the risk exposures stemming from fluctuations in foreign exchange rates, interest rates and commodity prices. These instruments provide flexibility in developing a customized risk management strategy for the firms (Smith C. W. 1998).

The usage of derivatives for hedging purposes also depends on firm level factors. Berkman et al. (1997) state that leverage, size, the existence of tax losses and the proportions of shares held by directors increase the derivative usage while interest coverage and liquidity have

a decreasing effect on the employment of derivatives. Guaya & Kothari (2003) also find evidence that larger firms with greater investment opportunities have a higher level of derivative usage. Being more geographically diversified and higher CEO's sensitivity of wealth to stock price play a role in the increase of derivative usage in the companies (Guay & Kothari 2003). Nance et al. (1993) claim that firms using derivatives have less liquid assets and higher dividends and there is a positive relation between R&D expenditures and hedging. The cost of hedging activities is also important for derivative usage decisions. If the benefits of the hedging program exceed the costs, optimizing firms use derivatives (Guay 1999). Brown (2001) reaches a similar conclusion that internal budgeting, performance evaluation and analyst forecast error concerns significantly reduce the usage of derivatives for hedging purposes. Geczy et al. (1997) also illustrate that as the association between corporate incentives and hedging gets stronger, firms become more eager to use derivative instruments. Finally, the types of the derivatives are highly correlated with hedging expectations besides the risk exposures faced by the firm (Guay 1999). In particular, new users of derivatives have a significant tendency to take the benefits of hedging into account when they are deciding on the type of the derivatives (Guay 1999).

Regarding results of the derivatives usage in hedging, Allayannis et al. (2001) conclude that the use of foreign currency derivatives has a positive effect on the total firm value by approximately 5% on average. Graham & Rodgers (2002) find a positive relation between derivative usage and debt capacity that leads to an increase in the firm value. In the research investigating foreign currency debt and FX hedging in Asian countries, the findings support the theories about value maximization effect of derivatives (Allayannis et al. 2003). Consistent with the prior findings, Bartram et al. (2009) states that interest rates derivatives usage particularly results in higher firm values. Smith & Stulz (1985) find the decreasing effect of derivative usage on the cost of debt and Froot et al. (1993) state that the derivative usage is beneficial for mitigating underinvestment problem due to capital market imperfections.

Besides hedging objectives, derivatives are also employed for speculation purposes. Surveys investigating the incentives behind using derivative instrument show that speculative transactions of derivatives instrument are not ignorable. Approximately 90% of the derivatives users in the survey conducted by (Dolde 1993) and over 40% of the firms surveyed by the Wharton Study of Derivatives Usage (Bodnar et al. 1995) are interested in movements in financial markets when structuring their derivative portfolios. Contrary to hedging purposes,

speculative activity is not anticipated to be correlated to firms' underlying business exposures and derivative usage for the speculative purpose is expected to increase firm risk (Guay 1999). Stulz (1996) states that once a firm assumes that it has a corporative advantage in risk taking, it is more likely to exploit these advantage. Sapra (2002) claims that absence of mandatory hedging disclosure encourages firms to follow imprudent risk management and commit excessive speculation. In addition to other factors, firms with a lower level of bankruptcy risk are more inclined to speculation (Stulz 1996).

In terms of regulations and standards, there have been ongoing argument about derivative instruments during the past decades. Therefore, standard settlers have made several amendments to standards in order to regulate financial instruments. Firstly, IAS 32 was introduced to set out the definitions of financial instruments, financial assets and financial liabilities (Loftus et al. 2013). IAS 39 based on the standard in the US named Statement of Financial Accounting Standards No. 133 (SFAS 133) was subsequently developed to regulate measurement, recognition, derecognition and hedging rules for financial instruments (Loftus et al. 2013). In 2006, IFRS 7 Financial Instruments: Disclosures which contains disclosure requirements were introduced and IAS 32 was renamed as Financial Instruments: Presentation and a new standard (Loftus et al. 2013).

After the financial crisis in 2008, IAS 39 came under exponential criticism that incurred loss model about financial instruments is far behind to meet requirements about reflecting the real situation of financial instruments. Therefore, amendments to IAS 7 and IAS 39 have been implemented in order to make standards plainer and more convenient. The introduction of IFRS 9 replacing IAS 39 can be considered as one of the most noteworthy changes in the financial instruments accounting. The new standard has a package including a logical model for classification and measurement, a single, forward-looking 'expected loss' impairment model and a substantially reformed approach to hedge accounting (IFRS 2014). However IFRS 9 is expected to be effective for annual periods beginning on or after 1 January 2018.

The accounting standard IAS 39 settles the principles for recognizing and measuring financial assets, financial liabilities and mandates initial fair value measurements for derivatives as well as other financial instruments. IFRS 39 defines fair value as "the amount for which an asset could be exchanged, or liability settled, between knowledgeable, willing parties in an arm's length transaction". However, IFRS 13 amends this definition. 'Fair value' is defined in IFRS 13

as “the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date” (KMPG 2012). IFRS 13 requires that estimating the price of an asset or a liability at the measurement date under current market conditions is the primary objective of measuring fair value (IFRS 2012). IFRS 13 states that fair value is a market-based measurement, however in some cases market transactions or market information might not be available for the instruments (IFRS 2012). The standard requires a valuation technique without stipulating a specific one, thus, companies prefer a technique considering market and company specific conditions and provide investors with necessary information about valuation (IFRS 2012). In addition, IFRS 13 describes three valuation approaches named market approach, income approach and cost approach (IFRS 2012). Market approach is based on prices and other relevant information about identical or comparable assets which are generated by market transactions (IFRS 2012). Income approach basically means discounting future amounts and cost approach is referred to current replacement cost (IFRS, 2012; Ernst&Young 2011).

Due to economic crises in 1970’s and 1980’s, it was interpreted that traditional methods for measuring the financial instrument such as mixed model the lower of historical cost and market value were not sufficient owing to the volatility of exchange rates, interest rates and commodity prices (Gebhardt 2012). Thus, standard setters believed that fair value measurement is a more convenient method for representing the real values or situation financial instruments and implemented regulations about fair value measurement consecutively. However, the questions about the extent to which fair value measurements are to be used for financial instruments and whether changes in fair value of financial instruments are to be included in net income bring on some ambiguity about the fair value measurement (Gebhardt 2012).

There has been criticism over the IASB and FASB regulations about results of fair value measurement standards (Gebhardt 2012). Critics argue that more fair value measurement would contribute ‘artificial’ volatility of net income, not adequately reflect the business and have a negative impact on the comprehensibility of financial statements (Gebhardt 2012). Dechow et al. (2010) criticize fair value measurement since they found evidence that it is prone to manipulations. In the research about the measurement of securities in the banking sector, Barth (1994) finds that fair value securities gains and losses contain more measurement error than historical cost. On the other hand, some researchers believe that fair value measurement is

beneficial for financial statements users. The research conducted by Gebhardt et al. (2004) indicates that adopting the mandatory full fair value model of the financial instruments succeeds in reflecting the banking activities. Linsmeier (2011) also claims that fair value reporting may help users better understand an entity's increasing exposure to credit and interest by providing more timely and accurate valuation of assets and liabilities.

### **2.1.2 Hedge Accounting:**

In a hedging transaction, changes in the value of the hedged item will be compensated by reciprocal changes in the hedging instrument and these two transactions have to be measured on an item-by-item basis under general accounting principles (Glaum & Klöcker 2011). However, implementing general accounting principles results in "accounting mismatches" as hedging instruments and hedged items are generally recognized different periods. (Glaum & Klöcker 2011). In order to deal with this problem, IAS 39 provides fair value and cash flow hedge accounting methods as exceptions to the general accounting rules (Glaum & Klöcker 2011). Cash flow hedge accounting enables to defer the recognition of value changes of the hedging instrument in profit or loss to a later point in time when the corresponding value changes of the hedged item affect earnings (Glaum & Klöcker 2011).

Contrary to derivatives not designated for hedge accounting, IAS 39 requires an effectiveness criterion for cash flow hedging about recognizing gain or loss. The effective part of the gain or loss in the fair value of the hedging instrument are recognized in other comprehensive income (IAS 2011). On the contrary, the ineffective portion of gain and losses in the fair value of hedging instrument are presented in the income statement (IAS 2011). IAS 39 also defines discontinuity conditions about cash flow hedge accounting. Provided that the hedging instrument expires or is sold, terminated or exercised, the hedge does not meet the criteria for hedge accounting and the entity changes the designation, the entity shall discontinue the hedge accounting and the cumulative gain or loss which are previously recognized in other comprehensive income should be transferred to income statement immediately (IAS 2011). On the other hand, all changes in the fair value of hedging instrument are recognized in the income statement in a fair value hedge (IAS 2011). The gain or loss from remeasuring the hedged instrument and the gain or loss on the hedged item attributable to the hedged are recognized in the income statement (IAS, 2011).

IAS 39 explicitly sets conditions to apply hedge accounting: (1) at the inception of the hedge formal designation and documentation of the hedging relationship and the entity's risk management objective and strategy for undertaking the hedge; (2) the hedge is expected to be highly effective in achieving offsetting changes in fair value or cash flows attributable to the hedged risk, consistently with the originally documented risk management strategy for that particular hedging relationship; (3) a forecast transaction that is the subject of the hedge must be highly probable and must present an exposure to variations in cash flows that could ultimately affect profit or loss; (4) the effectiveness of the hedge can be reliably measured, ie the fair value or cash flows of the hedged item that are attributable to the hedged risk and the fair value of the hedging instrument can be reliably measured; (5) the hedge is assessed on an ongoing basis and must be determined actually to have been highly effective throughout the financial reporting periods for which the hedge was designated (IAS 2011). These conditions also mean that application of hedge accounting rules can be regarded as an option rather than an obligation and companies can easily prevent qualifying for hedge accounting by not documenting the hedging transaction (Pirchegger 2006).

There are some arguments about advantages and disadvantages of hedge accounting. Hedge accounting can be considered as a more appropriate method to reflect the results of hedging activities (PWC, 2005). The primary objective of hedge accounting is to make financial statements more reflective about entity's risk management activities in which financial instruments are mainly used to mitigate market risk exposures affecting incomes (PWC 2005). The most significant advantage is that hedge accounting has a positive impact on earnings volatility since it enables the earnings effects of the hedging instrument and the hedged item to be recognized in the same periods and the same proportion (Ryan et al. 2002). Francis (1990) also suggests that applying hedge accounting mitigates earnings volatility caused by fair value accounting for financial instruments. Hughen (2010) claims that hedge accounting is beneficial because it allows the user to avoid the increase in earnings volatility related to fair value accounting. Contrary to derivatives not designated for hedge accounting, hedge accounting provides offset gain or losses since the only ineffective portion is reported in earnings (Hughen 2010). However, hedge accounting is not an obligation and companies make choices regarding their expectations about the value of hedging item and their risk management strategies. Thus,



this option about the accounting of derivatives also provides an opportunity for managers to adjust their derivative usage decisions.

On the other hand, except for cash flow hedge, hedge accounting is claimed to aggravate the comparison of unhedged and hedged exposures since recording deferred gain/losses as an offsetting gain/losses approximates hedging exposures and losses/gains to fair values of the hedged item (Ryan et al. 2002). The second disadvantage is recording results other than net income has a negative impact on the explanatory power of financial incomes about performance (Ryan et al. 2002). Finally, discretionary decision about effectiveness for recognizing gain or loss may cause earnings management (Ryan et al. 2002).

Hedge accounting is mainly criticized for being complex, rule-based and inadequate to reflect the risk management activities properly (BDO 2014). In addition, since hedge effectiveness is regarded as “artificial” that fails to represent the entity’s risk management activities, it is believed to cause profit loss volatility (BDO 2014). In order to mitigate the criticism, IASB introduced general hedge accounting and macro hedge accounting model projects (BDO 2014). Both projects aim to establish objective based approach to hedge accounting and alignment between hedge accounting and risk management although entities are still required to calculate hedge effectiveness and recognize any ineffectiveness in profit loss (Deloitte 2016; BDO 2014). General hedge accounting model was issued in November 2013 but macro hedge accounting model is still an ongoing project.

### **2.1.3. Earnings Management:**

Managers use their judgment to estimate future economic events and make choices among acceptable accounting methods. Their decisions on the structure of the corporate transactions are crucial for the prospective economic situation of the company (Healy & Wahlen 1999). Earnings are considered as the main indicator of the financial situation of the company and managers take earnings into account when they are developing strategies. However, information about earnings should be reliable for investors to evaluate the firms’ financial situation fairly. It is widely believed that reliable information about earnings is significantly associated with earnings quality. Dechow et al. (2010 p.344) describe earnings quality as “Higher quality earnings provide more information about the features of a firm’s financial performance

that are relevant to a specific decision made by a specific decision-maker". For identifying the degree of earnings quality, there are constructs and measures which are developed regarding accounting research, accounting standards and the assumption that high-quality earnings faithfully represent Hicksian income which is the maximum amount to be consumed in the period while keeping real wealth unchanged (Schipper & Vincent 2003; Hicks 1939)

Schipper & Vincent (2003) consider earnings quality constructs derived from (1) the time-series properties of earnings; (2) selected qualitative characteristics in the FASB's Conceptual Framework; (3) the relations among income, cash, and accruals; and (4) implementation decisions. Time series properties of earnings consist of persistence, predictability and variability of earnings. Persistent earnings numbers are considered highly correlated with sustainability which is desirable for investors when they are making investment decisions. It is believed that more permanent and less transitory series of earnings are a more readily usable shortcut to valuation (Schipper & Vincent 2003). Predictability is viewed as an indicator of earnings quality and predictive ability is related to decision usefulness and idiosyncratic to a given user's particular prediction process and goal (Schipper & Vincent 2003).

This thesis particularly focuses on the variability of earnings among the time-series properties of earnings. Although Dichev et al. (2013) argue that there not be a clear conclusion about whether smoothness is a good proxy for earnings quality, Schipper & Vincent (2003) believes that testing if management has engaged in smoothing practices is beneficial for earnings quality. In addition, Subramanyam (1996) finds that pervasive income smoothing leads to improvement in the persistence and predictability of reported earnings. By investigating how smoothing incomes affect informativeness of firms' earnings, Tucker & Zarowin (2006) find that the change of stock price of higher smoothing firms contains more information than the change in stock prices for lower smoothing firms. Thus, they conclude that stock prices provide more information about future earnings when firms have smooth reported income (Tucker & Zarowin, 2006).

Several studies examine the evidence of artificial earnings smoothing and explaining managers' incentives to smooth earnings. By calculating the median ratio of the firm-level standard deviations of operating earnings divided by the firm-level standard deviation of cash flow from operations, Leuz et al. (2003) conclude that insiders exercise accounting discretion to smooth reported earnings. Beidleman (1973) claims that firms employ certain devices to deal

with short- run movements in earnings that deviate from their time trend. Francis et al. (2004) argue that smoothness is a desirable earnings attribute since the view that managers use their private information about future income to cope with transitory fluctuations, therefore, more representative and more useful reported earnings number is achieved. Moses (1987) provides evidence that smoothing is related to firm size, bonus compensation plans and the divergence of actual earnings from expectations. Trueman & Titman (1988) show that smoothing income helps managers to reduce the estimation about the volatility of its underlying earnings process and leads to lower the assessment of the probability of bankruptcy in the end. DeFond & Park (1997) also find evidence about the importance of future income expectations for smoothing earnings. When current earnings are relatively higher than expected future earnings, managers are more likely to decrease current year discretionary accruals. Hence the managers' choices about saving current earnings for using in the future results in income smoothing (DeFond & Park 1997)

It is widely believed that firms tend to commit earnings management regarding their short or long term targets and several academic studies are defining and examining earnings managements. Among the various definition of earnings management, Healy & Wahlen (1999) makes the most detailed definition. According to definition made by Healy & Wahlen (1999 p.368), "Earnings management occurs when managers use judgment in financial reporting and structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company to influence contractual outcomes depending on reported accounting numbers".

Although documenting earnings management is one of the vague issues in the accounting profession, researchers agree on the existence of earnings management. Identifying earnings management is not an easy task since it requires the estimation of earnings before the impact of earnings management (Healy & Wahlen 1999). Two leading research design are implemented to gauge earnings management. The first one is identifying reporting incentives and the second one is defined as measuring the effect of discretionary accruals or accounting method choices (Healy & Wahlen 1999).

The reporting incentives can be classified into three major group. 1-capital market motivations 2-contractual motivations 3- antitrust and governmental regulations (Healy & Wahlen 1999). Among these incentives, capital motivation is considered as the primary reason for earnings management in the academic research. Since the widespread usage of accounting

information by stakeholders, managers are likely to commit earnings management in order to manipulate short-term stock prices (Healy & Wahlen 1999). There are various studies about how accounting information is used to mislead investors and how earnings management affects investment decisions. DeAngelo (1988) assumes that poor earnings performance is the proof of managerial inefficiency that can cost managers and stockholders. Thus, before and during the managerial buyout process, managers understate the earnings in order to obtain shares at lower prices (DeAngelo 1988). In the paper examining the relation between the long-run post-IPO (initial public offerings) return underperformance and IPO firms' earnings management, Teoh et al. (1998) conclude that discretionary current accruals as a proxy for earnings management are high around the IPO firms relative to those of non-issuers. Dechow & Skinner (2000) claim that market participants consider whether earnings meet fairly simple benchmarks; thereby, managers appear to practice earnings management to meet these simple earnings benchmarks.

The second motivation behind earnings management is contracting motivations. Contracts written based on accounting numbers are more likely to result in earnings management since earnings considered as an important indicator of the financial situation of the company are widely used for a measurement or prerequisite in the contracts. Concerning lending contracts, there are some mixed results of research examining whether firms are in the tendency of earnings management (Healy & Wahlen 1999). Although Beatty et al. (2002) finds that borrower take accounting flexibility into account when they are making borrowing decisions, Healy & Palepu (1990) found no relation between earnings management and debt covenants. However, studies examining firms which had already violated debt covenant find evidence about earnings management. DeFond & Jiambalvo (1994) claim that some firms have higher earnings in the year before covenant violation compared to previous years. Sweeney (1994) finds that as the probability of default increases, managers of firms respond with income-increasing accounting changes and the default costs imposed by lenders and the accounting flexibility play a vital role in managers' accounting responses.

Regarding management compensation contracts, agency problem is the key concept for shedding light on how managerial compensation incentives may lead to earnings management. The agency problem stems from the contradictions in an agency relationship. In the paper investigating managerial behavior and agency cost, Jensen & Meckling (1976 p.308) define agency relationship as "a contract under which one or more persons (the principal(s)) employ

another person (the agent) to act on their behalf by delegating some responsibilities to the agent". If principal and agent are both trying to maximize their own utilities, it is more likely that the agents will not always act in accordance with the interests of the principals (Jensen & Meckling 1976). In other words, the segregation of ownership and management may result in insufficient work effort, focusing on bonuses, choosing inputs or outputs regarding their preferences instead of making decisions to maximize firm value. (Berger & di Patti 2006)

In order to monitor and evaluate the agents' performance or decisions properly, principals need the same information as agents have. If the principal has adequate information about agent's actions, the contract can be assessed as efficient (Eisenhardt 1989). However, it can be difficult or expensive for the principal to access all necessary information about what the agent is actually doing (Eisenhardt 1989). In the presence of information asymmetry, agents get the opportunity to act on his/her own interest, consequently, the problems called moral hazard and adverse selection emerge. Moral hazard problem refers to shirking or lack of effort which is supposed to be put (Eisenhardt 1989) Adverse selection means the misrepresentation of ability by the agent and results from principal's failure in failing to verify these skills at the time of hiring or while the agent is working (Eisenhardt 1989).

In the paper reviewing and critiquing positive accounting literature, Watts & Zimmerman (1990) claim bonus plan existence is related to accounting choice. Healy (1985) finds evidence that accrual policies implemented by managers are related to income-reporting incentives of their bonus contracts and accounting procedures are associated with adoption or modification of managers' bonus plan. Guidry et al. (1999) examine whether managers use discretionary accruals to maximize short term bonuses and conclude that managers in the bonus range are more likely to resort to income-increasing discretionary accruals than managers who are not in the bonus range. In particular, as bonuses reach the upper bound, manager behave more unwillingly to use positive discretionary accruals (Holthausen et al., 1995). The fact that earnings results are relatively lower than analysts' forecasts could lead to an increase in the likelihood of job termination and consequently managers use income-increasing discretionary accruals intensively (Bannister & Newman 1996).

The last incentive for earnings management is regulations. Depending on the industry, firms have to behave in accordance with several regulations. Although all industries are regulated to some extent, banking, insurance and utility industries face more regulatory monitoring about

accounting data (Healy & Wahlen 1999). There is considerable evidence about banks which are on the verge of the minimum capital requirement are more likely to overstate loan loss provision (Healy & Wahlen 1999). In addition, firms may commit earnings manipulations to benefit from governmental protections. Jones (1991) finds that some firms tend to defer income to meet the regulation about import relief. Besides, firms may be subject to antitrust regulations as the size of companies' business volume enlarges. In order to avoid prospective scrutiny or to be absolved during the investigations, firms have a tendency of using nonaggressive discretionary accruals choice. Key (1997) finds evidence that firms in cable industry deferred incomes during the Congressional scrutiny and Kahan (1992) claimed that firms under the antitrust violation investigation take additional steps to reduce their income.

The second research design for gauging earnings management is based on measuring the effect of discretionary accruals or accounting method choices and examining how they are used to manage earnings (Healy & Wahlen 1999). Accruals are defined as the difference between operating earnings and operating cash flow and discretionary accruals represent the components of accruals which are determined by managerial choices (Barton 2001). Researchers have developed various models to identify discretionary accruals accurately. One of the first models about measuring discretionary accruals was developed by Healy (1985). Healy (1985) determined average total accruals by calculating average total accruals for previous periods and assumed that all differences in average total accruals are equal to discretionary accruals. In subsequent research, DeAngelo (1986) predicted discretionary accruals by assuming that non-discretionary accruals are equal to last period accruals. Jones (1991) examines accruals by working on U.S. firms during import relief investigations and developed a model based on predicting total accruals and non-discretionary accruals. Subsequent models developed by Dechow (1995) and Dechow (2003) are generally based on Jones model and modified the Jones model including improvements. In addition, Dechow & Dichev (2002), Kothari et al. (2005) Kang & Sivaramakrishnan (1995) developed models regarding performance for predicting future cash flows.

Several studies examine the evidence of artificial earnings smoothing and explaining managers' incentives to smooth earnings. By calculating the median ratio of the firm-level standard deviations of operating earnings divided by the firm-level standard deviation of cash flow from operations, Leuz et al. (2003) concludes insiders exercise accounting discretion to

smooth reported earnings. Beidleman (1973) claims that firms employ certain devices to deal with short- run movements in earnings that deviate from their time trend. Francis et al. (2004) argue that smoothness is a desirable earnings attribute since the view that managers use their private information about future income to cope with transitory fluctuations, therefore, more representative and useful reported earnings numbers are achieved. Moses (1987) provides evidence that smoothing is related to firm size, bonus compensation plans and the divergence of actual earnings from expectations. Trueman & Titman (1988) show that smoothing income helps managers to reduce the estimation about the volatility of its underlying earnings process and leads to lower the assessment of the probability of bankruptcy in the end. DeFond & Park (1997) also find evidence about the importance of future income expectations for smoothing earnings. When current earnings are relatively higher than expected future earnings, managers are more likely to decrease current year discretionary accruals. (DeFond & Park 1997). Hence the managers' choices about saving current earnings for using in the future results in income smoothing (DeFond & Park 1997).

In order to identify managers' incentives about accounting method and disclosure choices, a survey conducted by Graham et al. (2005) also shows that an overwhelming majority of the CFOs indicate that they prefer a smooth earnings path because they believe that smoother earnings are perceived by investors to be less risky. Moreover, 78% of the surveyed executives would give up economic value in exchange for smooth earnings (Graham et al. 2005). As another survey examining income smoothing incentives, Nelson et al. (2002) finds that attempts were intended to affect income statement numbers, to smooth income and thirty-three percent (78/238) refer to smoothing or managing a trend.

## **2.2. Literature Review:**

### **2.2.1. Relation between Derivatives and Earnings Management:**

Although there is plenty of research about earnings managements or derivatives, few researchers have studied the relation between derivative usage and earnings management. In the prominent research, Barton (2001) tests how financial derivatives affect earnings management for nonfinancial Fortune 500 firms. The purpose of the study is to identify if managers use derivatives as a substitute tool for discretionary accruals in earnings management (Barton, 2001).

Using Jones (1991) accruals expectation model, Barton (2001) finds a negative and significant association between notional amounts of foreign exchange and interest rate derivatives and discretionary accruals. Barton (2001) also provides evidence showing that derivative users have significantly less volatile cash flows and total accruals as compared to non-users. In subsequent research, Pincus & Rajgopal (2002) investigate how oil and gas producing firms use abnormal accruals and derivatives to manage earnings volatility. Similar to Barton (2001) findings, they conclude that 139 oil and gas exploration and producing firms in the USA are smoothing earnings volatility by trading off abnormal accruals and commodity price derivative hedging (Pincus & Rajgopal 2002). Beneda (2013) finds results about the relation between derivatives and earnings that as the notional amount of derivatives used for hedging purposes increases, earnings volatility declines. Choi & Upadhyay (2015) examine the effects of Statement 133, Accounting for Derivative Instruments and Hedging Activities (SFAS 133), on earnings management and derivative usage for S&P 500 nonfinancial firms by employing Jones model. The settlement requires recognition of all derivatives as assets or liabilities on the balance sheet and measure those instruments at fair value (Choi & Upadhyay 2015). They find that derivatives were a substitute for discretionary accruals in the pre-FAS 133 period but there is a complementary relation between derivative hedging and discretionary accruals in the post-FAS 133 period (Choi & Upadhyay 2015). Moreover, it is claimed that mandated valuation changes have increased the earnings volatility for firms that are unable or unwilling to manage accruals to a great extent (Choi & Upadhyay 2015). Beneda (2013) finds evidence of a strong association between low earnings volatility and derivative instruments usage for hedging. The results also indicate that this relation gets stronger as the firms gain experience during the period. (Beneda 2013)

Surveys about derivative usage also provide additional insight into the relation between derivative usage and earnings volatility. Comparative studies illustrate that although common purposes such as mitigating foreign currency and interest risks are similar, companies still have different incentives and hesitations about derivatives (Bodnar & Gebhardt 1999). Moreover, surveys conducted about derivatives usage in risk management by US and German non-financial firms show that managers are also profoundly concerned with accounting numbers and use earnings and/or balance sheet accounts as objectives in risk management (Bodnar & Gebhardt 1999). In the research examining derivative usage by non-financial firms in Sweden between 1996 and 2003, Alkebäck et al. (2003) find a strong evidence showing that the primary objective of using derivatives in risk management is to minimize the volatility in accounting earnings.



Berkman et al. (1997) find similar results by conducting a survey among 79 New Zealand firms using derivatives. According to the survey results, mitigating the fluctuations in earnings is mentioned by 62% of respondents as the major objective of using derivatives (Berkman et al.1997).

According to risk management theories, as the market imperfections make the volatility costly, firms try to hedge the risks optimally (Paneretou et al. 2013). Therefore, financial hedging has a positive impact on the informativeness of corporate earnings as it is considered as an indicator of management ability (DeMarzo & Duffie 1995). However, some researchers focusing on the fair value measurement of derivatives explain the relation between derivatives and earning volatility in a negative way. Gebhardt (2012) refers critics arguing that more fair value measurement would contribute ‘artificial’ volatility of net income, would not adequately reflect the business and would have a negative impact on the comprehensibility of financial statements. Richie et al. (2006) look at a sample of US multinational companies and document an increase in earnings volatility and a decrease in earnings predictability after implementation of SFAS 133. Hughen (2010) claims that economic hedges, not qualifying for hedge accounting, reduce the volatility of economic earnings but result in an increase in the volatility of accounting earnings since changes in fair values are directly recognized in the income statement. In the research examining investors’ reaction to fair value information of financial instrument in the banking industry, Barth et al. (1995) suggest that fair value based earnings are more volatile than historical cost earnings. Chen et al. (2013) find empirical evidence that managers abstain from hedging the risk due to concerns about the positive relation between fair value measurement and earnings volatility despite substantial economic benefits of hedging.

Prior research findings about the relation between earnings volatility and hedge accounting claim that hedge accounting implementation results in smoother earnings. It is believed that the effectiveness criteria about recognizing profit or loss in income statement lead to reduce earnings volatility. Hughen (2010) finds evidence that hedge accounting mitigates the fluctuations in the earnings arising from the fair value and has an important role in less volatile earnings. Glaum & Klöcker (2011) state that “accounting mismatch” resulting from hedging transaction is reduced by cash flow and fair value hedge accounting methods, as an exception to general accounting rules. Fair value hedge accounting enables to shift income recognition of the value changes of hedge item forward in time and cash flow hedge accounting provide

compensation for value changes in a hedged item by recognizing the changes between effectiveness limits in equity (Glaum & Klöcker 2011). Beneda (2013) concludes that reported earnings become smoother as the derivative user firms become more experienced about hedge accounting during the 8 years study period.

On the other hand, contrary opinions about earnings volatility and hedge accounting mainly focus on the assessing and testing the effectiveness of hedging. IAS 39 mandates that the hedging relationship should be ‘highly effective’ and the standard describes highly effective hedging as the offset in the range of 80-125 per cent (Glaum & Klöcker 2011). Besides, firms must perform prospective and retrospective effectiveness tests to measure offset in order to employ hedge accounting (Deloitte 2012). If any test results are ineffective, hedge accounting must be terminated from the date on which effectiveness was last proved (Glaum & Klöcker 2011). In this case, IAS 39 mandates that gain or loss which are previously recognized in other comprehensive income should be transferred to income statement immediately (IAS 2011). Moreover, since hedge effectiveness is regarded as “artificial” that fails to represent the entity’s risk management activities, it is believed to cause profit loss volatility (BDO 2014). In addition, Ryan et al. (2002) claim that discretionary decision about effectiveness may cause earnings management. The logic behind this statement is that firms may have a tendency to manage the profit or loss amount arising from the change in fair value of derivatives the by adjusting the effectiveness calculation in the hedge accounting (Ryan et al. 2002).

### **2.2.2. Determinants of Hedge Accounting:**

Since the implementation of hedge accounting is not mandatory, understanding the determinants of the decision on applying hedge accounting gains importance. However, there are only few research examining hedge accounting specifically. In one of the most comprehensive research about hedge accounting, Glaum & Klöcker (2011) examine the firm level determinants of hedge accounting preference by using data about German and Swiss non-financial corporations. Their research indicates that since larger companies have relatively higher resources to hire employees about hedging activities, they are more likely to apply hedge accounting (Glaum & Klöcker 2011). Second, the companies that frequently use derivatives for hedging purposes lean to hedge accounting since they are able to amortize the cost of hedge accounting (Glaum & Klöcker 2011). Owing to complex aspects of hedge accounting, companies

having less experience with IFRS are more reluctant to use hedge accounting (Glaum & Klöcker 2011). In addition, the extra documentation increases the cost, thereby, some firms do not prefer hedge accounting to avoid bearing costs (Glaum & Klöcker 2011). They also find evidence indicating that growth companies are more reluctant to apply hedge accounting than companies in more mature markets (Glaum & Klöcker 2011). They predict that growth companies would focus on investing directly in business growth rather than allocating their resources on accounting systems and accounting experts to implement hedge accounting (Glaum & Klöcker 2011). Another assumption is when investors are evaluating the growing companies; earnings may not be considered as the most important proxy for growing companies (Glaum & Klöcker 2011).

In the research about hedge accounting incentives for cash flow hedge, Pirchegger (2006) claims that the volatility of operational exposures is the fundamental determinant of the hedging. Pirchegger (2006) develops a model showing that the relation between duration of risk exposure and compensation is important for hedge accounting preferences. If the firm's overall risk exposure is allocated and significantly fluctuates over periods, the principal makes the choice in favor of hedge accounting as the compensation risk is high (Pirchegger 2006). According to DeMarzo & Duffie (1995), risk-averse managers may be reluctant to apply hedging in order to avoid the increased transparency since hedge accounting requires more detailed documentation and reporting.

Researchers also examine the impact of accounting standard on decision-making about hedge accounting. Melumad et al. (1999) claim that under the FAS 133 and IAS 39 regimes, the underlying risk exposure of the firm is not reflected in financial statements of the interim period, thus, managers tend to be reluctant to apply hedge accounting. A survey result in the research by Lins et al. (2011) shows the vast majority of participants believe that the accounting standards about hedging and hedge accounting have an adverse effect on their ability of risk management and companies with high institutional ownership were less likely to be hampered by the accounting standards.

Firms mainly implement hedging strategies to become less vulnerable to fluctuations in interest, exchange rates or commodity prices. It is clear that aforementioned factors are highly dependent on the economic and politic situation of the countries. Therefore, hedge accounting which is believed to be useful method for mitigating the volatility of changes in the fair value of derivatives is more likely to be related to country level factor. However there is no prior research

examining global or country level factors which have an influence on the employment of hedge accounting.

### **3. HYPOTHESIS DEVELOPMENT:**

Since fair value measurement standard mandates initial recognition of gains or losses in the income statement, it has been argued that fair value measurement has a negative impact on earnings volatility. Some researchers claim that fair valuation of derivatives is likely to increase the volatility of earnings and firms' efforts remain incapable of reducing volatility. (Gebhardt 2012; Hughen 2010; Richie et al. 2006). Although the main purpose of using derivatives is mitigating uncertainty about future transactions and stabilizing future income or expenses, a possible adverse impact on earnings volatility has been considered as a negative feature for derivative usage. At this point, hedge accounting may be employed as the primary implementation in order to induce earnings volatility and mismatch problem about hedging activities. Recording only ineffective portion of the hedging activity in the income statement is believed to provide fewer volatile earnings results for the companies (Francis 1990). Hughen (2010) claims that hedge accounting is an effective method to avoid the increase in earnings volatility associated with fair value accounting. However, since hedge accounting is not an obligatory method for hedging activities and requires extra documentation and effectiveness test, companies also prefer not to employ hedge accounting methods for all derivatives that they use. Contrary to the literature claiming that hedging with derivative instruments is being used to stabilize earnings, I believe that as the weight of derivatives on the balance sheet increases, earnings become more volatile due to the unavoidable changes in the fair value of derivatives. Owing to effectiveness criteria about recognizing gain or loss in the income statement, hedge accounting may be useful and adequate tool for mitigating volatility stemming from changes in fair value of derivatives. In other word, companies may protect themselves from fluctuations in fair values by benefiting from effectiveness criteria for recognizing gain and loses in hedge accounting. Combined, these theoretical arguments and findings lead to the following hypotheses:

**H1a: Firms with a higher ratio of derivative instruments to total assets have more volatile earnings.**

**H1b: Firms employing hedge accounting have smoother earnings compared to firms not employing hedge accounting.**

Hedge accounting can be interpreted as a more sophisticated method for the users since it mandates additional requirements such as documentation and effectiveness tests. Due to flexibility about employing hedge accounting method, firms can make decisions whether to adopt hedge accounting rules in accordance with the expectations and costs-benefits analysis. As mentioned in hypothesis 1, there has been an argument that fair valuation of financial instruments has a detrimental impact on the smoothness of earnings and hedge accounting is assumed to be beneficial for the mitigating volatility of earnings (Gebhardt 2012; Hughen 2010; Richie et al. 2006). Therefore, it is more likely that the decision about applying hedge accounting is affected by the level of derivative usage. Based on these assumptions, I suppose that as long as the weight of derivatives on the balance sheet increases, firms become more willing to employ hedge accounting to avoid earnings volatility arising from fair valuation of derivatives. My hypothesis is:

**H2a: As the ratio derivative instruments to total assets rises, the likelihood of applying hedge accounting increases.**

Although accounting standards set a framework for the accounting implementations, generally accepted accounting principles (GAAP) often provide room for firms to exercise their judgment (Fields et al. 2001). There are several determinants of management's choice about accounting policies. Firms' characteristics, financial positions and the countries in which firms are operating can be considered as important factors when firms are selecting their accounting policies. For instance, companies with lower financial leverage have a tendency to pursue income-increasing accounting techniques (Astami & Tower 2006). However, it is empirically proved that the leverage level is positively correlated with accounting constraints (Chow 1982). As the relative level of debt increases, firms face more constraints stemming from debt covenants (Press & Weintrop 1990). Thus, firms begin to lose flexibility about accounting choices due to increasing level of conditions stated in debt covenants. I believe that companies with high leverage rates tend to consider hedge accounting as an additional constraint since it requires effectiveness criterion, formal designation, and documentation. Since I assume companies with

high leverage ratio is more likely to avoid additional constraints and requirements, I postulate the following hypotheses.

**H2b: As the ratio of leverage to total assets rises, the firms become more reluctant to apply hedge accounting.**

Size is also one of the important determinants of accounting policies. For example, some large firms have a tendency to adjust their policy in order to understate their income because of publicity and opprobrium (Hagerman & Zmijevski 1979). From risk management perspective, larger companies are more likely to apply hedge accounting because of higher resources to hire employees about hedging activities (Glaum & Klöcker 2011). In addition, big firms are more likely to be intolerant to unstable market conditions since the effect of price volatilities on financial results will be stronger than relatively small firms. Therefore, hedge accounting can be a preferable option for larger firms because of the assumption that hedge accounting has a stabilizing effect on the volatility stemming from fluctuations in the fair value of hedging instruments. Based on this beliefs, I propose the following hypotheses:

**H2c: The firms having bigger asset size are more likely to apply hedge accounting method**

Revenue growth is assumed as an important indicator of firms' performance, thereby, companies set a target about growing rate of revenues and follow strategies regarding the targets. The accounting policies are also determined by growing strategies and the performance of the company. Companies targeting a higher growth rate or unsuccessful in achieving desired performance level are more likely to make different accounting choices than firms with satisfying results. It can be predicted that hedge accounting preferences are also affected by the growth rate of the company. In the research conducted by Glaum & Klöcker (2011), they find evidence that growing companies are more reluctant to apply hedge accounting than companies in more mature markets. They predict that growing companies would focus on investing directly in business growth rather than allocating their resources on accounting systems and accounting experts to implement hedge accounting (Glaum & Klöcker 2011). Their second assumption is when investors are evaluating the growing companies, current earnings may not be considered as the most important proxy for growing companies (Glaum & Klöcker 2011). I also expect that firms with higher growing rate are more likely to take a risk about the volatility of market prices and

follow imprudent accounting policies since their growing performance has become a more important target for them. Based on this assumption, I propose the following hypothesis;

**H2d: Firms with higher growth rates are less likely to apply hedge accounting method**

Risk management of the firms is widely influenced by market conditions of the country in which they operate. Firms have to follow different strategies according to market conditions of the country. It can be expected that financial risk management becomes more important in the countries which are prone to economic and political instability or market price changes since it is hard to make accurate predictions about economic situation. The similar assumption about environmental factors can be applicable for accounting. Although most research on accounting focus on firm-level differences, it is highly probable that macroeconomic factors are important determinants of accounting choices in the extent which regulations and standards define the limits. Cooper & Sherer (1984) also claim that "better" accounting systems cannot be designed without understanding how accounting systems operate in their social, political and economic context. In the research focusing on GDP, Konchitchki & Patatoukas (2014) claim that GDP is one of the keys of measurement of economic activity and aggregate accounting earnings growth is an important indicator of future GDP growth. When considered from this point of view, hedge accounting practice is highly relevant to risk management strategies and macroeconomic factors such as GDP level. Based on the assumption that countries with the lower level of GDP per capita are more likely to experience drastic changes in market prices, I predict that GDP of countries is a variable for determining hedge accounting preferences. Firms located in countries with the lower level of GDP per capita prefer hedge accounting to avoid unstable fluctuations in market prices. Thus, this theoretical argument leads to the following hypothesis;

**H2e: Firms with headquarters located in the countries with a lower level of GDP per capita are more likely to apply hedge accounting method**

One of the important benefits of hedge accounting is providing efficiency criterion for recognizing gain or losses in the income statement. Providing that the hedge is effective, IAS 39 mandates recognizing the changes in the fair value of a cash flow hedge instrument in other comprehensive income and presenting in the equity (IFRS 2014). As a result, earnings in the income statement become less vulnerable to changes in fair value of derivatives.

On the other hand, discretionary accruals are considered as the main earnings management tool in the accounting profession since the discretionary portion of accruals is prone to manipulation by managers. From the earnings volatility perspective, there are several empirical evidences that managers use discretionary accruals to smooth earnings. Thus, it can be interpreted that as the level of discretionary accruals increases, the probability of manipulation of earnings also changes in the same way. Since hedge accounting has a positive impact on stabilizing earnings, I believe that firms applying hedge accounting use less discretionary accruals. Therefore, I propose the following hypothesis.

**H3a: Firms employing hedge accounting have lower absolute discretionary accruals**

In the research examining the relation between derivative and earnings management, Barton (2001) and Pincus & Rajgopal (2002) find evidence that derivatives are used as a substitute tool for discretionary accruals to smooth earnings. However, there are also several studies providing evidence that fair value measurement creates earnings volatility and managers abstain from hedging because of volatility concerns (Richie et al. 2006; Hughen 2010; Gebhardt 2012; Chen et al. 2013). In a recent study, Choi & Upadhyay (2015) conclude that after SFAS 133 mandated fair value measurement, the substitution relation between discretionary accruals and hedging in earnings management is significantly diminished. Providing that the substitution relation is no longer valid for managing volatility, derivative usage might create additional volatilities in the income statement due to the fair value changes. Based on the assumption that derivative usage increases earnings volatility, it is more likely that managers apply a higher level of discretionary accruals to compensate the volatility created by derivatives usage. Thus, I postulate the following hypothesis:

**H3b: Firms with higher ratio of derivative instruments to total assets have higher absolute discretionary accruals**



## **4. RESEARCH DESIGN:**

### **4.1. Sample and Data Collection:**

The sample is randomly selected from non-financial companies listed in the EuroStoxx 600 index. The Europe 600 Index derived from the STOXX Europe Total Market Index (TMI) is a subset of the STOXX Global 1800 Index represents large, mid and small capitalization companies across 18 countries of the European region. (STOXX, 2016).

Due to time constraints, 178 companies are randomly selected from EuroStoxx 600 index and annual reports of the companies belonging to 2008 and 2009 were downloaded from websites of companies. Since IFRS 7 requires the disclosure of both quantitative and qualitative information about the significance of financial instruments to an entity, nature and the extent of risks arising from the employment of financial instruments, companies provide the information in their annual reports. The derivatives are represented on the balance sheet at fair value and detailed information about risk management activities are mostly described in a separate section in annual reports. Among the available 356 firm years, 10 companies did not disclose derivative employment for 17 firm years and 3 companies did not provide the information about fair value of derivatives for 6 firm years although they stated that they employed derivatives for hedging during the fiscal year.

I collected the initial sample data from Compustat Global available through the Wharton Research Data Service. The data were collected both quarterly and annually because the standard deviation of four quarters of annualized operating income is used as a proxy for earnings volatility. The standard deviation was calculated manually and merged with downloaded data.

Since discretionary accruals are used both as dependent and control variable in the study, I employed Modified-Jones (1991) model to estimate discretionary accruals. However, it is required to drop the cases where less than 5 firms are available in every industry-year group. As the sample does not contain a particular industry and enough observation for every industry, it was impossible to calculate discretionary accruals for every firm. Therefore, I had to exclude 140 firm-year data that do not include discretionary accruals. The ultimate sample consists of 86 companies and 153 firm-year.

Finally, in order to test country level determinant for hedge accounting, a ranking list based on GDP per capita is generated manually and the data about GDP is obtained from the World Bank database.<sup>1</sup> Table 1 summarizes the sample selection procedure.

**TABLE 1**  
*Steps in the sample selection procedure*

	Firm year	Number of Company
Initial sample	356	178
Less: Not using derivatives	17	10
Less: Not reporting fair value of derivatives	6	3
Less: Merging datasets and dropping missing values	150	79
<b>Total final sample</b>	<b>153</b>	<b>86</b>

#### 4.2. Empirical Model and Variables:

A regression model is employed to find the association between earnings volatility (dependent variable) and hedging with derivatives for Hypotheses 1a and 1b. Although the survey conducted by Graham et al. (2005) indicates that earnings per share (EPS) is the main concern for CFO's about evaluating the earnings performance, earnings are used to measure volatility since companies in the sample have a different number of shares and scale. In the prior literature, earnings volatility is calculated using the standard deviation of eight quarters scaled earnings before extraordinary items (Waymire 1985; Beneda 2013). I also employed a similar method for calculating earnings volatility, but I made some adjustments regarding the sample size and period. Since the sample period consists of only two years (2008-2009), I used the quarterly pretax income (Compustat item is PIQ) for mitigating the effect of short-term or one-time deferred tax liabilities. Moreover, the other incentive for choosing pretax income is controlling tax application differences between countries. Secondly, the standard deviation of earnings is calculated by using four quarters of earnings scaled by total assets (ATQ) in the year and annual standard deviation is taken into consideration in measuring the earnings volatility.

---

<sup>1</sup> [http://data.worldbank.org/indicator/NY.GDP.PCAP.CD?order=wbapi\\_data\\_value\\_2009+wbapi\\_data\\_value&sort=desc&page=1](http://data.worldbank.org/indicator/NY.GDP.PCAP.CD?order=wbapi_data_value_2009+wbapi_data_value&sort=desc&page=1)

Hedging with derivatives is expressed in the equation by the ratio of the absolute fair value of hedges to total assets as an independent variable. IFRS 7 requires the disclosure of both quantitative and qualitative information about the significance of financial instruments to an entity, nature and the extent of risks arising from the employment of financial instruments. However, companies do not provide standard information about derivatives for hedging purposes in their annual reports. Since the companies in the sample do not disclose any speculative derivative usage in the annual reports, all derivatives are considered to be used for hedging purposes. Although prior studies mainly use the notional amount of derivatives which is representing the total value of the instruments (Barton 2001; Beneda 2013; Choi & Upadhyay 2015), there are only a few companies providing notional amounts of derivatives in the sample. Besides, using the sum of the absolute fair value of derivatives would be a more appropriate method for measuring the amount of derivative usage, but some companies provide only the net amount of derivatives in their annual reports. Therefore, the absolute net fair value of derivatives are employed to measure the amount of derivatives and all values of derivatives are scaled by total assets in order to calculate the ratio of derivative usage for hedging purposes.

Earnings are affected by many factors and the structure of company plays an important role in the earnings volatility. In order to identify the association between earnings volatility and derivative usage accurately, I included certain control variables based on the prior literature. Firstly, since larger firms are predicted to have more stable earnings, I include natural logarithm of total assets at the end of the year. The data about assets are collected from Compustat Global (Compustat item is AT) and converted to Euro by using the average currency rates of European Central Bank for the data year.<sup>2</sup> The growth rate is also necessary information about the smoothness of the earnings number. Growing companies are expected to have more volatile earnings due to relatively high changes in the sale and investments (Barth et al. 2008). The percentage change in revenues is used to measure the growth rate of the company and the data are collected from Compustat Global (Compustat item is REVT). Besides, asset turnover which is the ratio of revenues to assets is calculated as a control variable to control the volume of sales on the earnings (Barth et al., 2008). The structure of ownership in the companies also influence the earnings volatility. High percentage change in the structure of common stocks is likely to result in a change in the management. Management changes tend to causes major strategy changes which probably affect earnings volatility (Barth et al. 2008). Therefore, the percentage

---

<sup>2</sup> <http://sdw.ecb.europa.eu/browse.do?node=2018794>

change in common stocks in equity is included in the model to control the possible earnings volatility arising from ownership changes (Compustat item is CEQ). Debt is the considered as a major factor in the volatility of earnings. Prior literature illustrates that there is a negative relation between leverage and earnings volatility although firms with high leverage ratio are expected to be more vulnerable to changes interest rates (Beneda 2013). I use two metrics for determining leverage effect by benefiting from the research done by (Barth et al. 2008). The first one is the ratio of total leverage on the balance sheet which is total liabilities scaled by end-of-year total assets (Compustat item is LT). The other one is annual percentage change in total liabilities which is calculated manually. Based on Barth et al. (2008), cash flow scaled by assets are also included as a control variable since firms generating cash flows from their operations is expected to have more stable earnings number. The data about cash flow is also obtained from Compustat (OANCF).

As an independent variable in hypothesis 1b, an indicator variable is used for hedge accounting where the firms employing hedge accounting are coded 1, and firms not employing hedge accounting are coded 0. Combining the models used in Barth et al. (2008) and Beneda (2013), the regression formula and a brief definition of variables are stated below.

The OLS regression equation for Hypotheses 1a and 1b:

$$VOL_i = \beta_0 + \beta_1 ABSDER_i + \beta_2 HED_i + \beta_3 SIZE_i + \beta_4 GROWTH_i + \beta_5 EISSUE_i + \beta_6 LEV_i + \beta_7 DISSUE_i + \beta_8 TURN_i + \beta_9 CF_i + \beta_{10} DACC + \varepsilon_i$$

VOL = standard deviation of four quarters of pretax income end of year total assets;

ABSDER = absolute fair value of derivatives divided by end of year total assets;

HED = dummy variable if the firm employ hedge accounting =1, otherwise = 0

SIZE = the logarithm of total assets in Euro;

GROWTH = percentage change in sales;

EISSUE = percentage change in common stock;

LEV = end of year total liabilities divided by end of year total assets;

DISSUE = percentage change in total liabilities;

TURN = sales divided by end of year total assets;

CF = annual net cash flow from operating activities divided by end of year total assets;

DACC = absolute value of discretionary accruals divided by end of year total assets

In order to examine the hedge accounting determinants, a probit regression is employed. I benefited from results of the research done by Glaum & Klöcker (2011) and Barth et al. (2008) for determining the control variables. Thus, similar variables in the first regression are employed to investigate which factors are important for making a decision about employing hedge accounting. To test country level determinant for hedge accounting, I selected GDP per capita as a proxy. A ranking list is generated based on GDP per capita of the countries in which headquarters of companies are based and the data is obtained from the World Bank database. I expect a negative association between GDP per capita and earnings volatility as financial markets are more stable in countries with higher GDP per capita. The probit regression formula is stated below.

The probit regression equation for Hypotheses 2a, 2b, 2c, 2d and 2e:

$$HED_i = \beta_0 + \beta_1 ABSDER_i + \beta_2 VOL_i + \beta_3 SIZE_i + \beta_4 GROWTH_i + \beta_5 EISSUE_i + \beta_6 LEV_i + \beta_7 DISSUE_i + \beta_8 TURN_i + \beta_9 CF_i + \beta_{10} RANK_i + \varepsilon_i$$

For determining the relation between hedging and discretionary accruals, the similar equation is used. Since this thesis focuses on earnings volatility and discretionary accruals are considered to be used for smoothing earnings, same control variables in hypotheses 1 and 2 are employed to clarify the relation between dependent and independent variables in the regression. However, the volatility of pretax income is replaced with the standard deviation of four quarters scaled operational income before depreciation and amortization (VOLOPR). The logic behind this adjustment is that pretax income is managed by discretionary accruals and dependent on discretionary accruals. On the other hand, operational income before depreciation and amortization is independent of the discretionary components of accruals (Cornett et al. 2008). Therefore, I predict that managers tend to make their decision about discretionary accruals based the volatility of operating income. The regression formula for hypotheses 3a and 3b is stated below.

The OLS regression equation for Hypotheses 3a and 3b:

$$DACC_i = \beta_0 + \beta_1 ABSDER_i + \beta_2 HED_i + \beta_3 SIZE_i + \beta_4 GROWTH_i + \beta_5 EISSUE_i \\ + \beta_6 LEV_i + \beta_7 DISSUE_i + \beta_8 TURN_i + \beta_9 CF_i + \beta_{10} VOLOPR_i + \varepsilon_i$$

Discretionary accruals are measured by using the modified (Jones, 1991) model. The model is developed by (Dechow, Sloan, & Sweeney, 1995) to solve revenue bias in the (Jones, 1991). The model considers only credit sales because they are more vulnerable to earnings management than cash sales; therefore credit revenues are subtracted from total revenues when calculating non-discretionary accruals. The following equation about calculating total accruals is taken from Kothari et al., (2005 p. 173) by adding the change in receivables and all variables are scaled by lagged total assets.

$$TA_{it} = \alpha_0 + \alpha_1 \left( \frac{1}{ASSETS_{it-1}} \right) + \alpha_2 (\Delta REV - \Delta REC)_{it} + \alpha_3 PPE_{it} + \varepsilon_{it}$$

$TA_{it}$  = Total accruals

$\Delta REV$  = Changes in sales revenue

$\Delta REC$  = Change in receivables

$PPE$  = Gross property, plant and equipment

$\varepsilon_{it}$  = Discretionary accruals

$ASSETS$  = Total assets

Discretionary accruals are calculated by subtracting non-discretionary accruals from total accruals. Total accruals are measured as income before extraordinary items (Compustat item IBC) minus cash flow from operations (Compustat item OANCF).  $\Delta REV$  represents the change between current and prior year sales obtained from Compustat item SALE,  $\Delta REC$  is measured as the change between current and prior year accounts receivables obtained from Compustat item RECT. Gross property, plant and equipment is collected from Compustat item PPEGT and total assets are obtained from Compustat item AT. Since higher level of discretionary accruals comprise higher probability of earnings management and the purpose of this thesis is not investigating the direction of the earnings management, the absolute amounts of discretionary accruals are calculated and taken into account in the research.

## 5. EMPIRICAL RESULTS AND ANALYSIS:

Table 2 illustrates the descriptive statistics of the variables used in testing the hypotheses. Of the total 153 observation firm observations, 22 observations belong to the firms employing hedge accounting and 131 firm observations belong to the firms not employing hedge accounting. The mean of earnings volatility, calculated as the standard deviation of return on assets over, is 0.98% for the sample. The mean for the companies applying hedge accounting is 0.94% and 1.34% for companies not applying hedge accounting which indicates a decrease in volatility for hedge accounting user companies. The ratio of derivatives in the financial statements is higher for hedge accounting user companies compared to non-user companies. While the absolute fair value of derivatives divided by total assets is 1.05% for hedge accounting user companies, the same ratio is 0.33% for non-user companies. The difference between ratios can be considered significant when the total asset size of the companies in the sample is taken into account. Regarding discretionary accruals, results indicate that non-hedge accounting users have a higher level of discretionary accruals than hedge accounting users. The absolute value of discretionary accruals is 3.53% for non-hedge accounting companies, 2.72% for the companies employing hedge accounting and 2.84% for the overall sample.

**TABLE 2**

*Descriptive Statistics of Variables*

<b>HEDGE ACCOUNTING</b>					
<b><u>Variable</u></b>	<b><u>Obs</u></b>	<b><u>Mean</u></b>	<b><u>Standard Deviation</u></b>	<b><u>Min</u></b>	<b><u>Max</u></b>
VOL	131	0.92%	1.13%	0.04%	7.36%
ABSDER	131	1.05%	1.68%	0.00%	11.85%
DACC	131	2.72%	2.81%	0.00%	16.26%
LEV	131	64.81%	13.22%	27.64%	91.46%
TURN	131	66.88%	38.57%	11.36%	191.08%
GROWTH	131	3.69%	18.10%	-32.76%	109.15%
EISSUE	131	3.81%	17.46%	-16.67%	113.95%
DISSUE	131	9.51%	29.18%	-53.25%	175.45%
SIZE	131	3.751	0.612	2.460	5.384
RANK	131	18.107	8.908	4	42

**TABLE 2 (Continued)**  
*Descriptive Statistics of Variables*

<b>NONHEDGE ACCOUNTING</b>					
<b><u>Variable</u></b>	<b><u>Obs</u></b>	<b><u>Mean</u></b>	<b><u>Standard Deviation</u></b>	<b><u>Min</u></b>	<b><u>Max</u></b>
VOL	22	1.34%	1.37%	0.21%	5.88%
ABSDER	22	0.33%	0.40%	0.02%	1.34%
DACC	22	3.53%	3.47%	0.00%	11.71%
LEV	22	68.13%	12.84%	47.18%	94.37%
TURN	22	77.69%	39.40%	15.18%	145.54%
GROWTH	22	10.55%	18.21%	-18.05%	63.02%
EISSUE	22	0.71%	3.68%	-5.83%	0.14%
DISSUE	22	11.52%	33.47%	-19.42%	126.09%
SIZE	22	3.268	0.427	2.375	3.998
RANK	22	13.045	9.409	4	41
<b>SAMPLE</b>					
<b><u>Variable</u></b>	<b><u>Obs</u></b>	<b><u>Mean</u></b>	<b><u>Standard Deviation</u></b>	<b><u>Min</u></b>	<b><u>Max</u></b>
VOL	153	0.98%	1.17%	0.04%	7.36%
ABSDER	153	0.95%	1.59%	0.00%	11.85%
DACC	153	2.84%	2.91%	0.00%	16.26%
LEV	153	65.28%	13.18%	27.64%	94.37%
TURN	153	68.44%	38.75%	11.36%	191.08%
GROWTH	153	4.68%	18.21%	-32.76%	109.15%
EISSUE	153	3.36%	16.24%	-16.67%	113.95%
DISSUE	153	9.80%	29.72%	-53.25%	175.45%
SIZE	153	3.681	0.612	2.375	5.384
RANK	153	17.379	9.126	4	42
<p>VOL = standard deviation of four quarters of pretax income end of year total assets; ABSDER = absolute fair value of derivatives divided by end of year total assets; SIZE = the logarithm of total assets in Euro; GROWTH = percentage change in sales; EISSUE = percentage change in common stock; LEV = end of year total liabilities divided by end of year total assets; DISSUE = percentage change in total liabilities; TURN = sales divided by end of year total assets; CF = annual net cash flow from operating activities divided by end of year total assets; DACC = absolute value of discretionary accruals divided by end of year total assets RANK = Ranking list based on GDP per capita of the countries in which headquarters of companies are located</p>					



Table 3 shows the result of OLS regressions performed to examine the relation between earnings volatility, hedging with derivatives and hedge accounting. The results show that as the ratio of the absolute amount of the fair value of the derivatives to total assets increases, the earnings volatility also rises. One unit increase of derivative ratio results in 18.9 % change in the standard deviation of the earnings. Since the relation is significant at 0.1% significance level, the result rejects the null hypothesis. However, findings contradict the prior research examining the relation between derivatives and earning volatility. Contrary to studies of Barton (2001), Beneda (2013) and Pincus & Rajgopal (2002) which claim that the derivative instruments have a smoothing effect on earnings, the result indicates a significant positive relation between the derivative amount and earnings volatility. Regarding the association between hedge accounting and earnings volatility, hedge accounting is expected to mitigate the earnings volatility due to requirement about effectiveness criteria for recognizing the change in the fair value of derivatives. Although the results of the model is not statistically significant, the coefficient sign (-0,004) is consistent with the expectation and prior literature (Glaum & Klöcker 2011; Hughen 2010). The relation between earnings volatility and control variables representing a change in ownership structure, leverage and asset turnover are statistically significant. The negative coefficient of LEV indicates that higher leveraged firms have less earnings volatility. However, positive coefficients of TURN and EISSUE indicate that firms with a higher percentage of ownership change and asset turnover ratio tend to have more volatile earnings. Besides, statistically significant and positive coefficient illustrates that discretionary accruals have an important influence on earnings volatility.

Table 3 also provides the regression results without using discretionary accruals as a control variable. The results show that the coefficient of the amount of the fair value of the derivatives is slightly higher than the coefficient in the regression with discretionary accruals. It can be interpreted from the results that discretionary accruals have no huge impact on the relation between derivatives and earnings volatility although they have a significant effect on the earnings volatility.

**TABLE 3**  
*Regressions about Hypothesis H1*

VOL							VOL (WITHOUT DACC)					
Variable	Coefficient	p-value	Standard Deviation	Coefficient	p-value	Robust Standard Deviation	Coefficient	p-value	Standard Deviation	Coefficient	p-value	Robust Standard Deviation
ABSDER	0,189***	0,001	0,056	0,189	0,155	0,132	0,208***	0,000	0,057	0,208	0,119	0,132
HED	-0,004	0,135	0,002	-0,004	0,238	0,003	-0,004**	0,078	0,002	-0,004	0,110	0,003
SIZE	-0,001	0,360	0,002	-0,001	0,279	0,001	-0,001	0,399	0,001	-0,001	0,301	0,001
GROWTH	0,003	0,508	0,005	0,003	0,488	0,005	0,002	0,665	0,005	0,002	0,588	0,004
EISSUE	0,012**	0,027	0,005	0,012**	0,037	0,005	0,010**	0,067	0,005	0,010	0,073	0,005
LEV	-0,013*	0,057	0,007	-0,013**	0,023	0,006	-0,013**	0,063	0,007	-0,013	0,014	0,005
DISSUE	0,003	0,249	0,003	0,003	0,316	0,003	0,004	0,192	0,003	0,004	0,175	0,003
TURN	0,004**	0,061	0,002	0,004	0,121	0,002	0,003	0,123	0,002	0,003	0,231	0,003
CF	0,001	0,899	0,013	0,001	0,893	0,012	0,009	0,512	0,013	0,009	0,504	0,013
DACC	0,101***	0,001	0,03	0,101	0,120	0,064						
INTERVAL	0,019***	0,011	0,007	0,019***	0,004	0,006	0,021***	0,004	0,007	0,021***	0,001	0,006
Observations		153			153			153			153	
R-squared/Adjusted R-squared		0.195			0.248			0.137			0.188	
F-statistic		4.69			2.54			3.69			2.66	
Prob > F		0.0000			0.0075			0.0003			0.0070	
Heteroscedasticity accepted?		YES						YES				
Heterosc. Test: chi2(1)		138.26						46.51				
Heterosc Test: P(chi2(1))		0.000						0.7234				

\* , \*\* and \*\*\* indicate statistical significance of coefficients at the 10%, 5% and 1% level, respectively

This table reports the results of the regressions used for the Hypotheses 1a and 1b. The regression examines the relation between earnings volatility (VOL), derivatives for hedging purposes (ABSDER) and hedge accounting (HED). The dependent variable (VOL) equals standard deviation of four quarters of pretax income divided by the end of year total assets. The independent variable (ABSDER) is the absolute fair value of derivatives divided by end of year total assets. The other independent variable (HED) is an indicator variable if the firm employs hedge accounting =1, otherwise = 0. The control variables are mainly based on Barth et al. (2008). The first variable (SIZE) is representing the logarithm of total assets in Euro. (GROWTH) is calculated as the annual percentage change in revenues. (EISSUE) is percentage change in common stocks in equity is included in the model to control the possible earnings volatility arising from ownership change. (LEV) equals the end of year total liabilities divided by end of year total assets and DISSUE is annual percentage change in total liabilities. (TURN) represents asset turnover which is the ratio of revenues to its assets. (CF) is annual net cash flow from operating activities divided by the end of year total assets. (DACC) is absolute discretionary accruals which are measured by using modified the Jones (1991) which is developed by Dechow et al. (1995)

Table 4 illustrates the results of probit regression to identify the determinants of hedge accounting and results of OLS regression performed to examine how derivative usage and hedge accounting affects discretionary accruals.

**TABLE 4**

*Regressions about Hypotheses H2 and H3*

<u>Variable</u>	<b>HED</b>			<b>DACC</b>		
	<u>Coefficient</u>	<u>p-value</u>	<u>Robust Standard Deviation</u>	<u>Coefficient</u>	<u>p-value</u>	<u>Robust Standard Deviation</u>
ABSDER	180.06***	0.000	41.457	0.171	0.270	0.154
HED				-0.011	0.132	0.007
SIZE	1.188***	0.001	0.353	0.000	0.993	0.003
GROWTH	-3.719***	0.000	1.019	-0.002	0.890	0.015
EISSUE	1.620**	0.031	0.751	-0.014	0.121	0.009
LEV	-6.524***	0.000	1.561	-0.011	0.519	0.018
DISSUE	1.040	0.146	0.780	0.005	0.558	0.008
TURN	0.500	0.213	0.401	-0.001	0.805	0.006
CF	-5.164*	0.059	2.424	0.160***	0.006	0.057
RANK	0.058***	0.008	0.022			
VOL	-23.550	0.104	14.489			
VOLOPR				-0.612***	0.006	0.218
INTERVAL	0.076	0.950	1.220	0.051**	0.026	0.022
Adj./Pseudo						
R2		0.4337			0.1177	
Observations		153			153	

\* , \*\* and \*\*\* indicate statistical significance of coefficients at the 10%, 5% and 1% level, respectively

The first three column reflects the results of the probit regression designed to examine determinants of hedge accounting. Besides the control variables included in the first regression formula which is illustrated in Table 3, ranking list is generated based on GDP per capita of the countries in which headquarters of companies are located (RANK). The last third columns represent the results of the regression about the relation between discretionary accruals, hedging with derivatives and hedge accounting. (DACC) is discretionary accruals which are measured by using modified the Jones (1991) which is developed by Dechow et al. (1995). The formula for calculating accruals is in Kothari et al. (2005p. 173) with an extension of the change in receivables and all variables are scaled by lagged total assets. VOLOPR is the standard deviation of four quarters scaled operational income before depreciation and amortization.

The first three columns in Table 4 is about the determinants of hedge accounting. The positive and statistically significant coefficient of the independent variable ABSDER indicates that holding more derivative instruments makes firms employ hedge accounting. The coefficient of leverage means higher leveraged firms are less reluctant to use hedge accounting. Consistent with the expectation of Hypothesis 2b, a rise in the ratio of total liabilities to total assets increases the likelihood of employing hedge accounting for the firms in the sample. Results show that size is also an important determinant of decision about applying hedge accounting. As the assets size increases, companies are more eager to use hedge accounting. Moreover, the result is statistically significant at 1% level to reject null hypotheses that there is no relation between size and hedge accounting preference. For the Hypothesis 2d, the results illustrate the significant negative relation between growth rate and hedge accounting. In other words, firms with higher sales growth rate are more reluctant to use hedge accounting which is consistent with prior findings of (Glaum & Klöcker 2011). Cash flow rate also negatively affects the decision of employing hedge accounting. In accordance with the expectations, the result indicates that firms achieving higher revenue ratios do not prefer hedge accounting. Finally, regarding country-level determinants, the result indicates that the ranking based on GDP per capita is an important determinant for hedge accounting. Firms headquarters of which are located in the countries with lower level GDP per capita are more likely to employ hedge accounting. The result is significant at 1% level which provides credible evidence to accept the hypothesis H2e.

The results of regression about the relation between discretionary accruals and hedging with derivatives illustrates that although the signs of coefficients of derivatives and hedge accounting are consistent with expectations, the results are not statistically significant to provide credible evidence to reject the null hypotheses. Regarding the control variables, the findings show that revenues are the significant determinant of the level of discretionary accruals and manager are take the volatility of operating incomes into account when they are using their discretions about accruals.

## **6. CONCLUSIONS:**

Besides their role in risk management, derivatives also draw the attention about their effect on earnings. Prior literature shows that derivatives contribute to mitigating earnings volatility and they are used as a substitutional or complementary tool for discretionary accruals in smoothing earnings (Barton 2001; Pincus & Rajgopal 2002; Beneda 2013). On the other hand,

there have been contradictory arguments that derivatives aggravate earnings volatility due to fair value measurement. Hedge accounting, a voluntary method, is believed to mitigate the volatility caused by fair value measurement (Hughen 2010; Glaum & Klöcker 2011; Beneda 2013).

This thesis is investigating the relation between derivative usage for hedging purposes and earnings volatility in several aspects. In addition to a direct relation between derivatives and earnings smoothing, I also examine how hedge accounting affects the volatility and if derivatives play any role in the decisions about discretionary accruals which have a detrimental impact on earnings quality. Since the hedge accounting is not a mandatory method, the determinants of hedge accounting are also investigated by focusing on firm level and country level variables. Derivative usage, growth rate, size and asset turnover is selected among firm-level variables. In addition, GDP per capita ranking is generated to determine country-level determinants of employing hedge accounting method.

The results show that there is a positive relation between derivatives usage and earnings volatility. Contrary to prior literature, this thesis finds evidence that derivatives increase the volatility. However, the effect of hedge accounting on mitigating volatility is not clarified because of the statistically insignificant results. On the other hand, significant results are obtained for understanding the determinants of hedge accounting. As the weight of derivative instruments on the balance sheet increases, firms are more likely to employ hedge accounting. Secondly, size is important factor in making a decision about hedge accounting. Results indicate that larger firms are more eager to use hedge accounting. On the contrary, growing companies with lower leverage rate or lower revenues are more reluctant to use hedge accounting. For country level determinant, results provide evidence that firms the headquarters of which are located in the countries with lower GDP per capita are more likely to apply hedge accounting. Finally, the results do not provide an unambiguous conclusion about how derivative usage and hedge accounting affect the level of discretionary accruals.

This thesis contributes to the literature by demonstrating the aggravating impact of derivatives usage on the earnings volatility. Since prior studies provide controversial results about the relation between derivatives and earnings volatility, the findings are beneficial for reducing ambiguity about this issue. The findings are also important for understanding the reasons of hedge accounting preference. The results about firm level determinants such as level of derivatives, firm size, growth rate, leverage and revenues provide reinforcement for the prior

findings. This thesis also contributes to the literature by shedding light on the country level determinant of hedge accounting. Finally, since previous studies mainly examine the firms in the US, this thesis provides international evidence for effects of derivatives on the earnings volatility and the determinants of hedge accounting.

The period of the study can be considered as a limitation since it is conducted for a crisis period 2008 and 2009. The economic crisis created high volatility in variables and also underlying assets such as equities, bonds, commodities. Therefore, the gains and losses arising from the fair value of derivatives are relatively higher compared to more stable period. An extension of the period may provide more robust evidence about the derivatives and earnings volatility. Regarding the model limitation, the impact of learning curve or firms' experiences about the use of derivatives is not taken into consideration due to the short sampling period. In addition, using fair values as a proxy for the level of derivative usage can be considered as an ambiguous method due to OTC derivative instruments which are unstandardized and not traded on organized exchange markets. Finally, there are plenty of economic factors and incentives related to earnings volatility and the model has limitations about reflecting all causalities about earnings smoothing. For instance, immeasurable economic and social environment differences between countries may also play a vital role in earnings volatility.

This study provides information about other aspects of financial risk management for investors and standard setters to comprehend derivative instruments and their effects on financial statements. However, the fact that applying hedge accounting is not only affected by firm-level but also by country-level determinants leads to additional research for understanding accounting method preferences.

## 7. REFERENCES:

- Alkeback, P., Hagelin, N., & Pramborg, B. (2003). Derivative usage by non-financial firms in Sweden 1996 and 2003: What has changed? *Managerial Finance*, Vol. 32 Iss 2, 101 - 114.
- Allayannis, G., Brown, G. W., & Klapper, L. F. (2003). Capital Structure and Financial Risk: Evidence from Foreign Debt Use in East Asia. *The Journal of Finance Volume 58, Issue 6*, 2667-2710.
- Allayannis, G., Ihrig, J., & Weston, J. P. (2001). Exchange-rate Hedging: Financial vs. Operational Hedging. *American Economic Review Papers & Proceedings 91 (2)*, 391-395.
- Astami, E. W., & Tower, G. (2006). Accounting-Policy Choice and Firm Characteristics in the Asia Pacific Region: An International Empirical Test of Costly Contracting Theory. *The International Journal of Accounting Volume 41, Issue 1*, 1-21.
- Bannister, J., & Newman, H. (1996). Accrual Usage to Manage Earnings Toward Financial Analysts' Forecasts. *Review of Quantitative Finance and Accounting 7*, 259-278.
- Barnes, R. (2001). Accounting for Derivatives and Corporate Risk Management Policies. *Working Paper*.
- Barth, M. E. (1994). Fair Value Accounting: Evidence from Investment Securities and the Market Valuation of Banks. *The Accounting Review, Vol. 69, No. 1*, 1-25.
- Barth, M. E., Landsman, W. R., & Lang, M. H. (2008). International Accounting Standards and Accounting Quality. *Journal of Accounting Research Vol. 46 No. 3*, 467-497.
- Barth, M. E., Landsman, W. R., & Wahlen, J. M. (1995). Fair value accounting: Effects on banks' earnings volatility, regulatory capital, and value of contractual cash flows. *Journal of Banking & Finance 19*, 577-605.
- Barton, J. (2001). Does the Use of Financial Derivatives Affect Earnings Management Decisions. *The Accounting Review Vol. 76*, 1-26.
- Bartram, S. M., Brown, G. W., & Fehle, F. R. (2009). International Evidence on Financial Derivatives Usage. *Financial Management Vol:38 Issue 1*, 185-209.
- BDO. (2014). *Need to Know: Hedge Accounting*. BDO Advisory Limited.

- Beatty, A., Ramesh, K., & Weber, J. (2002). The Importance of Accounting Changes in Debt Contracts: The Cost of Flexibility in Covenant Calculations. *Journal of Accounting & Economics*, Vol. 33, No. 2,, 205–227.
- Beidleman, C. (1973). Income Smoothing: The Role of Management. *The Accounting Review*, Vol. 48, No. 4, 653-667.
- Beneda, N. (2013). The Impact of Hedging with Derivative Instruments on Reported Earnings Volatility. *Applied Financial Economics* 23:2, 165-179.
- Berger, A. N., & di Patti, E. B. (2006). Capital structure and firm performance: A new approach to testing agency theory and an application to the banking industry. *Journal of Banking & Finance* 30, 1065–1102.
- Berkman, H., Bradbury, M., & Magan, S. (1997). An International Comparison of Derivatives Use. *Financial Management*, Vol. 26, No. 4, 69-73.
- BIS. (2016). *Bank of International Settlements*. 2016  
[https://www.bis.org/statistics/about\\_derivatives\\_stats.htm?m=6%7C32](https://www.bis.org/statistics/about_derivatives_stats.htm?m=6%7C32)
- Bodnar, G. M., Hayt, G. S., Marston, R. C., & Smithson, C. W. (1995). Wharton Survey of Derivatives Usage by U.S. Non-Financial Firms. *Financial Management*, Vol. 24, No. 2, Silver Anniversary Commemoration, 104-114.
- Bodnar, G., & Gebhardt, G. (1999). Derivatives Usage in Risk Management by US and German Non-Financial Firms: A Comparative Survey. *Journal of International Financial Management and Accounting* 10:3, 153-185.
- Breeden, D., & Viswanathan, S. (2008, February). Why do firms hedge? An Asymmetric Information Model.
- Brown, G. (2001). Managing Foreign Exchange Risk with Derivatives. *Journal of Financial Economics* 60, 401-448.
- Chen, W., Tan, H.-T., & Wang, E. Y. (2013). Fair Value Accounting and Managers' Hedging Decisions. *Journal of Accounting Research* Vol:51 No:1, 67-103.
- Choi, J., & Upadhyay, A. (2015). Earnings Management and Derivative Hedging with Fair Valuation: Evidence from the Effects of FAS 133. *The Accounting Review* Vol,90 No.4, 1437-1467.
- Chow, C. W. (1982). The Demand for External Auditing: Size, Debt and Ownership Influences. *The Accounting Review*, Vol. 57, No. 2 , 272-291.



- Cooper, D. J., & Sherer, M. J. (1984). The Value of Corporate Accounting Reports: Arguments for a Political Economy of Accounting. *Accounting Organizations and Society*, Vol 9, No 3/4, 207-232.
- Cornett, M. M., Marcus, A. J., & Tehranian, H. (2008). Corporate governance and pay-for-performance: The impact of earnings management\$. *Journal of Financial Economics* 87, 357–373.
- DeAngelo, L. E. (1986). Accounting Numbers as Market Valuation Substitutes: A Study of Management Buyout of Public Stockholders. *The Accounting Review* Vol. 61, No. 3, 400-420.
- DeAngelo, L. E. (1988). Managerial Competition, Information Cost and Corporate Governance. *Journal of Accounting and Economics* 10, 3-36.
- Dechow, P. M., Myers, L. A., & Shakespeare, C. (2010). Fair Value Accounting and Gains from Asset Securitizations: A Convenient Earnings Management Tool With Compensation Side-Benefits. *Journal of Accounting and Economics* 49, 2–25.
- Dechow, P. M., Richardson, S. A., & Tuna, İ. (2003). Why Are Earnings Kinky? An Examination of the Earnings Management Explanation. *Review of Accounting Studies*, 8,, 355-384.
- Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting Earnings Management. *The Accounting Review*, Vol. 70, No. 2, 193-225.
- Dechow, P., & Dichev, I. (2002). The Quality of Accruals and Earnings: The Role of Accrual Estimation Errors. *The Accounting Review*, Vol. 77, Supplement: *Quality of Earnings Conference (2002)*,, 33-59.
- Dechow, P., & Skinner, D. (2000). Earnings Management: Reconciling the Views of Accounting Academics, Practitioners, and Regulators. *Accounting Horizons*, 235-250.
- Dechow, P., Ge, W., & Schrand, C. (2010). Understanding Earnings Quality: A Review of the Proxies, Their Determinants and Their Consequences. *Journal of Accounting and Economics* 50, 344–401.
- DeFond, M., & Jiambalvo, J. (1994). Debt Covenant Violation and Manipulation. *Journal of Accounting and Economics* 17, 145-176.
- DeFond, M., & Park, C. (1997). Smoothing Income in Anticipation of Future Earnings. *Journal of Accounting and Economics* 23, 115-139.
- Deloitte (2012). A Closer Look. London Deloitte Tuche Tohmatsu Limited.
- Deloitte. (2016). *IAS Plus*. <http://www.iasplus.com/en/projects/completed/fi/fi-impairment>

- DeMarzo, P., & Duffie, D. (1995). Corporate Incentives for Hedging and Hedge Accounting. *The Review of Financial Studies*, Vol. 8, No. 3, 743-771.
- Dichev, I., Graham, J., Harvey, C., & Rajgopal, S. (2013). Earnings quality: Evidence from the field. *Journal of Accounting and Economics* 50, 1-33.
- Dolde, W. (1993). The Volatility and Price Sensitivities of Managerial Stock Option. *Journal of Applied Corporate Finance* 6, 33-41.
- Eisenhardt, K. M. (1989). Agency Theory: An Assessment and a Review. *Academy of Management Review* Vol. 14, No. 1, 57-74.
- Ernst&Young. (2011). *IFRS 13 Fair Value Measurement: 21st century real estate values*. EYGM Limited.
- Fields, T. D., Lys, T. Z., & Vincent, L. (2001). Empirical Research on Accounting Choice. *Journal of Accounting and Economics* 31, 255-307.
- Francis, J. (1990). Accounting for futures contracts and the effect on earnings variability. *The Accounting Review* 65:, 891-910.
- Francis, J., LaFond, R., Olsson, P., & Schipper, K. (2004). Costs of Equity and Earnings Attributes. *The Accounting Review*, Vol. 79, No. 4, 967-1010.
- Froot, K. A., Scharfstein, D., & Stein, J. (1993). Risk Management: Coordinating Corporate Investment and Financing Policies'. *The Journal of Finance*, Vol. 48, No. 5, 1629–58.
- Gastineau, G. L., Smith, D. J., & Todd, R. (2001). Risk Management, Derivatives, and Financial Analysis under SFAS No. 133. *Research Foundation Publication February*, 1-109.
- Gebhardt, G. (2012). Financial instruments in non-financial firms: what do we know? *Accounting and Business Research* Vol 42 No:3, 267–289.
- Gebhardt, G., Reichardt, R., & Wittenbrink, C. (2004). Accounting for Financial Instruments in the Banking Industry: Conclusions from a Simulation Model. *European Accounting Review*, Vol. 13, No. 2, 341–371.
- Geczy, C., Minton, B., & Schrand, C. (1997). Why Do Firms Use Currency Derivatives. *Journal of Finance*, Vol. 52, No. 4, 1323-1354.
- Glaum, M., & Klöcker, A. (2011). Hedge accounting and its influence on financial hedging: When the tail wags the dog. *Accounting and Business Research*, 41(5), 459-489.
- Graham, J. R., & Rodgers, D. R. (2002). Do Firms Hedge in Response to Tax Incentives? *The Journal of Finance* VOL. LVII, NO. 2, 815-840.

- Graham, J., Harvey, C., & Rajgopal, S. (2005). The Economic Implications of Corporate Financial Reporting. *Journal of Accounting and Economics* 40, 3–73.
- Guay, W. (1999). The Impact of Derivatives on Firm Risk: An Empirical Examination of New Derivative Users. *Journal of Accounting and Economics* 26 , 319-351.
- Guay, W., & Kothari, S. (2003). How much do firms hedge with derivatives? *Journal of Financial Economics* 70, 423–461.
- Guidry, F., Leone, A., & Rock, S. (1999). Earnings-Based Bonus Plans and Earnings Management by Business-Unit Managers. *Journal of Accounting and Economics* 26, 113-142.
- Hagerman, R. L., & Zmijewski, M. E. (1979). Some Economic Determinants of Accounting Policy Choice. *Journal of Accounting and Economics Volume 1, Issue 2,*, 141-161.
- Healy, P. M. (1985). The Effect of Bonus Schemes on Accounting Decisions. *Journal of Accounting and Economics* 7 , 85-107.
- Healy, P., & Palepu, K. (1990). Effectiveness of Accounting Based Dividen Covenants. *Journal of Accounting and Economics* 12, 97-123.
- Healy, P., & Wahlen, J. (1999). A Review of the Earnings Management Literature and Its Implications for Standard Settings. *Accounting Horizons*, 365-383.
- Hicks, J. (1939). *Value and Capital*. Oxford: Oxford University Press.
- Holthausen, R. W., Larcker, D. F., & Sloan, R. G. (1995). Annual Bonus Schemes and The Manipulation of Earnings. *Journal of Accounting and Economics* 19, 29-74.
- Hughen, L. (2010). When Do Accounting Earnings Matter More than Economic Earnings? Evidence from Hedge Accounting Restatements. *Journal of Business Finance & Accounting*, 37(9) & (10), 1027–1056.
- IAS. (2011). *International Accounting Standard 39 Financial Instruments: Recognition and Measurement*. <http://ec.europa.eu/>:  
[http://ec.europa.eu/internal\\_market/accounting/docs/consolidated/ias39\\_en.pdf](http://ec.europa.eu/internal_market/accounting/docs/consolidated/ias39_en.pdf)
- IASB, I. F. (2016). *IFRS*. <http://www.ifrs.org/>: <http://www.ifrs.org/current-projects/iasb-projects/financial-instruments-a-replacement-of-ias-39-financial-instruments-recognition/Pages/financial-instruments-replacement-of-ias-39.aspx>
- IFRS. (2012). *International Financial Reporting Standards Board*. 2016 tarihinde Website of the IFRS Foundation and the IASB: <http://www.ifrs.org/use-around-the-world/education/fvm/documents/educationfairvaluemeasurement.pdf>

- IFRS. (2014). *International Financial Reporting Standards Board*.  
<http://www.ifrs.org/Alerts/PressRelease/Pages/IASB-completes-reform-of-financial-instruments-accounting-July-2014.aspx>
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics* 3, 305-360.
- Jones, J. (1991). Earnings Management During Import Relief Investigations. *Journal of Accounting Research*, Vol. 29, 193-228.
- Kahan, S. (1992). The Effect of Antitrust Investigations on Discretionary Accruals: A Refined Test of the. *The Accounting Review*, Vol. 67, No. 1, 77-95.
- Kang, S.-H., & Sivaramakrishnan, K. (1995). Issues in Testing Earnings Management and an Instrumental Variable Approach. *Journal of Accounting Research* Vol. 33, No. 2, 353-367.
- Key, K. (1997). Political Cost Incentives for Earnings Management in the Cable Television Industry. *Journal of Accounting and Economics* Vol:23, 309-337.
- KMPG. (2012, September). IFRS Practice Issues for Banks: Fair Value Measurement of Derivatives – The Basics.
- Konchitchki, Y., & Patatoukas, P. N. (2014). Accounting Earnings and Gross Domestic Product. *Journal of Accounting and Economics* 57, 76-88.
- Kothari, S., Leone, A. J., & Wasley, C. (2005). Performance Matched Discretionary Accrual Measures. *Journal of Accounting and Economics* Volume 39, Issue 1, 163–197.
- Leuz, C., Nanda, D., & Wysocki, P. (2003). Earnings Management and Investor Protection: An International Comparison. *Journal of Financial Economics* 69, 505-527.
- Lins, K. V., Servaes, H., & Tamayo, A. (2011). Does Fair Value Reporting Affect Risk Management? International Survey Evidence. *Financial Management* Volume:40 Issue 3, 525-551.
- Linsmeier, T. (2011). Financial Reporting and Financial Crises:The Case for Measuring Financial Instruments at Fair Value in the Financial Statements. *Accounting Horizons* Vol. 25, No. 2, 409–417.
- Loftus, J., Leo, K., Clark, K., Picker, R., & Wise, V. (2013). *Applying International Financial Reporting 3rd Edition*. John Wiley & Sons Inc.
- Malz, A. M. (2011). *Financial Risk Management Models, History and Institutions* . New Jersey: John Wiley & Sons, Inc.,

- Mayers, D., & Smith, C. (1982). On the Corporate Demand for Issuance. *The Journal of Business* Vol:55 No:2, 281-296.
- Melumad, N. D., Weyns, G., & Ziv, A. (1999). Comparing Alternative Hedge Accounting Standards: Shareholders' Perspective. *Review of Accounting Studies*, 4, 265–292.
- Modigliani, F., & Miller, M. (1958). The cost of capital, corporation finance and the theory of investment. *American Economic Review* 48, 261–297.
- Moles, P. (2013). *Financial Risk Management: Sources of Risk and Risk Management*. United Kingdom: Edinburgh Business School .
- Moses, O. (1987). Income Smoothing and Incentives: Empirical Tests Using Accounting Changes. *The Accounting Review*, Vol. 62, No. 2, 358-377.
- Nance, D., Smith, C., & Smithson, C. (1993). On the Determinants of Corporate Hedging. *The Journal of Finance*, Vol. 48, No. 1, 267-284.
- NAPF. (2013, December). *Derivatives and Risk Management Made Simple*. London: National Association of Pension Funds.
- Nelson, M., Elliott, J., & Tarpley, R. (2002). Evidence from Auditors about Managers' and Auditors' Earnings Management Decisions. *The Accounting Review*, Vol. 77, Supplement: *Quality of Earnings Conference*, 175-202.
- Panaretou, A., Shackleton, M. B., & Taylor, P. A. (2013). Corporate Risk Management and Hedge Accounting. *Contemporary Accounting Research*, 116–139.
- Pirchegger, B. (2006). Hedge Accounting Incentives for Cash Flow Hedges of Forecasted Transactions. *European Accounting Review*, 15:1, 115-135.
- Pincus, M., & Rajgopal, S. (2002). The Interaction between Accrual Management and Hedging: Evidence from Oil and Gas Firms. *The Accounting Review* Vol:77, 127–160.
- Press, E. G., & Weintrop, J. B. (1990). Accounting Based Constraints in Public and Private Debt Agreements. *Journal of Accounting and Economics* 12, 65-95.
- PWC. (2005). *Achieving Hedge Accounting in Practice*. Pricewaterhousecoopers.
- Richie, N., Glegg, C., & Gleason, K. C. (2006). The Effects of SFAS 133 on Foreign Currency Exposure of US-based Multinational Corporations. *Journal of multinational financial management*, 16 (4), 424-439.

- Ryan, S. G., Herz, R. H., Iannacconi, T. E., Maines, L. A., Palepu, K. G., Schrand, C. M., . . . Vincent, L. (2002). Recommendations on Hedge Accounting and Accounting for Transfers of Financial Instruments. *Accounting Horizons*, 81-93.
- Sapra, H. (2002). Do Mandatory Hedge Disclosures Discourage or Encourage Excessive Speculation. *Journal Of Accounting Research Vol:40 No:3*, 933-964.
- Schipper, K., & Vincent, L. (2003). Earnings Quality. *Accounting Horizons Supplement*, 97-110.
- Shleifer, A., & Vishny, R. W. (1997). The Limits of Arbitrage. *The Journal of Finance, Vol. 52, No. 1*, 33-55.
- Smith, C. W. (1998). Corporate Risk Management: Theory and Practice. *Journal of Derivatives*.
- Smith, C., & Stulz, R. (1985). The Determinants of Firms' Hedging Policies. *The Journal of Financial and Quantitative Analysis, Vol. 20, No. 4*, 391-405.
- STOXX. (2016). www.stoxx.com: <https://www.stoxx.com/index-details?symbol=SXXP>
- Stulz, R. (1984). Optimal Hedging Policies. *The Journal of Financial and Quantitative Analysis, Vol. 19, No. 2*, 127-140.
- Stulz, R. M. (1996). Rethinking risk management. *Journal of Applied Corporate Finance* 9,, 8-24.
- Subramanyam, K. (1996). The Pricing of Discretionary Accruals. *Journal of Accounting and Economics* 22, 249-281.
- Sweeney, A. P. (1994). Debt-Covenant Violations and Managers' Accounting Responses. *Journal of Accounting and Economics* 17, 281-308.
- Teoh, S., Welch, I., & Wong, T. (1998). Earnings Management and the Long-Run Market Performance of Initial Public Offerings. *The Journal Of Finance, 1935-1974*.
- Trueman, B., & Titman, S. (1988). An Explanation for Accounting Income Smoothing. *Journal of Accounting Research, Vol. 26*, 127-139.
- Tucker, J., & Zarowin, P. (2006). Does Income Smoothing Improve Earnings Informativeness? *The Accounting Review, Vol. 81, No. 1*, 251-270.
- Watts, R., & Zimmerman, J. (1990). Positive Accounting Theory: A Ten Year Perspective. *The Accounting Review, Vol. 65, No. 1*, 131-156.
- Waymire, G. (1985). Earnings Volatility and Voluntary Management Forecast Disclosure. *Journal of Accounting Research, Vol. 23, No. 1*, 268-295.