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Financial Reporting for Contingent Convertibles in Banks: Liability or Equity?

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Abstract

Economic development in the capital markets has led to the creation of financial instruments that have the characteristics of both equity and liability, so-called hybrid financial instruments. IASB is trying to create a new way of classifying this kind of instruments. Contingent Convertibles (CoCos), a hybrid financial instrument, have since 2009 become a popular way for banks to reach their capital requirements. This paper seeks to determine if CoCos are perceived by the market as equity or liability. Previous studies indicate that CoCos act to decrease the risk of banks when looking at the potential for bankruptcy and future solvency problems. Our sample consists of 40 listed banks from 2009 until 2015 in EU, including Norway and Switzerland, who follow IFRS. To understand whether CoCos share key characteristics with equity or liability two tests are carried out. The first test looks at the association between CoCos and bank's common equity risk. The second test looks at the association between leverage and common equity risk when CoCos are calculated under two different accounting regimes, first, if CoCos were treated as a liability and then as if it were treated as equity This study did not find any significant relationships between risk and CoCos or leverage, and therefore it is not able to answer the question whether the market perceives CoCos to share key characteristics with equity or liability.

Keywords: Contingent Convertibles, CoCos, liability versus equity, IAS 32, Common Equity Risk, Stock return volatility, Basel III, Hybrid Financial Instruments.

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1. Introduction

Historically, the classification of financial instruments as either liability or equity was not very complicated. There were two types of funding, except from internally retained earnings, first from the owner and then from a third party. Funding from a third party was classified as a liability and was to be paid first, whereas the owners funding was classified as equity and were to be paid after all other claims were settled (Schmidt, 2013).

In this traditional dichotomous classification approach, in which FASB and IASB adhere to on a conceptual level, there are two types of claims on a firm's assets: equity or liability. These claims are what depicts the right-hand side of the balance sheet, though in recent years this has been put under stress, mainly because of two reasons. First, economic development in the capital markets has seen the creation of financial instruments that have the characteristics of both equity and liabilities, so-called hybrid financial instruments, and in some cases, these instruments are used to exploit the dichotomous classification approach. Second, in Europe, IAS 32, which deals with the classification of financial instruments, may have caused the reporting outcome to lack relevance and understandability (Schmidt, 2013). This lack of relevance and understandability is due to the fact that hybrid financial instruments can have features of liability and be classified as equity, or have features of equity and be classified as a liability. This would mean that the financial information is not as useful for the users of it (Clor-Proell et al., 2016).

Firms have as well been shown to use hybrid financial instruments to their advantage and structure them to get a particular accounting classification. This structuring of financial instruments to get certain benefits might be to improve firm's performance indicators, which are connected to the financial statements (Schmidt, 2013). Previous research has shown that firms use different hybrid financial instruments to achieve a lower debt ratio (De Jong et al., 2006; Levi and Segal, 2014; Scott et al., 2011). The question whether the right way to increase the understandability of these instruments is by a new classification or more disclosures are widely discussed, and no decisive evidence of either has been shown. On this note, if the classification is correct, studies have been done by looking at whether hybrid financial instrument is perceived by the market, and users of the financial information, as either equity or liability. Previous studies in this area have found that the classification of hybrid financial instruments, in accordance with the standards of FASB and IASB, is not always consistent with the view of the financial markets (Patel et al., 1993; Frischmann et al., 1995; Barth et al., 2013). Understanding how users of the financial

information understand hybrid financial instrument is of importance when creating a new way of classifying hybrid financial instrument, since otherwise, the standards might, as mentioned before, lose relevance for the user (Schmidt, 2013). Schmidt (2013) argues abandoning the classification as equity or liability completely might be the right way to create more understandability. Instead, Schmidt (2013) argues, ranking them on the credit side of the balance sheet depending on the characteristics of the instrument would make it more relevant.

The globalisation of financial markets is one of the biggest reasons for the spread of one common accounting language and harmonised financial reporting according to Ball (2006). Furthermore, according to Crawford et al. (2014), IFRS has the primary purpose of harmonising financial accounting standards across different countries. For firms adhering to IFRS, it is IAS 32 that gives guidance on whether a financial instrument should be classified as equity or liability. In 2008 IASB and FASB did a joint project trying to find an approach on how to classify financial instruments with characteristics of equity, i.e. hybrid financial instruments. As a starting point in 2008, five different methods were presented and up for discussion. The IASB tried to create a set of rules to find the desired classification. However, the proposal that was created produced results that varied which might have opened for structuring opportunities (Schmidt, 2013). After this, the projected was suspended, mainly because of capacity limitations. Though the project was reactivated as an IASB-only project in 2012, this research project is called “Financial Instruments with Characteristics of Equity,” the FICE project. According to a Staff Paper from IFRS 2017, the project is supposed to identify financial instruments that are difficult to classify under the requirements of IAS 32, as well as to determine those instruments of which preparers and users question the classifications. Furthermore, the intention is to use these instruments as test cases for the elements chapter of the conceptual framework.

Drenovak et al. (2017) argue that the Basel frameworks I and II had established capital requirements for banks which did not absorb losses in the financial crisis of 2007-2008 as intended. Admati and Hellwig (2013) found that, at the beginning of 2007, equity only constituted around 2-3% of banks total assets. It is this percentage and the percentage of hybrid financial instruments allowed in banks capital requirements that are supposed to make up the margin of safety for banks. However, the fact that hybrid financial instruments in Basel I and Basel II were allowed to constitute bank's core capital did not absorb losses as expected played a key role in the financial crisis threatening banks going concern (Blundell-Wignall and Roulet, 2013; Demirguc-Kunt et al., 2013). Furthermore, according to

Jaworski et al. (2017), the financial crisis has shown that larger capital buffers that absorb losses in a satisfactory way are needed. As an effect of the problems that arose during the financial crisis, the Basel Committee on Banking Supervision (BCBS) started their work with Basel III. Compared to Basel II, Basel III meant dehybridization of banks and less use of hybrid financial instruments in the capital requirements of banks. Though, it also meant that another hybrid financial instrument, CoCos, where allowed to be calculated with banks capital requirements (Baltali and Tanega, 2011).

CoCos are bonds with principal and coupon payments that can be converted into equity of the issuer's company or be written down if a predetermined trigger event occurs (Pazarbasioglu et al., 2011). Using CoCos in banks is considered as an effective way of financing since it helps them, as mentioned earlier, to fulfil the increased capital requirement of Basel III (Drenovak et al., 2017). That banks could include CoCos in their capital requirements has meant that the use of CoCos has increased. CoCos are also becoming more similar in their characteristics due to the requirements of Basel III that details the characteristics of them (Jaworski et al., 2017). Compared to issuing equity, CoCos is seen as being less costly making it more preferable to banks as well (Drenovak et al., 2017).

The purpose of this paper is to understand whether the market perceives CoCos to share key characteristics with liability or equity. To do this, two tests are carried out. The first test looks at the association between CoCos and bank's common equity risk. The second test looks at the association between leverage and common equity risk when CoCos are calculated under two different accounting regimes. First, if CoCos were treated as a liability and then as if it were treated as equity. This paper studies the banking sector in the European Union, as well as Norway and Switzerland, without specifically looking at the financial crisis and its effect. The studied period is between 2009 to 2015 since that is the period when CoCos have been issued and used.

The paper finds weak results, which are not statistically significant. Finding no significant results mean that questions on whether the market perceives CoCos of sharing key characteristics with equity or liability remains unanswered. However, this paper contributes to research by investigating the relationship between Contingent Convertible (CoCos) and common equity risk empirically. It also provides more knowledge and understanding on how the market perceives CoCos. Furthermore, it also contributes to the discussion on how to classify a financial instrument. This will, in turn, give IASB an opportunity to compare their results when creating a new way of classification with that of the market. Additionally, since no similar study with

the same method has been used to examine CoCos, this research will also add new knowledge about the volatility of the stock return when issuing CoCos. Although this kind of study naturally has more focus on the user's perspective, it will also be relevant for the management of the banks and firms to better understand how the market will react when CoCos are issued.

This thesis is structured as follows: After this first introductory chapter, the second chapter will provide a literature review of the liability/equity split as well as accounting treatment and research into CoCos. In the third chapter, the hypotheses that this paper test will be formulated. The fourth chapter will present the models used to answer the hypothesis and the sample set of the paper. In the fifth chapter, the results and analysis are shown. In the sixth and final chapter of this paper some concluding remarks are presented.

2. Literature review

2.1 The liability/equity split

Previously, before the emergence of global capital markets, the classification as either liability or equity were not very complex. However, in recent years, this traditional dichotomous or binary classification approach has come under critique. The reason for the criticism is that financial markets have had an increase in the numbers of instruments that try to take advantage of the binary way of classifying instruments as either equity or liability. These instruments, hybrid financial instruments, have one or more characteristics of both equity and liability (Bärsch, 2012). Research into the liability/equity split can broadly be divided into three streams of research.

The first stream looks at managers and what reasons they have for using hybrid financial instruments. There can be a multitude of different reasons for firms to issue hybrid financial instruments. De Jong et al. (2006) showed that when preference shares in the Netherlands changed from being equity in Dutch GAAP to liability when using IAS 32, firms either changed the terms and conditions of the shares or bought them back. They argue that the reason they did this was to avoid a higher debt to equity ratio. Levi and Segal (2014) examined whether firms issued Mandatorily redeemable preferred shares (MRPS), a hybrid instrument, to make sure the debt equity ratio does not increase. The study was performed by looking at if the use of MRPS changed after the enactment of a new standard where MRPS were to be classified as a liability instead of equity. They found that firms issued MRPS as a way to reduce the debt equity ratio. Scott, Wiedman and Wier (2011) study on convertible debt, showed that firms with a higher leverage were inclined to issue instruments with a higher part of equity. This since

according to Canadian GAAP at that time firms could classify parts of the instruments as equity. However, there are other reasons put forward for why firms issue hybrid financial instruments. One reason could be the tax benefits that the company might get after issuing hybrid financial instruments. These tax benefits will differ depending on the laws of the given country. Another reason is that it might not affect the firm's creditworthiness as pure liability would. Moreover, there is also evidence that when issuing hybrid financial instruments, firms are willing to bear higher financing costs to get the particular classification which the firm wants (Engel et al., 1999; Marquardt and Wiedman, 2005; Shah,1996).

The second stream of research into hybrid financial instrument looks at the effects on users of financial information when managers try to get a particular classification. This research has shown ambiguous results of the effects. Clor-Proell et al. (2016) found that experienced users of financial information rely on the features of the instrument rather than on the classification of it. Contradictory to Clor-Proell et al. (2016), Hopkins (1996) found that investors treated instrument differently depending on how the instruments were classified. Clor-Proell et al. (2016) theorise that this might be because they looked at creditors, and Hopkins (1996) looked at equity analysts, and these two groups might depend on balance sheet restatement to different extents. Their contradictory results might lead to different conclusions. Clor-Proell et al. (2016) results show that users rely on features of hybrid instruments, which might indicate that rather than changing how to classify, more disclosures might be the right way to go. Hopkins (1996) results, on the other hand, imply that getting the classification right is of importance. Hodge et al. (2003) experiment on accounting students, found that the classification of hybrid instruments is more credible when the management does not have an incentive to classify them in a specific way or when they are out of their control. Other studies have as well shown contradictory results in this area, Shah (1996) and Frischmann and Warfield (1999) have demonstrated the importance of getting the classification right. While, Frischmann et al. (1995) study on RPFD, redeemable preferred stock, suggest that increased disclosures are the correct way to go instead since, as they argue, it will be hard to create a standard that will be comprehensive enough from a classification standpoint. Thus, the question of the correct way to classify hybrid financial instruments, and if classification or disclosures are the right way, is an open one.

Since IASB and FASB are working to find a new way to classify hybrid financial instruments that better depicts the instrument, it is important to understand how the users of financial information perceive hybrid financial instruments. This to ensure that the financial information is understandable

and useful for the users.

The third stream of research into this area of the split between liability and equity has focused on how the markets perceive hybrid financial instruments. Research into how the market perceives different instruments is not comprehensive if compared to the number of instruments.

Patel et al. (1993) found that when looking at the long-term performance of firms who issued convertible debt, straight debt and common stock they discovered that issuing convertible debt and common stock changed the firm's long-term performance in a comparable way. Kimmel and Warfield (1995) looked at the relationship of leverage and systematic risk for firms who has issued redeemable preferred stock (RPFD). Since there is a positive correlation between leverage and systematic risk, a firm's Beta reflects if the market perceives these instruments as equity or liability. Kimmel and Warfield (1995) found that RPFD changes the systemic risks in a comparable way as an instrument that looks like equity might do.

Chan and Seow (1997) examined whether mandatorily redeemable preferred stock (MRPS) is priced more as debt or equity. They did this by studying the firm's return on equity and debt. Their results imply that MRPS has features from both debt and equity. In a similar research approach as Kimmel and Warfield (1995), Cheng et al. (2003) also looked at systematic risk. Cheng et al. (2003) found that redeemable preferred stock neither is, by markets, seen completely as debt nor equity.

Marquardt and Wiedman (2005) found that the capital markets react in a similar way when firms issue convertibles with contingent features as when they issue convertible debt. Terando et al. (2007) examined if the market values cash and share-puts differently depending on their solvency characteristics of the particular instrument. This since the enactment of a new standard in FASB meant that these instruments are classified as a liability. Terando et al. (2007) found that neither classification is inappropriate since they are classified based on the instrument solvency characteristics. The study was done by examining the impact of these instruments on firms' share prices.

Cheng et al. (2007) later examined whether the preferred stock should be classified as a liability. They found that preferred stock has a positive correlation with higher cost of common equity but that the inclusion of the debt contracts reduces the cost of common equity. They also found that a liability classification on preferred stock is coherent with a market view of them. Cheng et al. (2011) also examined the association between market

risk measures and different leverage components. They found that shareholders perceive higher proportions of common equity risk in preferred stock and that debt is associated with a higher common equity risk. Indicating that preferred stock shares key characteristics with debt.

Barth et al. (2013), which this paper derives its models from, examined whether employee stock options share key characteristics with equity or liability with a series of tests. They base their sample on U.S firms from 2004-2009. They first tested whether employee stock options have a positive or negative association with common equity risk. Where they found a negative association between common equity risk and the extent of a firm's outstanding employee stock options which they argue implies that employee stock options share key characteristics with equity. They also examined the relations between common equity risk and leverage measured in two different accounting regimes. One where employee stock options were treated as equity and the other where it was treated as liabilities. They found that leverage based on treating options as equity has a significantly stronger positive relation with their measure of risk than leverage based on treating options as liabilities. Thus, classifying employee stock options as liabilities would undermine the representational faithfulness of leverage with respect to common equity risk. Barth et al. (2013) thus conclude that employee stock options act as a type of equity.

2.2 Contingent Convertible

Contingent convertibles (CoCos) are a common hybrid financial instrument in banks. CoCos are bonds with principal and coupon payments that can be converted into equity of the issuer’s company or written down if a predetermined trigger event occurs (Pazarbasioglu et al., 2011). According to Avdjiev et al. (2013), CoCos are a hybrid financial instrument that is used mainly to absorb losses, in accordance with predefined agreements, which most often is when the capital of the issuing firm falls below a certain level. This means that CoCos act as an automatic mechanism for decreasing the debt of the issuer and increasing the equity capital in times of stress (Pazarbasioglu et al., 2011). Also, CoCos are as well growing more and more similar because of banks aims to include them in their capital requirements (Jaworski et al., 2017). As an example, Swedbank issued CoCos in 2015 with a total face value of US $ 750 million with a perpetual maturity. This specific CoCo is considered to be part of banks’ additional tier 1 capital. These notes bear interest at 6 % per year, which is payable twice a year, with interest being reset every 5 years. The trigger event occurs if the CET Tier 1 ratio, a leverage ratio in Basel III, falls below 8% for Swedbank Group and in that case, it will convert to ordinary shares with the number of shares calculated as the principal amount divided by the current

market price of ordinary shares (Swedbank, 2015).

CoCos were first issued in 2009, and they started to spread rapidly, first in EU and then to other markets in the world (Avdjiev et al., 2013). According to Thompson and Atkins (2014), CoCos were classified as one of the riskiest debt issued by banks, and the coupon rate for CoCos had frequently been around 6-7 per cent compared to less than 1 percent for more senior debts. Furthermore, global issuance of CoCos exceeded USD 75 billion in 2016, but it is below the USD 105 billion recorded in 2015 and under half that of the 2014 peak of USD 175 billion. European banks are also the issuer that most often uses CoCos (Jaworski et al., 2017).

In many cases during the financial crisis, banks needed financial support from governments to survive this to protect the financial stability. The financial crisis revealed severe malfunctioning of banks internal and external governance. Moreover, banks financial structure of their assets and high leverage make them less transparent according to Morgan (2002). The high leverage, low transparency and importance for the global economy impose a significant risk for the financial stability and banks are thus heavily regulated both from a national and international standpoint (Bouvatier, 2014). As well as another reason for banks being heavily regulated is that Banks have more stakeholders than firms in general (Adams and Mehran, 2003). According to Barth et al. (2008), many countries have reformed bank regulations the last decade, and following Basel, many countries strengthened capital regulations and official supervisory agencies. Though they argue this will in itself not increase bank stability. Though in general, banks argue against higher capital buffers since Equity is a more expensive way of financing than debt (Jaworski et al., 2017)

Furthermore, during the financial crisis, many of the different hybrid instruments included in banks regulatory capital did not absorb the loss as they were designed to do (Pazarbasioglu et al., 2011). This disclosed a weakness in Basel II which were lenient on allowing hybrid financial instrument in Banks Tier 1 capital. As a response to this Basel III was announced in 2009, which meant a stricter view on what was allowed in banks Tier 1 capital and a new leverage ratio (Baltali and Tanega, 2011). Also, in 2013 the European Commission announced the so-called Capital Requirements Directive IV package, which turned the regulation of Basel III enforceable in the European Union (European Commission, 2013). Even though Basel III meant a stricter view on what was allowed in banks Tier 1 capital where another hybrid financial instrument, CoCos, were allowed. This was one of the primary drivers of increasing and spreading the issuance of CoCos in the last years (Avdjiev et al., 2013). Under the new

capital requirements, all capital included in the regulatory capital must have a loss absorption mechanism except common equity. As well, to be allowed in banks capital requirement, the financial instruments must be fully and permanently written down or be fully converted into equity capital in the case of a trigger event (BCBS, 2011).

Research on CoCos has to a great extent focused on how they affect the risk of banks in different ways. The reason for this focus is primarily because this is the regulators aim with allowing CoCos in banks. Jaworski et al. (2017) found that CoCos has in some part fulfilled the main objectives of Basel III in strengthening the resilience of the banks that issued them, making them less likely being bankrupt. On this note, Ammann et al. (2017) found that issuing CoCos seems to decrease the risk of bankruptcy according to the stockholders. Furthermore, they state that CoCos appears to act as a layer of protection for the stockholders, which is favourable since government bailout seems to be less likely in the future. Moreover, they argue that CoCos appears to be treated as constituting the core capital of banks. Koziol and Lawrenz (2012) on the other hand found that CoCos may distort risk-taking incentives from the bank to the holder. This is since contracts are incomplete and managers-owners have discretion over the risk. They argue that this might destabilise the banking system as a whole and CoCos should only be used in conjunction with ways to control risk shifting. Though, Hilscher and Raviv (2014) argue that CoCos have lower changes in risk-taking incentives compared to subordinate debt and additional equity. They also find that CoCos have the same effect on improving bank stability as that of issuing common equity, thus CoCos decrease banks failure rate.

2.3 Accounting treatment under IAS 32

With the rapid acceleration in the global financial markets, many firms develop innovative ways to catch lenders and investors attention. Because of this, issuers sometimes enter conversion features into financial instruments to satisfy potential investors. The increasing numbers of conversion features in financial instruments have led to a complex problem arising in the accounting treatments and have fuelled the conflict on what the correct way for the issuer to classify them is. The question is, as mentioned before, are they completely a liability, completely an equity or are they maybe a compound instrument (BDO, 2012)?

Whether a financial instrument should be classified as equity or liability is prescribed in IAS 32. Moreover, the classification issue is a serious concern since the classification could influence the solvency and leverage ratios of the companies as well as debt covenants (Picker et al., 2016).

An instrument is considered a liability according to IAS 32 paragraph 11 if there is a contractual obligation to deliver or exchange financial assets. Though when IAS 32 was a new standard, numerous of complex financial instruments were devised just to get an equity classification under IAS 32. Although some of these instruments are liabilities in substance, technically the company was able to classify it as equity (Picker et al., 2016). Often in these cases, the question arose whether a contractual obligation existed. Often a financial instrument might require an entity to deliver cash or other financial assets, and the terms of the settlement are dependent on the occurrence or maybe non-occurrence of uncertain future events which are beyond the control of both the issuer and the holder. This is the case with CoCos where the uncertain future event typically is if the capital requirements are breached. Because of this unclear fact whether a contractual obligation really exists, IAS 32 was amended with paragraph 25. Paragraph 25 requires the issuer of a financial instrument with contingent features to classify them as a liability. The reason for this is because the issuer does not have the unconditional right to avoid delivering cash or other financial assets (Picker et al., 2016).

3. Hypothesis development

CoCos have, as stated before, parts that resemble liabilities and parts that resemble equity, and the market will treat the instrument accordingly. In a market without taxes and transaction costs, a firm's common equity risk is positively associated with the increase of straight debt and is negatively related to increasing of common equity according to Modigliani and Miller (1958; 1963). The reasons for these linkages will be presented in the methodology chapter. Contingent convertibles can because of its parts that resemble both equity and liability both increase and decrease common equity risk.

Marquardt and Wiedman (2005) found that the capital markets react in a comparable way when firms issue convertibles and convertibles with contingent features, a financial instrument which is similar to CoCos, as when they issue convertible debt. Patel et al. (1993) study on convertible debt found that convertible debt is more similar to common equity than straight debt in how they affect firms performance. Carrizosa (2010), who also looked at convertible debt, found that the market did not see the instrument in its entirety as a liability.

Moreover, Jaworski et al. (2017) found that CoCos strengthen the resilience of banks who issue them and acting as equity in how it affects banks resilience. Ammann et al. (2017) found that issuing CoCos seems to

decrease the risk of bankruptcy according to the stockholders, which indicates that the common equity risk decreases. Moreover, they argue that CoCos appear to be treated as constituting the core capital of banks, which is where common equity is located. Furthermore, Hilscher and Raviv (2014) find that CoCos have the same effect on improving bank stability as that of issuing common equity. Based on the above, we hypothesise the following:

Hypothesis I: Firm's common equity risk is negatively related to the extent of active contingent convertibles.

Hypothesis II: When contingent convertibles are calculated as equity it has a higher association with common equity risk compared to when it is calculated as a liability

4. Methodology

4.1 Common Equity Risk

The purpose of this paper is to understand whether the market perceives CoCos to share key characteristics with liability or equity. To figure out whether CoCos shares these main features with liability or equity, we will test our hypothesis.

Most of the research into hybrid financial instruments looks at how various kinds of risk measures are affected when issuing a new instrument. The reason for looking at risk measures is because capital structure theory by Modigliani and Miller (1958; 1963) implies that when the debt/equity ratio increase, the common equity holders risk increase. This since higher debt/equity ratio will enhance the risk of the common equity holders to earn less or not at all. This means that if an instrument that shares key characteristics with liability is issued risk increases and vice versa. Thus, by studying risk, we can understand how the market perceives different instruments. Following Modigliani and Miller (1958; 1963), Christie (1982) looked at stock return volatility as a proxy for risk and found that stock return volatility is positively associated with leverage.

This paper uses the model which Barth et al. (2013) use in their study on employee stock options, which in turn is derived from the work of Modigliani and Miller (1958; 1963). According to Barth et al. (2013), there is not a single model that research has been able to decide on when calculating common equity risk, but their model contains most variables known to be associated with common equity risk.

Our first model is used to test the first hypothesis that states firm's common equity risk is negatively associated with the use of contingent convertibles.

Model I:

$$RISK_{t+1} = \beta_0 + \beta_1\ COCOS_t + \beta_2 LEV_t + \beta_3\ SIZE_t + \beta_4\ EARN_t + \beta_5\ CH\_EARN_t + \beta_6\ GROWTH_t + \varepsilon_t$$

In model I RISK is the Annualised standard deviation of monthly common equity returns, meaning it is the realised equity volatility. Though our principal interest is in the coefficient COCOS, which in our hypothesis is predicted to have a negative correlation to risk, and which is the sum of the value of all contingent convertibles that are active.

LEV, which is a term to calculate the leverage in model I, is included as a control variable in model I because consistent with Modigliani and Miller (1958, 1963) common equity risk is predicted to have a positive relation with leverage. SIZE, which denotes the firm's size, is also used as a control variable and is used because it has been found to be a negative correlation between firm size and common equity risk (Pastor and Veronesi, 2003). Both EARN, earnings, and CH_EARN, changes in earnings, are added as control variables because Hanlon et al. (2004) found that operating performance has a negative correlation with common equity risk. Moreover, in line with Hanlon et al. (2004), we predict a negative correlation between Earnings and common equity risk. But as Barth (2013) states, changes in earnings can be because operating performance that has a negative correlation with common equity volatility or short-term growth that has a positive correlation with it, according to Core and Guay (2001). Therefore we cannot predict an association between common equity risk and changes in earnings.

GROWTH, the growth of the firm, is added as a control variable because firms that grow should need more CoCos to manage their capital requirements. Growth is also added as a control variable for firms' propensity to issue CoCos. Furthermore, this would indicate that growth has a positive correlation with CoCos. Failure to include growth could thus bias the result on CoCos. According to Barth et al. (2013), higher long-term growth has an association with greater risk. Even though Growth should have a positive correlation with CoCos, and our hypothesis states that there should be a negative association between risk and CoCos, we believe in line with Barth et al. (2013) that the association between risk and growth should be positive.

Our second models purpose, model II, is to test the second hypothesis, which is that when contingent convertibles are calculated as equity, it has a higher association with common equity risk compared to when it is calculated as a liability. Model II is used by Barth et al. (2013), where they seek to determine whether when leverage is measured based on treating employee stock options as equity has a stronger positive relation with common equity risk than when leverage is measured based on treating options as liabilities. Barth et al. (2013) argue that if there is a stronger positive relation when classifying employee stock options equity, then for liabilities this would undermine the representational faithfulness of leverage with respect to common equity risk. They predicted that the coefficient of leverage is larger when employee stock options are calculated as equity than when it is calculated as liabilities. After the regression is done, they found that the coefficients are statistically different. They also found that the coefficient of leverage is larger when employee stock options are calculated as equity than when leverage is calculated as liabilities. Thus classifying employee stock options as being liability undermines the representational faithfulness of leverage with respect to common equity risk.

Model II:

$$RISK_{t+1} = \beta_0 + \beta_1 LEV^*_t + \beta_2 SIZE_t + \beta_3 EARN_t + \beta_4 CH\_EARN_t + \varepsilon_t$$

Model II will test the ability of the different leverage ratios (LEV*) to explain the RISK under two different accounting regimes. First, as if contingent convertibles were treated as equity, and then as if contingent convertibles were treated as a liability. In model II most of the control variables are the same as in model I, SIZE, EARN and CH_EARN, but GROWTH is not added. The reason for not adding Growth is because it was added as a control variable for COCOS in model I to avoid bias the results and since the variable COCOS are not in model II, there is no risk for biasing. An overview of the calculations of the variables is given in Table 1.

Table 1: Descriptions of the variables in Model I and Model II

Variable	Description
$RISK_{t+1}$	Risk is the annualised standard deviation of the logarithm of monthly stock returns year t + 1, the forthcoming year.
$COCOS_t$	COCOS are the sum of all active CoCos Year t.
LEV_t	LEV is the book value of total debt year t divided by the market value equity, which is the number of shares at the end of the year t multiplied by the value of the shares at the end of year t, adding the book value of total debt year t in the denominator.
$SIZE_t$	SIZE is the natural logarithm of the market value of equity, which is calculated as the number of shares at the end of the year t multiplied by the value of the shares at the end of year t.
$EARN_t$	EARN is the annual income year t divided by the market value of equity, calculated as in LEV and SIZE, year t.
CH_EARN_t	CH_EARN is the change in the variable EARN from year t – 1 to year t.
$GROWTH_t$	GROWTH is constructed by dividing the book value of assets year t with the market value of equity, calculated as for LEV and SIZE, and also adding the book value of debt in the denominator.
LEV_t^*	LEV* refers to the leverage if CoCos were calculated under two different accounting regimes. First in the same way as the variable LEV mentioned earlier and then as if CoCos were to be calculated as equity. In the case where Cocos is calculated as equity then COCOS year t is subtracted from the book value of debt year t.

Table 1 shows the description of all the variables included in the report. All values except RISK are measured at the end of year t while RISK is during the forthcoming year.

4.2 Sample and dataset

The study uses accounting and capital market data from SNL. This paper examines a sample consisting of all the banks in the European Union (EU) including Norway and Switzerland which follows IFRS and that are listed on a stock exchange. This gave us a potential sample size of 157 banks. The reason behind choosing banks listed on a stock exchange in EU is because of the mandatory adoption of IFRS. Also, this paper adds Norway and Switzerland to increase the sample size and because these countries have banks that adopt IFRS and that have issued CoCos as well. The cause for focusing on EU including Norway and Switzerland is that this is where CoCos primarily are being used. The reason for focusing on only banks is because it is mainly there were CoCos are used as well. Only banks which are included in SNL, during the period 2009-2015 were employed in the sample. Since 2009 was the first year CoCos were issued, this year start our sample. Whereas the logic for the last year being 2015 is since to calculate the risk measure, we need the forthcoming year. Furthermore,

banks that have not issued CoCos during the period from 2009 until 2015 were excluded. This reduced the final sample size to consist of 40 banks that among them had issued a total 120 CoCos, composed of a total of 280 firm years. Table 2 shows our sample composition

Table 2: Sample composition

Country	N. of potential banks	N. Of Banks used in the Sample	N. Of CoCos
Austria	5	3	4
Belgium	2	1	5
Bulgaria	3	1	2
Croatia	5	0	0
Cyprus	2	2	3
Czech Republic	0	0	0
Denmark	19	3	5
Estonia	0	0	0
Finland	2	0	0
France	18	4	15
Germany	10	2	5
Greece	5	1	2
Hungary	2	0	0
Ireland	3	3	6
Italy	15	2	11
Latvia	0	0	0
Lithuania	1	0	0
Luxembourg	0	0	0
Malta	3	0	0
Netherlands	1	0	0
Poland	6	1	2
Portugal	2	1	1
Romania	2	0	0
Slovakia	1	0	0
Slovenia	0	0	0
Spain	8	4	12
Sweden	4	4	11
UK	12	5	23
Norway	22	1	4
Switzerland	4	2	10
Total:	157	40	121

Table two shows this study's sample composition. the first column represents the countries from where the sample is drawn. The second column represents the possible sample size. The third column represents the number of banks in each given country, and the last column shows the number of CoCos which are active in that country.

5. Results and analysis

5.1 Descriptive statistics

Table 3 contains the descriptive statistics for each variable that were used in the study. Our Variable, RISK, which is the realised equity volatility has an average of 43 %. This is slightly less than what Barth et al. (2013), found, 49 % when studying firms that issue Employee stock options in an FASB context. This means that on average banks are less risky than firms in general. The variable that we have the principal interest in COCOS averages USD 297 million (e^5,695) meaning that on average the banks in our sample have issued CoCos to a total value of USD 297 million per year. The leverage averages 70,9 % which are higher than Barth et al. (2013) got in their sample but since the leverage is calculated by the ratio of debt to market capitalization and since debt in banks is high the leverage is high (BIS 2011).

Yang and Tsatsaronis (2012) also found that in general banks leverage is six times that of non-banks firms. Which our study thus supports. In our sample, the average size, when calculated as market capitalization is USD 9,297 billion (e^22,953) which is larger than Barth et al. (2013) reported in their sample. That banks are bigger than firms, in general, are supported by Rhoades (1982) and Thornton (1992) who found that banks in Europe and U.S are substantially larger than when compared to other firms. The earnings and the change in earnings are slightly positive and slightly negative. The reason the results are small compared to Barth et al. (2013) might be because in general annual income is so small in comparison to total assets. Thus, even small positive earnings can thus indicate substantial incomes. Earnings are though still smaller than Cyree & Spurlin (2012), which got 1,11 % when they looked at large U.S banks. This difference might be because Cyree & Spurlin (2012) looked at a sample that started in 1996 and ended in 2007 which meant they did not catch the effect of the financial crisis as this study might have since the sample period beginning in 2009. The fact that the change in earnings are negative might indicate that the income decreases or that the total assets are increasing.

When CoCos are calculated as equity, the leverage is decreased to 68,5 %. That leverage decreases from 70,9 % which is expected since the numerator decreases, and the denominator stays the same.

Table 3: Descriptive Statistics

Variable	Min.	Max.	Mean	Std. Dev.	N
RISK	0,1131	0,7913	0,4309	0,1351	280
CoCos	0	16,1471	5,6956	6,7669	280
LEV	0,1335	0,9697	0,7095	0,2167	280
SIZE	17,8800	25,9919	22,9538	1,9648	280
EARN	-0,0698	0,0120	0,0007	0,0121	280
CH_EARN	-0,0562	0,0208	-0,0006	0,0093	280
GROWTH	0,7108	1,0624	1,0032	0,0540	280
LEV WITH COCOS AS EQUITY	0,0962	0,9697	0,6854	0,2386	280

Table 3. Depicts the descriptive statistics of each variable. All variables are winsorized at the 1st and 99th percentile to increase the robustness of the results. Description of each variable can be found in Table 1.

5.2 Correlation analysis

In Table 4 a Pearson correlation for the variables is presented. CoCos are, opposite to our predictions, found to have a positive correlation with risk. However, this correlation is weak (0,03) and not at a significant level, and this suggests that CoCos are not explaining larger risk well.

In accordance with the theory, the measure of leverage also has a positive correlation (0.085), though not significant, which would suggest that the underlying theory at least is correct. Furthermore, growth has a significant positive correlation with risk (0,187) which is in accordance with our theory and consistent with the results of Barth et al. (2013). Also, worth noticing is that CoCos have a significant positive correlation with size (0,122) and a significant negative correlation with earn (-0,110). This implicates that in our sample larger firms, when looking at market capitalization, issue more CoCos and firms with lower earnings issue CoCos.

Another reason for carrying through a correlation analysis is to check for collinearity amongst the variables. There is no indication of collinearity between the variable, except between earnings and changes in earnings and for leverage and leverage when CoCos are treated as equity. The other coefficients for the variables are under 0,5, which is considered low according to Collis and Hussey (2014). However, that the correlation between leverage, and leverage when CoCos are treated as equity, is high (0,967) is not a problem since these variables will not be used in the same models when running the regression analysis. For earnings and changes in earnings, a high correlation (0,605) is expected and thus further analysis if this might be a problem will be carried out in the sensitivity analysis.

A variance inflation factors test (VIF) was conducted as well, to assess

eventual multicollinearity. None of the variables has VIF scores that exceed 2 (Table 5 and Table 6) when doing the tests of model I and model II since our value is below four this implies that multicollinearity is not an issue in our study (O'brien 2007).

5.3 Regression analysis

Table 5 presents the result of the regression analysis on model I. The coefficients of CoCos is positive in model I (0.0004) which implies that when CoCos are increased the common equity risk increases as well. The positive relationship between common equity risk and CoCos implies, according to our theory, that CoCos resembles liabilities more than equity. This means that we cannot find support for our hypothesis. Though, since this relationship is not significant (t value of 0,3), this does not mean that the hypothesis is wrong. Moreover, none of the other control variables except for Growth has a significant relationship with risk. Growth has a significant positive relationship (0,483) with common equity risk this finding is in line with the results of Barth et al. (2013) and Core and Guay (2001). Thus, this paper finds support for the idea that higher growth increases risk.

Table 6 presents the regression analysis of model II first when CoCos are treated as belonging to liabilities and then when CoCos are treated as belonging to equity. In both cases, the coefficient is positive as expected, but not significant. The positive association of the coefficient is larger when calculated as liabilities than compared to when it is calculated as equity (0,0396 vs. 0,0181). To test the association between the coefficient a Wald chi-square test is performed. In order to do a Wald chi-square test, we use the suest command in Stata, to test if the coefficients are different from each other. That the coefficients are different from each other is not supported by the Wald chi-square test result, (t=0.4932) which is untabulated. Since the test of difference reveals that the coefficients are not statistically different from each other, we are not able to find empirical evidence that CoCos, when treated as equity, has a stronger positive relationship with risk than when treated as a liability. Thus we cannot find evidence that, if classifying CoCos as equity, decreases or increases the representational faithfulness of leverage with respect to common equity risk.

The results and inferences imply the opposite to what we predict and hypothesise. Thus, we cannot find support for the second hypothesis either. However, none of these coefficients is significant, which once again means that just because we cannot find support for Hypothesis II, it does not mean it is in fact wrong. And more importantly, we cannot say if the coefficient of leverage is significantly different from each other. This also implies that we cannot say whether CoCos look more like equity than a liability in model II.

Table 4: Pearson Correlations

	RISK	CoCos	LEV	Size	Earn	CH_EARN	GROWTH	LEV WITH COCOS AS EQUITY	N
RISK	1								280
CoCos	0,030	1							280
LEV	0,085	-0,071	1						280
Size	0,065	0,122**	0,392***	1					280
Earn	-0,026	-0,110*	0,082	0,277***	1				280
CH_EARN	-0,046	0,083	-0,076	0,161***	0,605***	1			280
GROWTH	0,187***	-0,0026	0,437***	0,026	-0,089	-0,160***	1		280
LEV WITH COCOS AS EQUITY	0,062	-0,168***	0,967***	0,455***	0,104*	-0,092	0,374***	1	280

*. Correlation is significant at the 0.1 level (2-tailed). **. Correlation is significant at the 0.05 level (2-tailed), ***. Correlation is significant at the 0.01 level (2-tailed).

Table 4. Depicts the descriptive statistics of each variable. All variables are Winsorized at the 1st and 99th percentile to increase the robustness of the results. Description of each variable can be found in Table 1.

Table 5: Regression Table Model I

Variable	Prediction	B	Std. Error	t	VIF
CoCos	-	0,000399	0,001239	0,321885	1,095953
LEV	+	-0,018170	0,046046	-0,394603	1,553620
SIZE	-	0,005290	0,004747	1,114405	1,356926
EARN	-	-0,124580	0,881476	-0,141331	1,768398
CH_EARN	?	-0,357938	1,112706	-0,321683	1,684080
GROWTH	+	**0,483280**	0,168947	2,860544	1,297855
N		280			
R square		0,13300			

Table 5. Depicts the results of the regression analysis of Model I. All variables are Winsorized at the 1st and 99th percentile to increase the robustness of the results. Description of each variable can be found in Table 1. The numbers marked in bold is statistically significant at a 0,05 level.

Table 6: Regression Table Model II

		Model II-CoCos as liability				Model II-CoCos as equity			
Variable	Prediction	B	Std. Error	T	VIF	B	Std. Error	t	VIF
LEV*	+	0,0396	0,0412	0,9597	1,218	0,0181	0,0391	0,4634	1,323
SIZE	-	0,0037	0,0047	0,7929	1,277	0,0044	0,0048	0,9177	1,363
EARN	-	-0,2943	0,8677	-0,3392	1,674	-0,2741	0,8714	-0,3146	1,684
CH_EARN	?	-0,4915	1,1053	-0,4447	1,624	-0,5595	1,1169	-0,5010	1,654
N		280				280			
R Square		0,1040				0,1080			

Table 6. Depicts the results of the regression analysis of Model II. All variables are Winsorized at the 1st and 99th percentile to increase the robustness of the results. Description of each variable can be found in Table 1. The numbers marked in bold is statistically significant at a 0,05 level.

5.4 Sensitivity analysis

To check for robustness of the results, and check for sensitivity, two tests was performed. First, the regression was done excluding different variables, and these results are untabulated. This is to check if any variable has a large effect on the regression analysis. When omitting different variables, no big changes occur in model I, and no variables become significant. Though when growth is omitted in model I, leverage turns from negative to positive. This relationship though is still not significant. This might indicate that Growth and Earn might have collinearity issues between the variables. In model II it is important to note that when Growth is added in model II, it changes leverage in both ways of calculating leverage to negative. Since no other changes occur, and our variable that we have the most interest in does not have any larger changes, this should not be an issue. Furthermore,

as expected, we see that r-square shrinks when there are fewer variables when the regression is done.

As a second test for sensitivity in the regression analysis, which is tabulated in Table 8 in the appendix, we used different levels of winsorizing when comparing no winsorization, winsorizing at 5th and 95th percentile and 10th and 90th percentile with that of winsorizing at 1st and 99th Percentile. The test yields no substantial changes, except that in model I EARN is negative when not winsorizing. Furthermore when winsorizing in the 5th and 95th percentile and 10th and 90th percentile growth is not significant anymore. In model II no larger changes occur, and nothing turns significant. These tests combined suggest robust results since no big changes are noted.

6. Concluding remarks

This paper seeks to determine if Contingent Convertibles (CoCos) share key characteristics with liability or equity. We predicted, based on previous studies into CoCos and one study on convertibles with contingent features, that CoCos share key characteristics with equity. Though no previous studies have looked directly at whether CoCos share key characteristics with equity or liability. This is done by studying how CoCos relate to firms' common equity risk in two different tests. The first test found no empirical evidence that CoCos share key features of equity when looking at realised equity volatility as a proxy for risk. As a second test, we investigated the association between leverage and common equity risk when CoCos are calculated under two different accounting regimes. First, if CoCos were treated as a liability and then as if it were treated as equity. Based on the same logic as mentioned earlier we predicted that leverage, when CoCos are treated as equity, will have a stronger association with common equity risk than when dealt with as a liability. However, in the second test no empirical evidence is found if CoCos shared key characteristics with equity, but rather the opposite is found even though the results are not significant.

Furthermore, the fact that no support for hypothesis I and hypothesis II can be found, this do not necessarily imply that our study is in disagreement with Marquardt and Wiedman (2005). First, they did not look specifically at CoCos but rather convertibles with contingent features. Second, they did not consider whether or not they resemble equity or liability but rather if convertibles with contingent features cause capital markets to react in a similar way as when convertibles are issued. Moreover, that this study finds no support for its hypothesis does not mean that other studies that looked at the resilience of banks (Jawroski et al., 2017) risk of bankruptcy (Ammann et al., 2017) and stability of banks (Hilscher and Raviv, 2014) are wrong. If

CoCos were to resemble liability, it would mean that CoCos act to increase the perceived risk of Banks who issue them. That would be the opposite what Jawroski et al. (2017), Ammann et al. (2017) and Hilscher and Raviv, (2014), found rather it is important to note that the results of this study are not statistically significant which mean we cannot state if it increases or decreases the risk. The reason for us not getting significant answers might be because the variable Risk which is realised equity volatility might be affected by a large number of variables, i.e. the variable is noisy. Karolyi (2001) concludes that regulations, information such as unemployment statistic and earnings announcements as well as the different possibility of what might happen in the future effects the stock price, thus increasing or decreasing the volatility of the stock return. These things are measures that this study does not have control variables for. To handle these things either more control variables have to be found or a larger sample is needed.

This study contributes to research in several ways. First, by investigating the relationship between Contingent Convertibles (CoCos) and common equity risk empirically, thus understanding how the market perceives CoCos. This paper also contributes to the discussion on how to classify financial instruments. As well it gives IASB an opportunity to compare their results when creating a new way of classification with that of the market and understanding of how the market perceives CoCos as equity or liability. Also, since no similar study with the same method has been used to examine CoCos, this research will also add new knowledge about the volatility of the stock return when issuing CoCos. Although this kind of study naturally has more focus on the user's perspective, it will also be relevant for the management of the banks and companies to better understand how the market will react when CoCos are issued.

Reasons for not achieving significant results in either of the two tests might be because of the noise that our risk measure captures. To cancel out the noise, future studies could try to achieve a bigger sample, this by waiting a few years until CoCos are used to a bigger extent and because more years in the sample will make it larger thus potentially silencing the noise. As well as mentioned earlier, research into hybrid financial instruments is not large compared to the number of hybrid financial instruments. Therefore, the possibility to study instruments that are more common, thus getting a larger sample, exists. Also, there is a multitude of ways to calculate risk where there might be less noise. Future studies could replicate this study, but with another way to calculate the risk that might yield significant results.

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Appendix

Table 7: Banks in the sample

COMPANY NAME	COUNTRY
Aareal Bank AG	Germany
Allied Irish Banks, Plc	Ireland
Attica Bank SA	Greece
AXA	France
Banco Bilbao Vizcaya Argentaria, SA	Spain
Banco BPI, SA	Portugal
Banco Popular Español SA	Spain
Banco Santander, SA	Spain
Bank of Cyprus Public Company Ltd.	Cyprus
Bankinter SA	Spain
Barclays Plc	United Kingdom
BKS Bank AG	Austria
BNP Paribas SA	France
Crédit Agricole SA	France
Danske Bank A/S	Denmark
Deutsche Bank AG	Germany
DNB ASA	Norway
Erste Group Bank AG	Austria
First Investment Bank AD	Bulgaria
Governor and Company of the Bank of Ireland	Ireland
Hellenic Bank Public Company Ltd.	Cyprus
HSBC Holdings Plc	United Kingdom
ING Bank Śląski SA	Poland
Intesa Sanpaolo SpA	Italy
Julius Bär Gruppe AG	Switzerland
Jyske Bank A/S	Denmark
KBC Group NV	Belgium
Lloyds Banking Group Plc	United Kingdom
Nordea Bank AB (publ)	Sweden
Permanent TSB Group Holdings Plc	Ireland
Raiffeisen Bank International AG	Austria
Royal Bank of Scotland Group Plc	United Kingdom
Skandinaviska Enskilda Banken AB (publ.)	Sweden
Société Générale SA	France
Spar Nord Bank A/S	Denmark
Standard Chartered Plc	United Kingdom
Svenska Handelsbanken AB (publ)	Sweden
Swedbank AB (publ)	Sweden
UBS Group AG	Switzerland
UniCredit SpA	Italy

Table 7 depicts all banks that our sample constitutes of.

Table 8: Regression analysis with different levels of winsorization

	No winsorizing			Winsorizing at the 5th and 95th percentile			Winsorizing at the 10th and 90th percentile		
	Model I	Model II - Liability	Model II - Equity	Model I	Model II - Liability	Model II - Equity	Model I	Model II - Liability	Model II - Equity
COCOS	0,0005545	-	-	0,000614	-	-	0,0006409	-	-
LEV	-0,0481090	-0,0292865	-0,0530283	0,025240	0,0220811	0,0072730	0,0313068	0,0168622	0,0075227
SIZE	0,0054541	0,0146011	0,0154918	-0,000848	-0,0002905	0,0002872	-0,0038023	-0,0019358	-0,0016011
EARN	0,0465231	-0,4561966	-0,3501610	0,260138	0,0931112	0,0735373	0,4176605	0,4130087	0,3547669
CH_EARN	-0,4454491	-0,5392807	-0,6889659	-1,019968	-0,8932635	-0,9636578	-1,2844306	-1,0233487	-1,0581916
GROWTH	**0,3106416**	-	-	-0,009476	-	-	-0,2316344	-	-

Table 8: Depicts the regression analysis with different levels of winsorization. All variables are Winsorized at the 1st and 99th percentile to increase the robustness of the results. Description of each varible can be found in Table 1. Bold number are significant at a 0,05 level.