

# Fair value accounting and bank's profitability under the adoption of IFRS: Evidence from the Scandinavian banking sector

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## ABSTRACT

The research paper re-examined the internal determinant's of bank's profitability with extends the literature by examining the implications of fair value accounting (FVA). Via applying GMM linear model interaction instruments, on Scandinavian banks for the period span from 2011 to 2018. Whereas, internal determinants of banks profitability models were performed in different scenarios; asset quality, liquidity, and capital adequacy. On average, "Sweden and Denmark" shows that asset quality and capital adequacy have a tendency to have a positive effect on ROAA and ROAE with FVA. The favorable results due to the impaired loans and the loan loss provision are low. While the negative effect of liquidity due to the high percentage of the asset is tied up in form of a loan. With, Norway the results reveal that FVA induces a various negative effect on bank's profitability of credit risk transfer and liquidity (reserve-to-deposits, and loan portfolio) which leads to high leverage "artificial volatility" of equity funding, increase the cost of capital, and extend economic cycles over its pro-cyclical effects. Moreover, FVA has high magnitude effect on shareholder wealth. Thus, the study recommends classifying the cash flow characteristics of the financial assets based on the liquidity level, and the segments of the market that could improve long-term profitability.

**Keywords:** IFRS3, IFRS 13, bank's specification, and GMM interaction instruments model.

JEL Classification: M41, C33

## 1 Introduction

Standard setters, regulators, and policy-makers all bear energetic concerns regarding financial reports influence upon the economy. This is the accrued interest on the economic penalties associated with the financial information (Palea 2013). Almost since two decades, IFRS3 fair value accounting (FVA) has been souring. Its main function resides in evaluating liabilities and assets present values. This long period urges a noteworthy take off for keeping books values at historical cost. Moreover, it gives concerns over the business in light of that accounting premise whether fair value or historical cost influences speculation decisions and administration choices (Ramanna 2013).

Numerous IFRS allow or expect substances to quantify or unveil the fair value estimation of assets, liabilities, or equity instruments. In any case, as of not long ago there was restricted direction in International Financial Reporting Standards (IFRS) on the most proficient method to gauge fair value and, at times, the direction was clashing. To cure this, the International Accounting Standards Board (IASB) issued IFRS 13 Fair Value Measurement in 2011. The standard was the consequence of a meeting venture amid IASB and US Financial Accounting Standards Board (FASB).

IFRS 13 characterizes fair value, gives standards construct direction with respect to how to gauge fair value incentive under IFRS and requires data about those fair value estimations to be uncovered. IFRS 13 does not endeavor to evacuate the judgment that is associated with assessing fair value; rather, it gives a structure that is proposed to decrease irregularity and increment comparability in the fair value estimations utilized as a part of monetary detailing. The standard additionally applies to estimations, for example, fair value fewer costs to sell, that depend on fair value. In any case, it doesn't matter to comparative estimation bases, for example, the fair value being used (Cairns 2006).

Accounting regulations for European Union banks currently recognize financial tools held for trading purposes, in other words in the trading book, and financial tools planned to be held to maturity, in other words in the banking

book. Instruments beset upon the trading book are esteemed at current market costs. Outcomes after revaluation of a certain trading instrument are noted upon profit and loss account. Managing an account book instruments, by differentiating, are conveyed to be decided in balance sheet at far least value of historical costs and market expense (Peng and Bewley 2010). Although a loss on a banking account book tool is exchanged in profit and loss account, lurking gains are not perceived and might in this manner wind up noticeably concealed holds in a balance sheet. In this manner, the accounting rules for the managing an account book doesn't consider market risks into account (aside from the outside trade hazard, where the end-time frame value is generally connected to all assets in balance sheet items). In this way, the introduction of IFRS towards fair value, and the volatility in income accordingly might prompt financial distress or result in receiving banks damaging its obligation pledge (Hung and Subramanyam 2007). At fair value, banks recognize losses and reduce equity. Since then, in order to maintain their solvency ratio, banks have to raise additional capital markets in conditions that are rapidly declining or are forced to reduce the new depression policy (Veron 2008). At the same bank, the balance sheet is attributed to the assets of the 'toxic' special-purpose bank, and they believe that the financial institutions that are transferred to risk and business principles will decide to recover many of the balance sheet commitments. The combination of these entities and their re-measurement triggers require a further loss. As a result of this reclassification, one of the two possibilities will be:

- 1) These assets and liabilities, which cannot be classified as assets and liabilities under the adoption of IFRS are to be removed from the financial statements which are based on IFRS. An example is the cost of research that does not qualify as assets under IFRS. Cost of research that took place earlier and capitalized is posted when they arise, as expenditures. Similar differences in interest rates and exchange rates that should not be treated as part of the cost of an asset in accordance with IFRS; it should be removed from the cost of that asset. The book value of an asset recorded in balance sheet this is reflected in the balance sheet as well as the amount of depreciation which was shown in the profit and loss account, for this asset in the balance sheet under the adoption IFRS will be affected.
- 2) In the IFRS-based balances sheet, some of the assets and/or liabilities that they had have not been previously accounted for under GAAP, should be regarded as assets and/or liabilities. An example of this would be the case of deferred tax assets and liabilities, which are more broadly defined and incorporated in IFRS rather than in the GAAP. This is a requirement adoption of IFRSs according to which these assets and/or liabilities are included on the balance sheet under the IFRS.

These two points have the implication that there will be a difference in both recognition and measurement of assets, liabilities, and expenses in accordance with IFRS, It follows that the adoption of IFRS 13 fair value measurement, should have an impact on and financial indicators, which are basically a measure of profitability indicators. In any case, this perspective stays hypothetical because of the non-appearance of homogeneity and hence equivalence in FVA systems. Besides, the conceivable solid use of a full FVA regime (implemented to all liabilities and assets) keeping banking industry offers, ascend to particular significant issues. In turn, this will be the basis for the hypothesis of this study.

The contribution of this study. First, is to fill the gap in finance and accounting literature by providing evidence of the environment for accounting to gives the direction of the adopting of IFRS and its impact on financial ratios. Second, exhaustive literary review, till today do not exist, addressing the application of fair value accounting for measuring assets and liabilities or equity instruments on banks specification; asset quality, liquidity, and capital Adequacy and their influences on banks profitability. Therefore, this paper aims to shed light on evidence of the applications of fair value accounting under IFRS13 and the internal deterrents of banks profitability under the adoption of IFRS on the Scandinavian banking sector.

The remainder of this paper is organized as follows. Section 2 provides a critical overview of the internal deterrents of bank profitability and fair value accounting literature that informs the hypothesis development, Section 3 presents the philosophy of variables selection and methodology, Section 4 presents the econometric findings. Section 5 then findings discussion, and Section 6 conclusion and policy implication.

### Critical literature and hypothesis development

The endorsement of IFRS is an important matter; it is defined as one of the most important shifts in world accounting history (Stent et al. 2017). Moreover, IFRS is considered as a system oriented towards the shareholder, with the presentation of financial statements that is fair value based (Alexander and Archer 2001). Meanwhile, the volatility of book values and reported income should be introduced by the fair value orientation of IFRSs, (Barth and Landsman 1995, Hung and Subramanyam 2007). The utilization of FVA might be reasonable for trading books of banks, which alludes to exchanges (purchasing/offering) of attractive financial instruments with the aim of

influencing a benefit from short-term price fluctuations. Utilization of fair value reasonable incentive for these exchanges is steady with market costs accessibility and short-term horizon. Thusly, the use of FVA to the managing an account book of banks, i.e. to non-negotiable instruments, for example, credits. And the earnings that generated under IFRS, it is expected to have a higher degree of value relevance under IFRS which it might affect positively on the bank's profitability (Liu and Farrell 2010). Whereas economic losses are involved into announced financial statement quickly which is considered significant strength if the loss is recognized in a timely fashion, and hence drops in the anticipated future cash flow as a result of the long-term investment, would be embodied that accounting information into income as one-time losses quickly (VanHoose 2007).

In particular, Adoption of Fair Value accounting in banks financial reports equips investors with the ability to anticipate banks' capacity of generating cash flow from the available supplied resources. Therefore, reduction of information asymmetry in the financial market is expected to appear, intern led to an improvement of the quality of information among entities in the market. Therefore, there is a significant shortage of research on the impact of adopting IFRS on financial ratios, dealing with this issue over the last decade. Analyses of the impact of differences between US GAAP and IFRS on economic and financial indicators of 37 English companies that negotiate with the Americans Deposits Receipts on the NYSE were taken by Beuren et al. (2008). The following financial indicators are discussed in the study: debit (measured by total liabilities divided by liquid assets), liquidity (measured by current assets + long term realizable assets divided by current liabilities + long term maturing liabilities), financial dependency (measured by the division of total liabilities by total assets), current liquidity (measured by current assets divided by current liabilities) return on assets and return on liquid assets. Financial indicators were based on calculations from the 2005 financial statements; the statements are sent to the New York Stock Exchange (NYSE) based on the US GAAP and the London Stock Exchange (LSE) based on IFRS. Their results showed that there were percentage differences in economic and financial indicators a score of 37 English companies, based on these statements, there are differences between US GAAP and IFRS. So far, internal determinants of banks profitability generally influence by management strategies and decisions. These determinants may also be termed micro or bank-specific factors that generally indicate differences in the sources and applications of fund management, capital, liquidity and cost management, i.e. reserve policy, operational efficiency liquidity levels, and capital adequacy (Menicucci and Paolucci 2016). In most previous surveys, for example, internal conditions focused on bank variables such as bank size, risk, capital ratio, loans, and deposits. This led us to discuss "bank-specific" the internal determent of bank profitability.

### **2.1 Asset Quality Ratio "risk transfer"**

The level of provisions for credit losses could raise concerns of maximizes the profit of the bank. Changes in credit risk may reflect changes in the health status of the bank's credit portfolio (Cooper et al. 1998), which may affect the institution's performance. Accordingly, Duca and McLaughlin (1990), among others, argue that changes in bank profitability are generated mainly by changes in credit risk since the increased exposure to credit risk is generally attributable to a lower profitability of the company. The challenge for bank management is to reduce the risk of credit delays and assess loans so that reimbursements are more appropriate to cover credit losses (Golin and Delhaise 2013). The discussion began about not the size of loans, but the importance of their quality. Indeed, with good credit quality, a high percentage could suggest a positive relationship between risk and return, in line with the risk hypothesis and return. Consequently, Kosmidou et al. (2008), Athanasoglou et al. (2008) and Vong and Chan (2009) found a positive relationship between the ratio of provisions to total credit losses (asset quality) and profitability. Empirical evidence Naceur and Goaied (2001) have shown this the best banks are those that maintain high levels of deposit accounts (e.g. the ratio of total deposits to total assets) means the increase in available funds for various profitable uses (e.g. lending and investment), which should increase the return on bank assets when other factors are constant (Allen and Rai 1996). According to Heffernan and Fu (2010), the estimated relationship of this relationship to profitability can be positive or negative because of the higher indicative value assess possible future loan loss, or may also show timely recognition under the adoption of IFRS of unpleasant bank loans. It is therefore difficult to predict the link between Assets quality and profitability. This led us to test the following hypotheses:

**H1:** *There is positive relationship between asset quality and bank profitability under the adoption of IFRS*

**H1a:** *There is a positive relationship between credit risk and bank profitability under the adoption of IFRS.*

**H1b:** *There is a positive relationship between loan loss provisions and bank profitability under the adoption of IFRS.*

### **liquidity Ratio "funding"**

In this regard, in the study, Abreu and Mendes (2001) which studied banks in Portugal, Spain, France and Germany, the positive correlation between loan rates and profitability, Pasiouras and Kosmidou (2007) have documented that higher credit has a negative impact on actual return. In fact, the bank's profits depend on the value or structure of the loan portfolio. Typically, loans generate interest income, and a large portfolio of loans should result in improved bank earnings (Rhoades 1985). However, a large portfolio of loans can also lead to a reduction in bank profits if they mainly cover high-risk loans that could lead to lower incomes and financial losses. Duca and McLaughlin (1990), among others, to conclude that differences in bank profitability largely depend on credit risk changes and Miller and Noulas (1997) have shown a negative correlation between credit risk and profitability, and credit risk differences may reflect a change in quality credit portfolio of the bank (Cooper et al. 2003). Thus, it can be stated that the size of the bank's loan portfolio affects the positive or negative profitability, depending on its composition in terms of credit quality. This led us to test the following hypotheses:

**H2:** *There is a negative relationship between liquidity and bank profitability under the adoption of IFRS.*

**H2a:** *There is a negative relationship between reserves-to-deposits and bank profitability under the adoption of IFRS.*

**H2b:** *The assets are tied up on loans negatively on bank profitability under the adoption of IFRS.*

### ***Capital Adequacy Ratio "regulatory capital"***

In line with these findings, Bourke (1989) stated in its conditions analysis of 12 selected banks in Europe, North America and Australia, a significant positive relationship between capital adequacy and profitability. Similarly, the Berger (1995) study have shown that well-capitalized American banks are more profitable than others. In another study on the profitability of banks in 18 European countries in 1986-1989 Molyneux and Thornton (1992) also argued that the ratio of capital positively influences the efficiency of banks to state banks. Athanasoglou et al. (2008) investigated the impact of specific bank conditions, industrial and macroeconomic viability of Greek banks, and their empirical studies have shown that increased exposure to credit risk reduces returns. In fact, most other studies using the capital ratio as a variable explaining the bank's profitability have created a positive relationship between capital and profitability. This positive correlation was demonstrated, for example, by Sufian and Chong (2008), and Vong and Chan (2009).

While overall capitalization turned out to be o play an essential role in financial institutions, empirical evidence on the ratio between capital ratio and cost efficiency are not always certain. Predicting the net impact of a capital change can be difficult. Some authors mentioned above believe that banks with the highest capital ratios are less risky than banks with lower capital ratios. According to conventional assumptions of risk and return, it is expected that banks with lower capital ratios of higher returns compared to financially well-capitalized institutions (Mamatzakis et al. 2005). This hypothesis of return risk will, therefore, imply a negative relationship between the capital ratio and the profitability of the bank. This led us to test the following hypothesis:

**H3:** *There is the positive relationship between capital adequacy and bank profitability under the adoption of IFRS.*

**H3a:** *There is a positive relationship between core capital of credit exposure and bank profitability under the adoption of IFRS.*

**H3b:** *There is a positive relationship between the leverage and bank profitability under the adoption of IFRS.*

### ***2.4 The fair value of the banking sector***

Plantin et al. (2008) studied cost and benefit of two accounting systems. Their paper is noteworthy in a way to anticipate the distinctive complexity of responses to the hypothetical influence of fair value accounting applications and fire sales spirals during the financial crisis developed from the first version of the 2004 survey. Generally, present models that explain why financial institutions should be plagued by introducing a mark-to-market system. Both accounting systems showed incompetence in that matter. Especially, historical cost system brings reciprocal trade to stabilize the price. On the contrary, fair value accounting heightens asset prices movement, when the price falls, incentives are sold, and opposition behavior appears when price rises, compared to base price. Therefore, the fair value accounting results, in a business cycle with a severe business cycle that makes prices unstable. Market launch in this way pricing can increase the volatility of assets and can guide actual decisions that are not optimal for feedback effects. The induced 'artificial volatility' of the price is an agency with a portfolio composed of assets of long-term, illiquid, and advanced (that is, scarce upward risk but the potential downward risk) assets influence most strongly. These are the main features of bank assets.

Colmant et al. (2007) likewise certified that the IFRS that address financial instruments (IAS 32, IAS 39 and IFRS 7) posture application issues in the banking sector segment, prominently in the way they associate with the new Basel agreement on equity (known as Basel II). Basel II sorts out the prudential supervision of banks by

controllers into three pillars: first (Tier One), in respect to the base capital necessities; second (Tier Two), managing prudential observation; and a third (Tier Three), requiring distribution of certain data by banks. Moving to IFRS has altered the count of the dissolvability proportion for banks, specifically as in respects of the re-estimation of accessible available for sale; financial instruments and the undiscovered consequences of cash flow hedges.

In recent years, researchers have drawn attention to a general phenomenon that the arguments described above for and against the accounting of fair value: none neutrality of accounting rules. They provide for the adoption of fair value accounting have economic consequences in terms of real business decisions. This remark is underlined, for example, Shin (2007), who believes that *"the key to accounting at fair value is how the accounting regime affects behavior."*

Burkhardt and Strausz (2004) also analyze bank loans subject to historical cost accounting or fair value accounting. Like the previous article is an extension of the Akerlof lemon problem and finds that the program may cause underinvestment of historical cost. Freixas and Tsomocos (2004) investigated the effect of fair value accounting on the banking system and its ability to act as a facilitator of smoothing. The study examines another way in which banks affect both accounting systems, gains are more volatile at fair value than historical cost accounting. But the assumptions are quite different from the usual arguments of proponents and opponents of fair value.

However, as Beatty (2007) notes, *"standard decision makers should be interested in changing economic behavior as a result of their patterns, even if the models do not take into account these behavioral changes"*, referring to the point of the first Vice-President of the Financial Standards Board (Leisenring 1990). In another research study, Barth (2007) stated that this problem is an unsolved *"motivational problem for future research," "How will affect more than fair value in financial statements on investor behavior management? Simply the natural consequence of providing information and transparency neutral or fair value reflects the lack of neutrality? If the latter, what is the lack of neutrality?"* That is why they are over discrepancies in the accounting standards under consideration, have a significant impact on economic and financial indicators. It should be noted, these studies covered only one year of adoption of IFRS and therefore did not allow the change of IFRS from the national level accounting standards which have not been fully reflected the financial statements. This led us to test the following hypothesis:

**H4.** *The volatility of fair value accounting has a negative effect on the internal determinants of bank profitability under the adoption of IFRS.*

## **Variables definition and methodology**

### **3.1 The philosophy of variables selection**

Aims of this paper tend for investigating the profitability of Scandinavian banks that applied IFRS, return on average assets (ROAA); and return on average equity (ROAE) have been widely used as profitability effectiveness measures. ROAA indicates how effectively a bank manages its assets to generate revenue, is the income per unit of total assets. ROAE as an alternative measure of profitability is calculated by dividing net income into equity. It measures the earnings earned on each shareholder. Banks with a high level of financial debt may have a higher risk, although these banks may experience a high return on equity. As a result, the ROAE may sometimes be less exposed to the financial condition of banks in the real world. Another challenge with ROAE is that it affects by regulation. Golin and Delhaise (2013) argued that ROAA and ROAE are the most important measures of profitability in the latest banking literature.

Besides, concerning the internal determinants of banks profitability can be defined as factors influenced by bank management decisions and policy objectives. These determinants can also be called micro or bank-specific factors that fundamentally reveal differences use of fund management, capital, liquidity and expense management, liquidity, operational efficiency, capital adequacy, and expenditures management. Internal determinants profitability is well utilized empirically and most of the previous research revealed (Bourke, 1989, Molyneux and Thornton 1992), quality of assets (Molyneux and Thornton 1992), liquidity ratio (Berger et al. 1987, Bikker and Hu 2002), capital ratio and the operational efficiency of banks is an important factor in achieving high profitability.

The mixed results obtained in the previous literature have led to unclear understanding internal factors relating to the profitability of the bank, followed by increased interest in the subject. Therefore, a different scenario was employed according to the banks' specification and their movement on Scandinavian banks profitability.

The consolidated data refers to asset quality, liquidity, and capital adequacy ratios, in addition to fair value accounting as a control variable of the bank profitability under the adoption of IFRS. Whereas, securitization increases the opportunity credit risk transfer that offers by banks. To test the hypothesis of assets quality "H1". Hence, the selected proxy under assets quality is: 1- Impaired loans to gross loans: *"represents banks credit risk transfer,*

these are the loan that may not be recovered and are doubtful. This indicates the weakness of the loan portfolio relative to the bank's capital. The lower this percentage, the better the quality of the assets" (to test hypothesis H1a). 2- Loan loss provision to net interest revenue: "represents the relationship between the loan loss provisions that effect on net interest revenue that earned, the lower this percentage, the better assets quality in term of credit rating" (to test hypothesis H1b).

To test the hypothesis of liquidity "H2", The selected proxy under liquidity is an important driver of securitization are: 1- liquid assets to deposit short and long-term funding: "this ratio can be considered reserves-to-deposits as a deposit runoff ratio since it is a proxy for what percentage of customer deposits and short-term funding could be met if they were withdrawn suddenly. The higher this ratio, the more liquid the bank" (to test hypothesis H2a). 2- Net loans to total assets: "represents what percentage of the assets of the bank are tied up in loans. The higher the ratio less liquid the bank is" (to test hypothesis H2b).

To test the hypothesis of capital adequacy "H3", the selected proxy for regulatory capital arbitrage are 1- Total equity to weighted risk: "under the Basel II and III frameworks, this ratio should be at least 8%. This ratio is a measure of the amount of a bank's core capital expressed as a percentage of its assets weighted by its credit exposure" (to test hypothesis H3a). 2- Equity to liabilities: "represents the leverage ratio is simply another way of looking at the equity funding of the balance sheet" (to test hypothesis H3b). In addition, fair value accounting to total assets: "represents the relationship between the re-valuation of assets with total assets, the lower ratio indicates underestimated of banks assets" (to test hypothesis H4), as reported in table 1.

The sample includes 51 banks from Denmark, 67 banks from Norway, 90 banks from Sweden, for time span starting from 2011 till 2018. We excluded banks with missing information under the adoption of IFRS standard. "The key to accounting at fair value is how the accounting regime affects behavior" (Shin 2007). For this reason, the analysis has been performed for each country separately, to reduce the lack of the harmonization in measuring the fair value accounting (Pope and McLeay 2011). Besides a deeper concern is that there will inevitably be substantial differences between countries in the implementation of IFRS. Which now risks being hidden of uniformity, the idea that the only standards will produce the uniform financial report seems to be naive (Ball 2006).

Descriptive statistics for the tested variables are presented in appendix 1, 2, and 3, of the sampled Scandinavian banks. On average, the banks in our sample have an ROAA of 0.39% and ROEA of 1.67% for Denmark. While substantially high for Norway and Sweden compared with Denmark, on average an ROAA of 0.85% and ROEA of 9.86% for Norway and ROAA of 1.08% and ROEA of 8.59% for Sweden. Turning to the independent variables, banks specific variables (as seen from the mean and median values) asset quality, liquidity, capital adequacy ratios, and fair value accounting, these differences between mean and median of these financial ratio measures indicate that heterogeneity among the banks in our sample exists among each country. Furthermore, Variance Inflation Factor (VIF) was used in order to ensure that the results are not contaminated by multicollinearity. The reported results; (in table 2, 3, and 4) confirm the absence of the multicollinearity in the different models.

**Table 1: Ratio Analysis by BankScope, Fitch format**

| es                                                |                                                                                 | Measure                   | Notation | Expected sign |
|---------------------------------------------------|---------------------------------------------------------------------------------|---------------------------|----------|---------------|
| <b>Dependent variable</b>                         |                                                                                 |                           |          |               |
| profitability                                     | Return on Average Assets                                                        | ome /Average total assets | ROAA     | NA            |
|                                                   | Return on Average Equity                                                        | ome /Average total equity | ROAE     | NA            |
| <b>Bank Specification "Independent Variables"</b> |                                                                                 |                           |          |               |
| Assets Quality<br>'Risk Transfer'                 | (Impaired Loans ÷ Gross loans) × 100                                            |                           | AQ1      | +             |
|                                                   | (Loan loss provision ÷ Net interest revenue) x 100                              |                           | AQ2      | +             |
| Liquidity<br>'Funding'                            | (Liquid Assets ÷ Deposits + short & long term funding + Subordinate debt) × 100 |                           | L1       | -             |
|                                                   | (Net loans ÷ Total assets) x 100                                                |                           | L2       | -             |
| Capital Adequacy<br>'Regulatory Capital'          | (Total Equity Capital ÷ Risk Weighted Assets) × 100                             |                           | CA1      | +             |
|                                                   | (Equity ÷ Liabilities) x 100                                                    |                           | CA2      | +             |

| Control variable "IFRS13" |                                                                  |     |   |
|---------------------------|------------------------------------------------------------------|-----|---|
| Fair Value Accounting     | $(\text{Fair value assets} \div \text{Total Assets}) \times 100$ | FVA | - |

**Source:** The Fitch Universal Format on BankScope April 2009.

### 3.2 Methodology

Using the financial ratio namely; asset quality, liquidity, and capital adequacy in addition to fair value accounting as a control variable of the bank profitability under the adoption of IFRS. In order to, control for individual heterogeneity "unobserved banks-specific effects"; GMM panel mechanism was used with the observation of each bank from 2011 to 2018. Also, panel method was used to control the endogeneity of banks profitability (ROAA, and ROAE). This procedure of GMM estimator used to make adjustments, which were developed by Arellano and Bond (1991). The bank's profitability equation is based on a general model which expressed linear form:

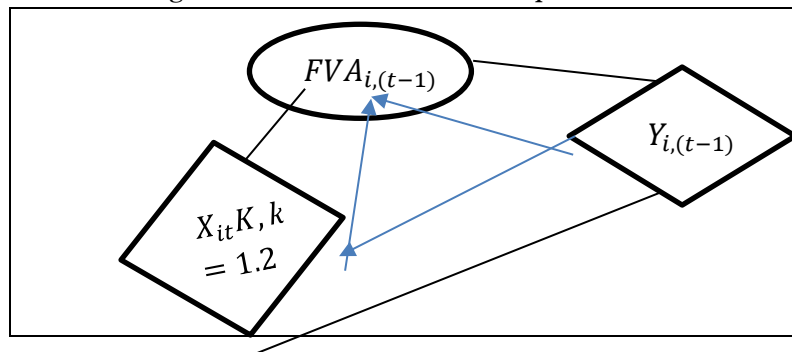
$$Y_{i,t} = c + \sum_{s=1}^S \beta_s X_{it}^s + \sum_{f=1}^F \beta_f X_{it}^f + \varepsilon_{i,t}, \quad \varepsilon_{i,t} = v_{it} + u_{it} \quad (1)$$

Where  $Y_{i,t}$  ROAA, and ROAE of bank  $i$  at year  $t$ ,  $X_{it}^s$  represents internal determinants of banks "bank-specific" namely, asset quality, liquidity, capital adequacy,  $X_{it}^f$  represents fair value accounting,  $\varepsilon_{i,t}$  exhibits stochastic error term related influence that may possibly influence banks profitability. This a one-way component regression model, where  $v_{it} \sim N(0, \sigma_v^2)$  and independent of  $u_{it} \sim (0, \sigma_u^2)$ .

#### 3.2.1 Instruments specification

Employment of instruments is obligatory to handle possibilities of endogeneity of explanatory variables by correlated with the lagged dependent variable. In other words, these tools advantage from previous observations of independent factors and from the lagged-dependent variable (Roodman 2009). Given that these tools rely on previous values, only current and future values of the dependent variable. Furthermore, according to the discussed literature of IFRS adoption, was described as fair value-oriented, which reflects the fair market value on the balance sheet and income statement items. This lead to affect the financial ratio. For this reason, we perform an interaction instrument between banks specification and fair value accounting as presented in figure 1:

Figure 1: Interaction instruments specification



These estimators depend upon differencing regressions to control for anonymous influence. Previous observations of the lagged-dependent variables  $Y_{i,(t-1)}$  known as internal instruments,  $FVA_{i,(t-1)}$  represent lagged fair value accounting, and  $X_{it}K$  represent the bank-specification namely: AQ1 and AQ2 as asset quality, L1 and L2 as liquidity, and CA1 and CA2 as capital adequacy scenarios.

## 4 Econometrics results and discussion

### 4.1 Econometrics results

This section contribution is to examine numerical evidence of the bank's profitability; return on average assets (ROAA); and return on average equity (ROAE); in relation to the bank specifications scenarios; asset quality "risk transfer", liquidity "funding", capital Adequacy "regulatory capital" and fair value accounting for each country.

**Table 2: Asset quality for Scandinavian country, GMM model Estimation**

| Country Models                            |         | Variables                      | Model 1 (ROAA)     | Model 2 (ROAE)     | (VIF) † |
|-------------------------------------------|---------|--------------------------------|--------------------|--------------------|---------|
| Panel A<br>Assets Quality 'Risk Transfer' | Denmark | C                              | 0.664 (3.33)**     | 6.211 (3.18)**     |         |
|                                           |         | AQ1                            | 0.015 (2.48)**     | 0.075 (1.28)       | 1.01    |
|                                           |         | AQ2                            | -0.013(-9.48)**    | -0.112 (-8.33)**   | 1.01    |
|                                           |         | FVA                            | -0.006 (-1.11)*    | -0.005 (-0.09)*    | 1.01    |
|                                           |         | <b>Sargan test<sup>¶</sup></b> | <b>134.0</b>       | <b>302.0</b>       |         |
|                                           |         | <b>AR (1)<sup>§</sup></b>      | <b>P-v = 0.023</b> | <b>P-v = 0.126</b> |         |
|                                           |         | <b>AR (2)<sup>§</sup></b>      | <b>P-v = 0.546</b> | <b>P-v = 0.225</b> |         |
|                                           | Norway  | C                              | 0.902 (10.2)**     | 10.584 (11.0)**    |         |
|                                           |         | AQ1                            | -0.018 (-3.31)**   | -0.117 (-2.54)     | 1.60    |
|                                           |         | AQ2                            | 0.232 (7.38)**     | 2.016 (3.29)**     | 1.29    |
|                                           |         | FVA                            | -0.025 (-4.22)**   | -0.269 (-2.00)*    | 1.63    |
|                                           |         | <b>Sargan test<sup>¶</sup></b> | <b>91.84</b>       | <b>105.6</b>       |         |
|                                           |         | <b>AR (1)<sup>§</sup></b>      | <b>P-v = 0.000</b> | <b>P-v = 0.000</b> |         |
|                                           |         | <b>AR (2)<sup>§</sup></b>      | <b>P-v = 0.604</b> | <b>P-v = 0.206</b> |         |
|                                           | Sweden  | C                              | 1.057 (24.7)**     | 0.147 (-2.53)**    |         |
|                                           |         | AQ1                            | 0.014 (3.47)**     | 0.168 (0.81)*      | 1.01    |
|                                           |         | AQ2                            | 0.002 (0.83)*      | 0.010 (0.525)*     | 1.05    |
|                                           |         | FVA                            | 0.004 (0.80)       | 0.127 (1.97)*      | 1.05    |
|                                           |         | <b>Sargan test<sup>¶</sup></b> | <b>315.0</b>       | <b>261.3</b>       |         |
|                                           |         | <b>AR (1)<sup>§</sup></b>      | <b>P-v = 0.000</b> | <b>P-v = 0.000</b> |         |
|                                           |         | <b>AR (2)<sup>§</sup></b>      | <b>P-v = 0.914</b> | <b>P-v = 0.306</b> |         |

\*, and \*\* denote significant level at 5% and 1% respectively. ( ) t-statistic.

¶ The test for over-identifying restrictions in GMM linear model estimation.

§ Arellano-Bond test that average auto-covariance in residuals of order 1, and 2 is 0 ( $H_0$ : no autocorrelation).

† Variance Inflation Factor less than 3 ensure variables are not contaminated by multicollinearity.

Asset quality refers mainly to the quality of the bank's earning assets which include its loan portfolio. If banks operate in more risky and uncertain environment and they find it difficult to control their lending operations, it will probably lead to a higher loan loss. In fact, with a sound quality of loans, a high ratio could suggest a positive relationship between risks and profits, according to the risk-return hypothesis (Kosmidou et al. 2008).

The reported results in table 2 (Panel A), shows the effect of assets quality ratios 'risk transfer' on Scandinavian bank's profitability, with fair value accounting. In Denmark and Sweden, the results reveal that impaired loans to gross loan (AQ1) "credit risk" shows a positive and significant effect on ROAA at 1% significant level, by 1.5% and 1.4% respectively, meanwhile affect positively on ROAE at 5% significant level on Sweden banks by 16.8%. This shows slightly high management of the exposure of credit risk transfer and assets management. This lead to accepting (H1a) under asset quality which is the credit risk rating positively affects bank profitability for Denmark and Sweden under the adoption of IFRS. While, AQ1 in Norway has a negative and significant effect on ROAA at 1% significant level, by -1.8%. This indicates the weakness of the loan portfolio relative to the bank's capital. This lead to rejecting (H1a) under asset quality which shows the weakness of credit risk rating loans portfolio and negatively affects Norway banks profitability under the adoption of IFRS.

Moreover, in Sweden and Norway, the results reveal that loan loss provisions to net interest revenue (AQ2) had a positive significant influence on ROAA and ROAE, on average by 0.6% and 112%, at 1% and 5% significance level respectively. This indicates lower amount provision led to increasing the bank's profitability earned. With strong collateral held against loans are used to cover a borrower's outstanding debt especially in Norway. This lead to accepting (H1b) under asset quality which is the loan loss provisions positively affects bank profitability for Sweden and Norway under the adoption of IFRS. On the contrary, in Denmark (AQ2) gave negative influence at 1% significance level on ROAA by -1.3% and on ROAE by -11.2%. This implies lack of dynamic aspect in evaluating each credit rating separately of the bank, beside to weak assessments of their overall

collateral that held against loans are used to cover a borrower's outstanding debt. In addition to greater provision indications from timely recognition of bad banks' loan (Heffernan and Fu 2010). This increases the provisioning cost and declines the interest revenue. This lead to rejecting (H1b) under asset quality which is the loan loss provisions positively affects bank profitability for Denmark under the adoption of IFRS.

Imposingly, in Sweden fair value accounting (FVA) result indicates a positive influence on ROAE at 5% significant level by 12.7% increase in banks profitability from the re-evaluation of the assets under IFRS 13 as gain that earned, with the movement of assets quality. This result indicates an increase in the price is a strong assessment and assets management with a portfolio composed of assets of long-term and liquid assets. This lead to rejecting (H4) which is the volatility fair value accounting with an assessment of assets quality negatively affects bank profitability for Sweden under the adoption of IFRS. Meanwhile, FVA in both country Denmark and Norway shows a negative and significant impact on banks profitability; (ROAA by -0.6%; on ROAE by -0.5%) and (ROAA by -26.9%; on ROAE by -0.5%) respectively. This result depicts the volatility of bank's assets assessment that absorbed from core capital due to the re-evaluation of the assets under IFRS 13 that mostly decrease the stockholder wealth, with a high magnitude as reported in Norway by -26.9%. This Moving to IFRS 13 has altered the count of the dissolvability proportion for banks, specifically as in respects of the re-estimation of accessible available for sale financial instruments and the undiscovered consequences of cash flow hedges. Consequently, the negative effect of FVA is simultaneous with the negative influence of loan loss provisions in Denmark, and negative influence of impaired loans "credit risk" in Norway on their bank's profitability. This lead to accepting (H4) which is the volatility of fair value accounting with an assessment of assets quality negatively affects bank profitability for Denmark and Norway under the adoption of IFRS.

Accordingly, from the discussed results of assets quality "risk transfer" and fair value accounting with various effects on banks profitability. Findings revealed, Denmark banks profitability have a negative influence on loan loss provisions (H1b rejected), and fair value accounting assessments (H4 accepted). While credit risk represents by impaired loan has a positive impact on banks profitability (H1a accepted). On the other hand, Norway banks profitability a negative influence of credit risk rating (H1a rejected), and fair value accounting (H4 accepted), while positively in term of loan loss provisions assessment (H1b accepted). On contrary Sweden banks, profitability has a positive influence in term of credit risk, loan loss provisions (H1a and H1b accepted), and fair value accounting (H4 rejected). This led us to accept main hypothesis H1: which is there is a positive relationship between assets quality and bank profitability for Sweden under the adoption of IFRS.

**Table 3: Liquidity for Scandinavian country, GMM model Estimation**

| Country Models                 |         | Variables                      | Model 1 (ROAA)     | Model 2 (ROAE)     | (VIF) † |
|--------------------------------|---------|--------------------------------|--------------------|--------------------|---------|
| Panel B<br>Liquidity 'Funding' | Denmark | C                              | 2.671 (3.64)**     | -5.137 (-0.286)    |         |
|                                |         | L1                             | 0.006 (3.21)**     | 0.020 (2.01)*      | 1.19    |
|                                |         | L2                             | -0.029 (-3.44)**   | -0.065 (-0.37)*    | 1.93    |
|                                |         | FVA                            | -0.037 (-3.75)**   | -0.074 (-0.28)     | 1.73    |
|                                |         | <b>Sargan test<sup>†</sup></b> | <b>302.0</b>       | <b>302.0</b>       |         |
|                                |         | <b>AR (1)<sup>§</sup></b>      | <b>P-v = 0.064</b> | <b>P-v = 0.135</b> |         |
|                                |         | <b>AR (2)<sup>§</sup></b>      | <b>P-v = 0.216</b> | <b>P-v = 0.208</b> |         |
|                                | Norway  | C                              | 0.063 (4.79)**     | 0.269 (2.67)**     |         |
|                                |         | L1                             | -0.001 (-0.11)     | -0.104 (-2.74)**   | 1.67    |
|                                |         | L2                             | -0.092 (-3.43)**   | -0.820 (-3.93)**   | 1.05    |
|                                |         | FVA                            | -0.017 (-0.89)     | -0.049 (-0.322)*   | 1.70    |
|                                |         | <b>Sargan test<sup>†</sup></b> | <b>112.9</b>       | <b>108.9</b>       |         |
|                                |         | <b>AR (1)<sup>§</sup></b>      | <b>P-v = 0.000</b> | <b>P-v = 0.000</b> |         |
|                                |         | <b>AR (2)<sup>§</sup></b>      | <b>P-v = 0.931</b> | <b>P-v = 0.258</b> |         |
|                                | Sweden  | C                              | 1.549 (9.95)**     | 0.078 (1.31)       |         |
|                                |         | L1                             | 0.009 (2.14)*      | 0.013 (1.29)       | 1.38    |
|                                |         | L2                             | -0.007 (-3.37)**   | -0.031 (-4.56)**   | 1.12    |

|  |                                |                    |                    |      |
|--|--------------------------------|--------------------|--------------------|------|
|  | <i>FVA</i>                     | 0.011 (2.23)*      | 0.239 (4.37)**     | 1.29 |
|  | <b>Sargan test<sup>†</sup></b> | <b>284.3</b>       | <b>269.0</b>       |      |
|  | <b>AR (1)<sup>§</sup></b>      | <b>P-v = 0.020</b> | <b>P-v = 0.000</b> |      |
|  | <b>AR (2)<sup>§</sup></b>      | <b>P-v = 0.258</b> | <b>P-v = 0.441</b> |      |

\*, and \*\* denote significant level at 5% and 1% respectively. ( ) t-statistic.

¶ The test for over-identifying restrictions in GMM linear model estimation.

§ Arellano-Bond test that average auto-covariance in residuals of order 1, and 2 is 0 ( $H_0$ : no autocorrelation).

† Variance Inflation Factor less than 3 ensure variables are not contaminated by multicollinearity.

Bank loans are the main source of earnings and are expected to affect profit positively. However, various studies showed a negative correlation between bank loans and profits. For these reasons, empirical results between the liquidity level and the profitability of the banks are different. When banks increase their loan portfolio, which they have to pay costs associated with economic mechanisms. In this case, a very large loan the banks quickly developed a loan portfolio by paying them a higher equity, and this can lead to a negative influence on profitability (Menicucci and Paolucci 2016).

(Panel B) Liquidity ratio "funding" as reported in table 3, results reveal that liquid assets to deposit and subordinate funding (L1) expressed statistically positive aftermath on Denmark and Sweden banks profitability (ROAA) by 0.6% and 0.9% respectively, and statistically significant at 1% level on ROAE by 2% on Denmark. This implying the ability of liquid assets to cover any sudden withdrawal in short-run, and perform liquidity in term of reserve-to-deposits. This lead to rejecting (H2a) under liquidity which is the reserve-to-deposits negatively affect bank profitability for Denmark and Sweden under the adoption of IFRS. While in Norway the results indicate the L1 has a negative impact and statistically significant on ROAE by -10.4%. Consequently, it considers as the most sensitive measurement to banks liquidity, the results indicate Norway slightly sensitive for any sudden shock in the short-term period, and shows weakness perform liquidity in term of reserve-to-deposits; asset values (easily converted into cash) in term to short-term financing plus total deposits. Liquid assets include cash and bank maturities, securities trading and fair value through income, loans and advances to banks, reversible royalties and cash collateral, in addition to money market instruments, CDs and other deposits which is the most solvency tradable asset instruments in the market. This lead to accept (H2a) under liquidity which is the reserve-to-deposits negatively affects bank profitability for Norway under the adoption of IFRS. Turning to the sensitivity of net loan to total assets, the reported results indicate negative and statistically significant impact on banks profitability in all selected country. This represent by ROAA and ROAE, on average has an influence in Denmark by - 4.7%, and - 1.9% on Sweden banks profitability. While, shows high negative magnitude on Norway banks profitability by - 45.6%. These indicate that the assets of bank tide up in form of loan represents fund retain by customers, whereas the higher magnitude effects of Norway banks negatively, approximately by 45.9% indicate higher portion of assets tied up as loan to financial institutions. This lead banks to low solvency and sensitive to be affected by any sudden financial crisis in short-term period. This lead to accept (H2b) under liquidity which is the assets tied up to loan negatively affects bank profitability for Denmark, Norway, and Sweden under the adoption of IFRS.

Imposingly, in Sweden fair value accounting (FVA) result indicates positive influence on both ROAA and ROAE at 5%, and 1% significant level, on average by 12.5% increase in banks profitability from the re-evaluation of the assets under IFRS 13 as gain that earned, with the movement of liquidity. This results indicates increase of the price is a strong assessment and assets management with a portfolio composed of assets of long-term and liquid assets. This lead to reject (H4) which is the volatility fair value accounting with assessment of liquidity negatively affects bank profitability for Sweden under the adoption of IFRS.

While, FVA in both country Denmark and Norway shows a negative and significant impact on banks profitability, approximately by -3.7% on ROAA in Denmark banks profitability, and by -4.9% on ROAE in Norway banks profitability. This results depicts the volatility of bank's assets assessment that absorbed from core capital due to the re-evaluation of the assets under IFRS 13 that mostly decrease the stockholder wealth. As a result of the percentage of assets are tied up as form of loan in both country. Relatively with high magnitude of liquid asset to deposit "reserve-to-deposits", as reported in Norway by -4.9% simultaneously with the negative influence. This Moving to IFRS 13 has altered the count of the dissolvability proportion for banks, specifically as in respects of the re-

estimation of accessible available for sale financial instruments and the undiscovered consequences of cash flow hedges. This lead to accept (H4) which is the volatility of fair value accounting with assessment of liquidity negatively affects bank profitability for Denmark and Norway under the adoption of IFRS.

Accordingly with the discussed results of liquidity ratio and fair value accounting with various effects on banks profitability. Findings revealed, both Denmark and Sweden banks profitability have positive influence of liquid assets "reserve-to-deposits" (H2a rejected), While net loan to total assets have negative impact on banks profitability (H2b accepted). Whereas, fair value accounting assessments have negative effect on Denmark (H4 accepted) and positive effect on Sweden banks profitability (H4 rejected). On contrary, Norway banks profitability have negative influence of liquid assets "reserve-to-deposits", and net loan to total assets on banks profitability (H2a and H2b accepted). Fair value accounting assessments have negative effect on banks profitability (H4 accepted). This led us to accept main hypothesis H2: which is there is negative relationship between liquidity and bank profitability for Norway under the adoption of IFRS.

**Table 4: Capital adequacy for Scandinavian country, GMM model estimation**

| Country Models                                   |         | Variables                | Model 1 (ROAA)   | Model 2 (ROAE)   | (VIF) † |
|--------------------------------------------------|---------|--------------------------|------------------|------------------|---------|
| Panel C<br>Capital Adequacy 'Regulatory Capital' | Denmark | C                        | 0.094 (2.18)*    | 0.963 (2.12)*    |         |
|                                                  |         | CA1                      | 0.081 (2.88)**   | 1.251 (4.23)**   | 1.09    |
|                                                  |         | CA2                      | 0.026 (7.17)**   | 0.039 (1.01)     | 1.04    |
|                                                  |         | FVA                      | 0.116 (4.21)**   | 0.902 (3.11)*    | 1.08    |
|                                                  |         | Sargan test <sup>¶</sup> | 111.5            | 107.7            |         |
|                                                  |         | AR (1) <sup>§</sup>      | P-v = 0.000      | P-v = 0.078      |         |
|                                                  |         | AR (2) <sup>§</sup>      | P-v = 0.338      | P-v = 0.589      |         |
|                                                  | Norway  | C                        | 0.047 (3.13)**   | -0.016 (-0.13)   |         |
|                                                  |         | CA1                      | 0.178 (9.07)**   | 0.747 (4.66)**   | 1.04    |
|                                                  |         | CA2                      | -0.301 (-9.11)** | -0.743 (-2.71)** | 1.04    |
|                                                  |         | FVA                      | -0.064 (-4.06)** | -0.484 (-3.83)** | 1.02    |
|                                                  |         | Sargan test <sup>¶</sup> | 121.8            | 143.0            |         |
|                                                  |         | AR (1) <sup>§</sup>      | P-v = 0.014      | P-v = 0.008      |         |
|                                                  |         | AR (2) <sup>§</sup>      | P-v = 0.542      | P-v = 0.272      |         |
|                                                  | Sweden  | C                        | 0.648 (7.64)**   | 0.114 (1.39)     |         |
|                                                  |         | CA1                      | 0.008 (4.22)*    | 0.002 (0.11)     | 1.14    |
|                                                  |         | CA2                      | 0.031 (8.77)**   | 0.018 (1.70)*    | 1.17    |
|                                                  |         | FVA                      | 0.006 (0.274)    | 0.109 (2.06)**   | 1.02    |
|                                                  |         | Sargan test <sup>¶</sup> | 408.7            | 253.5            |         |
|                                                  |         | AR (1) <sup>§</sup>      | P-v = 0.000      | P-v = 0.000      |         |
|                                                  |         | AR (2) <sup>§</sup>      | P-v = 0.870      | P-v = 0.296      |         |

\*, and \*\* denote significant level at 5% and 1% respectively. ( ) t-statistic.

¶ The test for over-identifying restrictions in GMM linear model estimation.

§ Arellano-Bond test that average auto-covariance in residuals of order 1, and 2 is 0 ( $H_0$ : no autocorrelation).

† Variance Inflation Factor less than 3 insure variables are not contaminated by multicollinearity.

The capital ratio is included in the regression model to examine the relationship between profitability and capitalization of banks. The relationship between capitals is a valuable tool assessment of capital adequacy and reflection of the overall credibility of banks since then shows how well the bank capitalizes. Thus, the bank's capital ratio is also widely used to analyze the bank's financial strength (Golin and Delhaise 2013). A strong capital structure is essential for a financial institution because it decrease the impact of the financial crisis and causes consolidation in volatile macroeconomic conditions.

Capital adequacy ratio "regulatory capital" (Panel C) as reported in table 4, total capital ratio (CA1) in both country Denmark and Sweden, reveals that bank's core capital expressed statistically positive and significant by

increasing the bank's profitability of its assets weighted by its credit exposure. On average, ROAA and ROAE affected by 66.6% at 1% significant level of Denmark banks, and by 0.8% on ROAA at 1% significant level of Sweden banks. This indicates a higher strength of capital structure to bear losses and to dismiss the risk of insolvency during difficult times. This lead to accept (H3a) under capital adequacy which is the core capital of credit exposure positively affects bank profitability for Denmark and Sweden under the adoption of IFRS. Meanwhile, equity to liability (CA2) represents the leverage, indicates that statistically positive and significant by increasing the bank's profitability, approximately by 2.6% at 1% significant level of Denmark banks. On average, ROAA and ROAE affected by 2.45% at 1% and 5% significant level respectively of Sweden banks. This lead to accept (H3b) under capital adequacy which is the leverage positively affects bank profitability for Denmark and Sweden under the adoption of IFRS. This results guarantees the solvency of an individual bank amid stressful financial periods. This lead to accept H3: there is positive relationship between capital adequacy and bank profitability for Denmark and Sweden under the adoption of IFRS. However, this slightly capital adequacy reflect the significant positive effect of FVA on bank profitability. This results approve the important posture application of capital regulation in the banking sector segment, prominently in the way they associate with the new Basel agreement on equity, especially under the adoption of IFRS 13 with the dynamic movement of the market price. This lead to reject (H4) which is the volatility of fair value accounting with assessment of capital adequacy negatively affects bank profitability for Denmark and Sweden under the adoption of IFRS.

Imposingly, in Norway fair value accounting (FVA) result indicates negative influence on both ROAA and ROAE at 1% significant level, on average by -27.4 decrease in banks profitability, from the re-evaluation of the assets under IFRS 13 as loss that earned. This lead to accept (H4) which is the volatility of fair value accounting with assessment of capital adequacy negatively affects bank profitability for Norway under the adoption of IFRS. Consequently, this results ensure the weakness in the liquidity ratios have been found, high portion of assets are tied up in form of loan. In addition to the weakness in liquid assets management that might led to shortage in reserve-to-deposits that led to cause a negative leverage of equity funding. Simultaneously, equity to total liabilities (CA2) shows significant and negative impact on bank profitability. On average, by -52.2% at 1% significant level. This leverage of equity funding, while it's highly significant and negative on Norway banks profitability, guarantees no solvency of an individual bank amid stressful financial periods. This lead to reject (H3b) under capital adequacy which is the leverage positively affects bank profitability for Norway under the adoption of IFRS. On the other hand, the result indicates statistically and significant positive relationship between CA1 total capital ratio and Norway bank profitability. On average, core capital expressed significant increasing the bank's profitability of its assets weighted by its credit exposure by 46.3% at 1% significant level. This lead to accept (H3a) under capital adequacy which is the core capital of credit exposure positively affects bank profitability for Norway under the adoption of IFRS.

#### **4.2 Discussion**

Our explanatory dependent variables were first the Return on average assets (ROAA), reflects the ability of management to generate income from using their assets and to control noninterest expenses, and second return on average equity (ROAE), reflects the rate of return flowing to shareholders from investing their capital in the banking sector. Moreover as shown in the empirical results, the bank's specifications were separately tested with concerning the fair value accounting on Scandinavian bank's profitability. Therefore, according to FASB and also according to IASB definition, the fair value of a financial instrument, with a smaller deviation from the corresponding standard, and the amount or liability to exchange assets can be resolved between the knowledgeable parties, except for compulsory or liquidation sales [e.g. FASB (1991) or IASB (2010)]. In circumstances when the quoted market price values are not available in a dynamic market, an accurate estimation of on-going market's price value, given by the asset or liability, by giving judgments regards applied methods and assumptions to be implemented.

Thus, assets quality 'risk transfer' is significant, but with different impact concerning the fair value accounting, whereas, it has a negative effect primitively proper, since the banks has recognized accrued revenues on impaired loans but they are not yet realized. The reason behind it is that the banks are obliged to collect adequate reserves which prevent the banks from good and realized profits. In line with Basel III, non-performing loans is an effective predictor of credit exposure to failure. As equity is the decisive buffer for absorbing credit losses, a good assessment and control will lead to higher profits. Hence, the optimal policy of bank management is the effective use of their assets to generate incomes that could be converted into cash, by accurate assignment for the dimensions

parameters related to borrowers (probability of default) and to risk factor (loss Given default). Therefore, the pricing of credit is an important tool to minimize the negative effect.

Whereas, the liquidity ratio 'Funding' factors and their effects on profitability concerning the fair value accounting could add an 'Artificial volatility' among the liquidity ratio that might led to destabilize their financial system. Managing adventure actually pushes certificate of deposits (CDS) spreads. An argument of the emphasis of CDS growth on its variability or level of activity in the market can be given. Hence increase in management's risk tolerance was significantly, (Dias 2017). Therefore, we should differentiate between adequate level of liquidity and excessive level of liquidity, because holding excessive level of liquidity can impact on lower profitability, maintaining a balance between outflows and inflows is rational. With regard to the capital adequacy ratio "regulatory capital" factors the dynamic movement of fair value accounting increase the bank's core capital expressed significant by increasing or decreasing the bank's profitability of its assets weighted by its credit exposure. This guarantees no solvency of an individual bank amid a period of stress, and induces better market discipline and makes better capital allocations.

On the other hand, fair value accounting might lead to high leverage of equity funding, increase the cost of capital and also due to pro-cyclical aftermath tend to amplify economic cycles. As the results insure fair value accounting has robust direct effects on stockholder wealth. Accordingly Khurana and Kim (2003) "the fair value represents the management's estimate of the present value of the net future cash flows embodied in the asset or liability, discounted to reflect both the current interest rate and the management's assessment of the risk associated with those cash flows".

## Conclusion and Policy Implications

Financial policy-makers, regulators and academicians all show concerns of the implementation of fair value accounting specially upon the banking sector. There concerns and others come from the amount of its magnitude and later consequences on banks performance. This study therefore emerges to investigate the behaviour of Scandinavian bank specifications; asset quality, liquidity, and capital adequacy with the existence of fair value accounting separately on bank's profitability. It has been common in the lifetime of financial markets and companies to disclose their financial reports according to current market value prices, as investors and other related parties find market values more relevant and beneficial to build decisions upon.

However, results such disclosure deal with the valuation of nonfinancial instruments that cause artificial volatility and pro-cyclicality. On the contrary, if the secondary markets of banks', assets and liabilities are not efficient (i.e. Not deep and liquid), the reliability of financial reports tent to be reduced by fair value accounting. This action leads to the application of the fair value measurement in different scenarios and shows the behaviour of banks specification, asset quality, liquidity, and capital adequacy, separately with banks profitability varies as found in Scandinavian banks. Hence, the optimal policy of bank management is the effective use of the expected loss impairment model of IFRS 9 standards proposed by International Accounting Standards Board (IASB). Will require banks to recognise impairment sooner and estimate lifetime expected losses against a wider spectrum of assets (Abu Alrub et al. 2020). This would be strengthened and improving the transparency of the financial system that would help financial institutions to effectively assess credit risk. Thus improving forecasts of future risk levels. Therefore, the study recommendation concerning the volatility of fair value accounting. First, to consider the contractual cash flow characteristics of the financial assets based on the liquidity level in the market. Otherwise, is expected to significantly impact regulatory capital by raising stipends of loss on financial instruments. Consequently in terms of risk weighted assets, this would reduce retained earnings and lessen core capital and create volatility in profit and equity, to increase the stock of credit impairment provisions and affect profits. Second, classified the financial assets concerning cross-border integration regarding to size and the segments of the market that could improve long-term profitability.

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## Appendix

### Appendix 1: Denmark descriptive statistics

| Statistics | ROAA | ROAE  | AQ1   | AQ2   | L1    | L2    | CA1   | CA2   | FVA   |
|------------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| Mean       | 0.39 | 1.67  | 17.83 | 29.44 | 60.98 | 57.09 | 19.26 | 17.50 | 24.59 |
| Median     | 0.46 | 4.48  | 14.26 | 20.70 | 46.53 | 57.50 | 17.75 | 12.86 | 23.02 |
| Std. Dev.  | 1.82 | 17.43 | 15.23 | 17.04 | 30.81 | 19.81 | 6.06  | 35.34 | 16.73 |

### Appendix 2: Norway descriptive statistics

| Statistics | ROAA | ROAE | AQ1  | AQ2  | L1    | L2    | CA1   | CA2   | FVA   |
|------------|------|------|------|------|-------|-------|-------|-------|-------|
| Mean       | 0.85 | 9.86 | 1.47 | 6.32 | 33.46 | 79.46 | 17.95 | 12.77 | 10.94 |

|           |      |      |      |       |       |       |       |       |       |
|-----------|------|------|------|-------|-------|-------|-------|-------|-------|
| Median    | 0.82 | 9.99 | 1.00 | 4.70  | 18.63 | 82.70 | 17.17 | 9.83  | 8.67  |
| Std. Dev. | 1.19 | 7.73 | 2.24 | 11.59 | 24.66 | 17.17 | 4.34  | 17.21 | 11.94 |

**Appendix 3: Sweden descriptive statistics**

| Statistics | ROAA | ROAE | AQ1  | AQ2   | L1    | L2    | CA1   | CA2   | FVA  |
|------------|------|------|------|-------|-------|-------|-------|-------|------|
| Mean       | 1.08 | 8.59 | 2.72 | 6.76  | 23.62 | 68.08 | 21.49 | 18.91 | 5.61 |
| Median     | 1.00 | 7.20 | 0.99 | 4.45  | 17.73 | 71.74 | 17.50 | 15.44 | 2.23 |
| Std. Dev.  | 0.73 | 5.31 | 7.51 | 14.27 | 26.14 | 16.14 | 25.11 | 15.25 | 6.92 |