

Fair Value Measurement of Liabilities under Financial Distress – A Theoretical Perspective

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Abstract

We study the effects of financial distress on fair value measurement of liabilities from a theoretical perspective. We identify assumptions underlying fair value measurement in IFRS standards and by employing a theoretical framework, five issues with these assumptions under a condition of financial distress are identified. The issues relate to 1) judgments made by preparers, 2) discrete transactions' impact on own credit risk, 3) the inclusion of own credit risk in liability measurement, 4) instrument complexity and 5) the effective interest rate method. The five issues are tested on a case, where fair value measurement of liabilities is conducted during financial distress. The study contributes to existing research by exploring the theoretical grounds of assumptions used by accounting standard setters. We find that the validity of the assumptions underlying fair value measurement of liabilities in IFRS is affected by a condition of financial distress

KEYWORDS: Accounting Theory, Fair Value Measurement, IFRS 13, Financial Distress, Liabilities

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Abbreviations	
CAPM	Capital Asset Pricing Model
CPA	Chartered Public Accountant
DP	Discussion Paper
EMH	Efficient Market Hypothesis
FASB	Financial Accounting Standards Board
FVA	Fair Value Accounting
IAS	International Accounting Standards
IASB	International Accounting Standards Board
IFRS	International Financial Reporting Standards
Northland	Northland Resources
PIK	Payment In Kind
SFAS	Statement Of Financial Accounting Standards

1 INTRODUCTION

“[Improving fair value measurements] requires systematic observation, description and classification, activities generally out of favour today in academe, where clever mathematical modelling and statistical analysis earn the greatest scholarly rewards. More academic scholars need to get down and dirty to learn about leading contemporary practice.” (Robert Kaplan, The Financial Times, 6 June 2011)

The practice of fair value accounting (FVA) is by some ascribed as a factor contributing to the 2008 global financial crisis (Godfrey et al., 2010:481). More specifically, the concerns raised revolve around the use of mark-to-market accounting during times of financial distress, where it is argued that the use of such inputs is unreliable and accentuated the crisis (Laux and Leuz, 2009). During the fall of 2008, both the FASB and the IASB amended standards to include guidelines for valuing assets when markets are inactive, with the IASB expert advisory panel publishing a draft titled ‘Measuring and disclosing the fair value of financial instruments in markets that are no longer active’ on 16 September 2008. The IASB also made amendments, adopted on 16 October the same year, allowing companies to reclassify fair value items as held-to-maturity in ‘rare circumstances’ (EC regulation 1004/2008). The background to these changes, made by the IASB, relates to the question of how FVA should handle situations when financial distress reduces market efficiency. It is implicitly assumed by the IASB that fair value measurement reflects the price that would arise in a reasonably efficient market (Milburn, 2008), and given that previous empirical research finds support for market efficiency being impeded by financial distress (e.g. De Bondt and Thaler, 1985; Krishnamurty, 2010) this is a complication that needs to be handled by the accounting standard setters. However, Milburn (2008) argues that fair value

measurement has evolved without a coherent theoretical basis, and following these lines, we question how well the standard setters actually manage to operationalize such a complex, not to say impossible, measurement ideal as that of ‘fair value’ reflecting efficient prices. Hence, given that fair value measurement lacks a unified theory, we will explore the theoretical underpinning of the accounting and ‘stress-test’ the assumptions used in the standards. As mentioned above, financial distress is argued to be one such condition creating issues with the underlying assumption of market efficiency in FVA and, therefore, this is a situation that can be used for such stress testing.

One particular aspect of FVA where financial distress as such has caused discussion is that of fair value measurement of liabilities and especially the inclusion of an issuer’s own credit risk. In June 2009, the IASB issued a discussion paper labelled ‘Credit Risk in Liability Measurement’ (DP 2009/06) with the first paragraph stating: *“the role of credit risk in liability measurement have [sic] generated more comment and controversy than any other aspect of fair value measurement.”* The background to this controversy is that when credit risk increases, and is included in discount rates, the reported value of debt decreases, with the change in value reported as an income statement gain. Such gains are by some argued to be counterintuitive (DP 2009/06, para. 48). An example of these counterintuitive effects is found in Morgan Stanley’s Q1 2009 report: *“Morgan Stanley would have been profitable this quarter if not for the dramatic improvement in our credit spreads – which is a significant positive development, but had a near-term negative impact on our revenues”*. Given these observations, and the above discussed need for scholars to stress-test the underlying assumptions of standards by use of accounting theory, we find the area of fair value measurement of liabilities to be a suitable area for further research. Therefore,

in line with Kaplan’s statement in the epigraph calling for scholars to “*get down and dirty*” with fair value measurement, the following research question is chosen:

| *Is the validity of the assumptions underlying fair value measurement of liabilities in IFRS affected by financial distress?*

To operationalize this research question, it must first be noted that the question calls for both theoretical and empirical research. We find it necessary to conduct theoretical research of IFRSs in order to identify assumptions and analyze if these assumptions can hypothetically lead to issues during financial distress. However, to answer if there are any implementation issues, the issues identified are explored in a case. The mining company Northland Resources (Northland) is a suitable case since it experienced a severe liquidity crisis during 2013, which resulted in a financial restructuring of its debt, and subsequent fair value measurement during a time of financial distress. Northland also reported a gain in the profit or loss statement of \$380 million during Q3 2013 as a result of the company’s own credit risk being included when measuring its liabilities (Northland Q3, 2013:3).

2 RESEARCH CONTRIBUTION

When reviewing literature on accounting theory, we identify a research gap with regard to accounting theory verification. For example, the following is stated in Mathews and Perera (1996:50) “*[The actual state of accounting], is not that it has no theories, but that it has a vast number of implicit or partial theories which are not necessarily consistent with each other. As a result, accounting lacks a coherent theory by reference to which established, new and proposed practices may be appraised.*” A similar reasoning, more explicitly connected with our research design is found in Godfrey et al.

(2010:20): “*A useful way to study and assess accounting theories is to classify them according to the assumptions they rely on*”. Furthermore, it is argued by some that accounting theory historically has been focused on documenting processes rather than explaining underlying theory, as captured by the following quote: “*Accounting has frequently been described as a body of practices which have been developed in response to practical needs rather than by deliberate and systematic thinking*” (R.J. Chambers via Godfrey et al., 2010:5).

In a review of research areas that are argued to constitute the domain of financial accounting research, Beattie (2005) notes that normative theorizing in relation to financial statements has recently been a seldom used method. Normative (or *a priori*) theorizing is defined as: “*the use of reasoned but informal, natural language argument to support the case for or against particular accounting treatments*” (Beattie, 2005:93) and the approach is often employed to discuss highly contemporary accounting problems, often related to measurement issues.

Instead, theoretical accounting research has given way to analytical modelling type of papers that have a more quantitative approach and that are favored in academia as this approach is considered scientifically rigorous (Beattie, 2005). However, this focus on rigor and quantitative studies comes at the cost of simplification. Thus, Beattie (2005) argues that the use of natural language argumentation has the advantage of being able to capture the complexities of real world accounting phenomena and can increase the understanding of important relationships.

The lack of research into the underlying theory of accounting is by Hitz (2007) argued to also apply to fair value measurement, stating that existing research do not sufficiently explore the hypotheses and theoretical assumptions

that underlie the fair value paradigm promoted by accounting standard setters. Moreover, Chasteen and Ransom (2007) note that accounting for liabilities is lacking with regard to theory of measurement.

In summary, we perceive a research gap with regard to accounting theory and accounting theory verification, and we argue that normative theorizing is underrepresented. In addition, fair value measurement is argued to lack research into underlying theory and especially so with regard to theory in relation to the measurement of liabilities. Given this, our selected research question covers an area that we argue is underrepresented in previous research and by answering the question we contribute towards filling this research gap.

3 METHOD

3.1 Research design

Our study can be characterized as an analytical study that employs both deductive and inductive reasoning. Deductive reasoning is used to explore issues with FVA during financial distress, and inductive reasoning is employed when looking at the Northland case, which is used to assess the appropriateness of the deductively identified issues. The general aim with the paper is seen as theory verification. This is achieved by stress-testing the operationalization of a central proposition underlying FVA, which is that of market efficiency, and where previous research points towards market efficiency being impeded by financial distress. Since the research question of the paper seeks to answer if the *validity* of the assumptions of fair value measurement is affected by financial distress, we first need to define validity. Godfrey et al. (2010:4) give a general definition of theory as the underlying logic of an assumption or belief and state that the validity of a theory/assumption depends on the following factors:

1. How well the assumption explains and predicts reality
2. How well the assumption is constructed both theoretically and empirically
3. How acceptable the implications of the assumption are to a body of scientists, professionals and the general society

These factors are operationalized to test for validity and to answer the research question. In order to identify assumptions and theorize about hypothetical issues regarding fair value measurement of liabilities during financial distress, we employ a deductive method. The method is deductive in the sense that issues are identified from a theoretical framework, presented in the literature review, which forms the premise of the deductive system used. The identification of the assumptions then follows either from direct observations, when it is stated in an IFRS standard that it contains an assumption, or the assumption is identified as implicit through the use of analytical synthesis of what is not stated in the standard, but still implied by the suggested IFRS application method. The assumptions that are identified are then analyzed by applying reasoning as to the internal consistency of the assumptions, or how the validity of the assumption relates to the theoretical framework regarding market efficiency and financial distress. This process relates to point 1 and 2 in the framework adopted from Godfrey et al. (2010:4) above. The result of the assessment of the assumptions in the IFRSs is hypothetical issues, labeled *Issue 1-5*. These issues are then further analyzed by use of the Northland case using the method presented in the next paragraph.

In order to assess the appropriateness of the deductively derived issues, discussed above, an inductive method is used, where these issues are analyzed by use of the Northland case. By using a case, empirics are also introduced to the method. The reason for doing this follows from Mathews and Perera's

(1996:59) reasoning regarding theory verification: “*theories in empirical sciences need both logical and empirical testing, because they normally have both analytical and empirical proposition.*” The statement in the quote is also true with regard to accounting theory, as it is an empirical science, and since all of the issues we identify cannot be tested for by pure deduction, induction is also needed when the source of an issue is related to implementation of an accounting standard. By further analyzing the issues identified in a case setting, the issues are more clearly illustrated. Going back to the above presented definition of the *validity* of theory presented by Godfrey et al. (2010:4), the Northland case relates to point 2 and serves the purpose of assessing the linkage between the theoretical assumptions and the empirical implementation of these assumptions. Furthermore, the case serves an illustrative purpose of clarifying the *implications* of the assumptions, which relates to point 3 in Godfrey et al.’s (2010:4) validity definition, and which is discussed in the analysis section of the paper. Extra attention is also given to an analysis of the discount rate used by Northland when valuing its liabilities, where we calculate our own benchmark rates. When deriving the benchmark rates we strive to use methods commonly used by practitioners to determine discount rates in debt valuation. We use the benchmark rates to conduct a deeper analysis of the issues we identify with fair value measurement of liabilities during financial distress.

Since we employ both deductive and inductive reasoning, our research is based on both *a priori* and *a posteriori* propositions. *A priori* propositions are statements that can be known by pure reason, whereas *a posteriori* are propositions whose truth value only can be verified through empirical studies (Mathews and Perera, 1996:53). However, in our case, the *a priori* propositions are based on previous studies, which form our deductive framework, and as such, form the basis of the theoretical analysis used when

analyzing the assumptions of fair value measurement of liabilities in IFRS during financial distress. The *a priori* propositions in the framework used are selected by us, and hence, since the construction of the framework is not objective, our reasoning must necessarily be classified as normative. However, inductive reasoning in accounting cannot either escape from *a priori* assumptions as captured in Mathews and Perera (1996:63): *“a priorists are said to be normative because they start from certain assumptions which they claim the theory should explain or justify. The uncritical empiricist, nowadays referred to as a positive researcher, is not really proceeding any differently. The selection of his or her problem and the possible solution to it are equally normative”*. In addition, deduction and induction are complementary, and are commonly used together (Wolk et al., 2008:33) and hence also *a priori* and *a posteriori* reasoning. In our paper, the inductive method is used to assess the appropriateness of the premises identified in the deductive system, which Hakansson (1969) argues is a suitable application of the inductive method.

3.2 Scope

This paper focuses on accounting theory and measurement issues related to FVA of liabilities in IFRS. Since both deductive reasoning based on theory and inductive reasoning based on the Northland case are used, the scope of the paper is both about theoretical issues and implementation issues regarding fair value measurement of liabilities during financial distress. In the Northland case, the scope is defined by the period during which the company was under a state of financial distress, which we deem to be up until the release of the Q3 2013 report. Regarding the case, the line item data that is in scope is all liabilities measured at fair value during Q3 2013. Also, what is referred to as ‘the First lien bond’ is used as an example more extensively than other items in the balance sheet. The reason for this being that there is more data

available with regard to this bond structure and that we deem one example to be sufficient in order to conduct the analysis. Finally, with regard to the Northland case, we are also interested in the accounting treatment of liabilities in a broader sense, where both the measurement process and accounting choices made by the preparers and the financial statement effects of the accounting treatment of the liabilities are of interest.

3.3 Limitation

Our explicit focus is on the underlying theory of fair value *measurement* and consequently accounting issues such as recognition and classification of items are out of scope. A further limitation of the study is with regard to time, given that we use a case which is contingent on the condition of financial distress as defined in the scope section, the case study is limited in time up and until the release of Northland's Q3 report, 2013. Another limitation of the study is that the causality between financial distress and issues with market efficiency is taken as given, and not assessed per se. Likewise, the efficient market hypothesis as such is not either analyzed. Furthermore, the study uses a single case and not multiple cases, which could have increased the generalizability of the findings. However, we choose to focus on this single case in order to gain a deeper understanding of the issues being studied and since we argue that the case is particularly suitable for stress-testing the fair value measurement theory.

3.4 Data

3.4.1 Data collection process

In order to identify assumptions regarding fair value measurement of liabilities, IAS 39 and IFRS 13 are analyzed. In addition, discussion papers on

the topic of fair value measurement are assessed with recollection of discussions relevant to fair value measurement of liabilities under financial distress provided in the data section. When analyzing the assumptions identified, theory from a wide set of sources is applied. When identifying relevant literature for our theoretical framework we have searched for general theoretical papers, describing concepts such as market efficiency, and the objective of accounting as well as research with a more specific focus on issues with theoretical assumptions underlying fair value measurement. The research papers used are primarily published in academic accounting journals.

With regard to the Northland case, the data is collected from several sources. The data regarding how Northland has accounted for its liabilities is primarily taken from its Q3 2013 report. Financial reports prior to Q3 2013 are used to a lesser extent, and in addition, press releases and other information provided on Northland's website are used. Also, information surrounding the details of the restructuring is obtained from the reorganization plan of the company. The financial reports and press releases are publicly available on Northland's website and the reorganization plan is also available on Northland's website as well as through the Swedish court system in accordance with the principle of publicity.

An interview with Northland's reorganization administrator, Lars Söderqvist, was conducted. The interview followed a semi-structured interview method and was conducted face-to-face. The primary reason for conducting this interview was to obtain clarification on certain case specific circumstances. No further interviews with other persons were deemed necessary.

When deriving our own benchmark of a discount rate for Northland's First lien bond, the CAPM and credit ratings are used. Inputs to the CAPM calculation are taken from Northland's Q3 2013 report, Thomson Reuters

Datastream, NYU Stern School of Business's database and PwC's Norwegian market risk premium study for 2013 and 2014. All the data for credit ratings is from Moody's Investors Service. The data for benchmark rate has been retrieved through electronic sources.

3.4.2 Northland case data

As mentioned in the research design, inductive reasoning will be used both to explore the appropriateness of the hypothetical issues identified and provide material to illustrate the implications of these issues, with further analysis of the implications provided in the analysis section. To accomplish this, a suitable case is needed, and for this purpose, Northland is used. Northland is a mining company that in the beginning of 2013 announced that it was experiencing severe liquidity problems. Due to the financial distress, the company entered reorganization and was rescued from bankruptcy by securing new financing. As part of the restructuring effort the company issued new bonds and, as a result, these were accounted for using FVA. However, the application of FVA had a curious effect on Northland's reporting. In Q3 2013 the company emerged from its restructuring, but as a result of the credit risk implied by the market valuation of the debt, it recognized a gain of \$380 million in the income statement due to the fair value change of its debt.

Given that the conditions of financial distress and fair value measurement of liabilities are present in the case, relevant preconditions are in place to answer our research question. Also, the case is suitable as Northland applies IFRS in its financial reporting. In addition, there are certain circumstances that make the Northland case especially suitable for exploring measurement issues of liabilities. These circumstances include the existence of complex structured liabilities, the previously mentioned gain resulting from fair valuing the liabilities, the magnitude of the restructuring relative to the asset base and

the high publicity surrounding the case accentuating institutional pressure on the judgments made by the financial statement preparers. Given that the case encompasses this wide set of circumstances, all with potential implications on fair value measurement of liabilities during financial distress, we argue that the case constitutes an extreme case. The use of extreme cases is suitable when the aim of a study is to extend existing theory to cover a wider range of situations (Ryan et al., 2002:151). In our case, we aim to explore if the underlying assumption of market efficiency in FVA can be extended to situations of financial distress.

3.5 External and internal validity

Given that the research design encompasses both deductive and inductive reasoning, this will have implications for reliability, external and internal validity. To begin with, the concepts of internal and external validity are more related to experimental or empirical research designs, however, Ryan et al. (2002:135) note that an analogy still can be made for theoretical research design, but with the change that the term internal consistency is used rather than internal validity. However, for external validity a more direct analogy can be made (ibid). Regarding internal consistency Ryan et al. (2002:134) state the following: *“in verbal theories the language used will, itself, be symbolic, and potential inconsistencies can arise between both the usage of the symbols throughout the theoretical analysis and between the symbols”*. To address this concern, we define key symbols, for example financial distress, and refer to concepts in a consistent manner. External validity relates to generalizability of the study, and external validity is contingent on the internal validity/consistency of the study (Ryan et al., 2002:123). Regarding the theoretical analysis in our study, it can be characterized as normative. Normative accounting theory has been criticized for being based on value

judgments and encompassing the views of the authors (Mathews and Perera, 1996:64). Given this, the generalizability hinges on the internal consistency of the arguments made. Furthermore, the inclusion of the inductive study of the Northland case also provides empirical background to the issues at hand which thus enables more objective assessments to be made.

With regard to the Northland case, where an inductive research design is used, this can be characterized as a single case study. Single case studies are by nature context specific and this makes *statistical* generalizations of results impossible to produce (Ryan et al., 2002:149). Rather, case studies are used to modify and develop theories by applying them to different situations and contexts (Ryan et al., 2002:149). In so doing, theories will be kept or replaced by new or other theories depending on whether or not they are able to provide explanations of the observed phenomena in the cases to which they are applied (Ryan et al., 2002:150). As a consequence, we instead aim toward theoretical or *analytical* generalization, that is, to extend theory to a wider set of circumstances. Hence we are more interested in possible extensions and replications to other situations rather than viewing the case as a small sample study that provides weak grounds for making statistical generalizations. Generalizability is linked to the concept of external validity that refers to the extent to which research findings can be generalized to other settings (Ryan et al., 2002:123). As pointed out above, the external validity in the more statistical meaning of the word generalizability is relatively low compared to a more quantitative multiple case or survey study. However, since the fair value measurement of liabilities under IFRS should be the same for all firms applying IFRS and financial distress caused by liquidity issues should have similar effects for all firms, the findings of this study should be transferable to similar cases and thus bolstering the external validity. In addition, we acknowledge the potential for using findings from this study to generate

hypotheses that can be tested in large sample studies which then in turn could provide statistical generalization.

3.6 Reliability

As for the reliability of the study, which relates to the extent to which the research can be replicated, this can be assessed by looking at the inductive and deductive research design elements as interrelated. Our deductive, theorizing, research is labeled as normative, or *a priori*, and given this, the replicability depends on the degree to which a reader reaches the same conclusions. Given that the research is normative, it cannot, per definition, be free from bias. However, since we present the deductive framework used and the accompanying logic to conduct the theorizing, although an identical replication of our reasoning is not possible, an outside assessment of the logic used can still be made. Regarding the Northland case, the data used is primarily based on publicly available data, material that is in written form and accessible at little effort and no cost, the reliability of this part of the study is high. Therefore, we argue that the inclusion of a case increases the reliability of the study and also illustrates the issues more clearly, which will make it easier for the reader to assess the arguments made, hence increasing the reliability.

4 DEFINITION OF KEY CONCEPTS

4.1 Fair value accounting

When using the term ‘fair value’ in financial accounting, the use of market prices as the measurement input for assets and liabilities often come to mind. Indeed, the IASB definition of fair value as *“the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between*

market participants at the measurement date” (IFRS 13, para. 9), appears to give a unitary view of a market exit price as being the sole determinant of fair value. However, in situations where observable market exit prices are not available, best estimates of what would comprise a market price are allowed to be used as a measurement basis (Milburn, 2008). Thus, the concept of fair value could more accurately be conceived of as a group of different measurement bases that ranges from current cost and present value techniques to market price inputs (Milburn, 2008). Consequently, fair value measurement is defined in this study both as the use of market selling prices and hypothetical market selling prices that are derived by valuation techniques and that require judgment by the financial statement preparers.

4.2 Market efficiency

In this paper we will in many instances discuss *market efficiency*, or the efficient market hypothesis (EMH), therefore, it is helpful to define this concept. Fama (1970:383) defines market efficiency as: “*A market in which prices always fully reflect all available information is called efficient.*” There are three forms of market efficiency (Fama, 1970), where for our purposes the semi-strong form, that all public information is compounded in prices, is the most relevant as a basis for discussion. Milburn (2008) identifies two implications of the semi-strong form of the EMH as being *information efficiency* and *fundamental value efficiency*. Milburn (2008) describes informational efficiency as a market where all public information is impounded rapidly; therefore, a situation where complex information takes time to incorporate into prices would constitute informational inefficiency. With regard to fundamental value efficiency, Milburn (2008) presents this as the degree to which prices correctly reflect the true economic prospects, or fundamental value, implied by the available information. When we talk about

issues with market efficiency during financial distress it is fundamental value inefficiency we are referring to more specifically. However, an inherent limitation when discussing fundamental value efficiency is that it is an unobservable ideal (Milburn, 2008).

4.3 Financial distress

The expression ‘distress’ is in different research papers used to describe different types of situations. When referring to distress in our study, we mean financial distress as opposed to economic distress. This division follows from Asquith et al. (1994), who focus their study of financially distressed firms on junk bond issuers to reduce their sample to firms where the highly leveraged capital structure is the main reason for distress and not merely a declining profitability which would be the case for a firm in economic distress. We are thus using distress to denote a situation where a firm is experiencing financial difficulties due to liquidity problems emanating from the deficient financing of the firm’s operations. We adopt this distinction as Northland has experienced liquidity problems due to its inadequate financing and not to for instance a quickly declining operating profitability or large asset impairments.

5 THEORETICAL FRAMEWORK

5.1 Market efficiency and fair value accounting

According to Milburn (2008) the financial accounting standard setting boards, IASB and FASB implicitly assume that market efficiency is a precondition for the use of fair value measurement in accounting. In moving from the more traditional historical cost accounting to FVA, a greater influence is given to the balance sheet as the main financial statement in providing information to users. In a balance sheet that is entirely accounted

for at fair value, the valuation of the equity is done simply by deducting the liabilities from the assets. The change in this equity residual between two balance sheet dates then represents the earnings for the period (Nissim and Penman, 2008). A corollary of relying on fair values of assets and liabilities is that the influence of market prices in arriving at a fundamentally correct value of the firm's equity becomes larger and thus an implicit assumption of markets being efficient in setting prices (Milburn, 2008). This greater reliance on markets being efficient in setting prices is one of the main critiques of FVA as opponents argue that this measurement method can bring bubble prices into financial statements (Nissim and Penman, 2008). This could in turn contribute to feedback effects from the financial reporting that give further impetus to the market inefficiency (Nissim and Penman, 2008). Thus, market inefficiency becomes an issue in relation to FVA.

Milburn (2008) criticizes that the focus in IFRS is on *market participants* rather than at the *market process*, as the EMH assumes that prices becomes efficient as a result of the buying and selling of many participants with different utility functions, in a market process. A related issue, also noted in Milburn (2008), is that of transactions prices (entry prices) being used to measure fair value at initial recognition, where Milburn criticizes that the factors defined in IFRS 13 para. B4 that are used to determine if a transaction constitutes fair value (c.f. IFRS 13, para. 59) are not enough to provide the basis to reliably determine if a transaction price equals the market price and that no underlying principle for making judgments is provided.

5.2 Market efficiency and financial distress

Market inefficiencies are argued to be more prevalent in connection with dramatic and unexpected events for firms due to investor overreaction (De Bondt and Thaler, 1985). This is also the case made by Haugen (2011:8) who

argues that abnormal returns are to be earned from investing in firms with low market values in relation to their accounting numbers. Market liquidity is another factor affecting the pricing of securities traded in financial markets. Due to illiquidity, debt prices have been shown to diverge from fundamental values during financial crisis (Krishnamurty, 2010). Thus, when markets experience distress and liquidity is withdrawn, arbitrage which is supposed to bring asset prices back to fundamental value can be inhibited. This can especially be a problem in bond markets that are dominated by specialized financial institutions that manage other people's money (Shleifer and Vishny, 1997). Betting against what the fund managers believe to be mispriced securities can lead to short-term losses and as the fund investors evaluate fund managers on past performance, the investors become impatient and withdraw their money from the fund in the face of such losses. Thus, acting as agents for the fund investors, the fund managers will be constrained in their arbitrage. Given these agency problems, mispricing due to low liquidity can thus become compounded in bond markets (Shleifer and Vishny, 1997).

Milburn (2008) argues that accounting standards should to a larger extent and more explicitly incorporate the notion of market efficiency when determining when it is appropriate to apply fair value measurement. This would avoid situations where low liquidity combined with market inefficiency is allowed to affect the financial reporting of firms. Laux and Leuz (2010) in their review of FVA during the recent financial crisis arrive at the conclusion that standard setters should address the potential implementation issues in the FVA standards. Laux and Leuz (2009) argue that FVA standards make it difficult for firms to deviate from market inputs, and as a consequence, firms could be forced to use market inputs even though the market from which the prices are taken is one where market forces are not bringing prices to fundamental values.

5.3 Issues with fair value accounting during financial distress

Accounting for liabilities at fair value may entail problems as the financial statements could show a positive effect as a consequence of what is in fact a negative economic event for a firm (see for example Lipe, 2002; Barth et al., 2006; Nissim and Penman, 2008). This effect arises in situations when fair value changes of liabilities are recognized in the income statement. Consequently, a deteriorating credit quality of a firm that decreases the reported value of liabilities would result in a higher net income and equity (Barth et al., 2008). A gain arising from the positive effect on the financing side of the balance sheet should, at least conceptually, be offset by a loss on the asset side through a write-down as the credit standing deteriorates. However, this is not always the case as demonstrated by Lipe (2002) giving rise to a fair value balance sheet mismatch with the effect of excess volatility in the income statement and an increase in net income (Nissim and Penman, 2008).

As a consequence of these accounting effects, commonly used key financial ratios and metrics applied by financial statement users in making decisions about providing capital to firms are affected. For instance, Lipe (2002) shows that in the case of a firm entering distress, the FVA for its debt has a positive impact on return on assets, return on equity and potentially on interest coverage depending on whether the unrealized gain caused by the increased credit risk is included in the operating or financial section of the income statement. In addition, the debt-to-equity ratio decreases when fair value is used to account for the debt of a firm with deteriorating credit quality. Consequently, the case firm that Lipe (2002) studies shows better performance in terms of profitability combined with lower risk in terms of both liquidity

and solvency even though the firm enters a situation of distress in the year from which the financial statements have been taken. Thus, Lipe argues that measuring the debt at fair value in distress situations decreases the representational faithfulness of the accounting.

5.4 Are markets misled by ‘cosmetic’ accounting?

Given the above described income statement effects related to FVA due to financial distress, the question arises what the implications of these effects are. Regarding FVA of liabilities there are concerns of the counterintuitive effects created when reporting gains in the income statement due to increases in the firm's own credit risk (DP 2009/06, para. 48). There is also empirical research confirming the concern that financial statement users misinterpret gains due to own credit risk as a positive event for the firm contributing to an increase in the firm's value. In an experimental study done with Certified Public Accountants in the US as experiment participants, Gaynor et al. (2011) find that 70% of the participants in the study misinterpret gains due to fair value changes in debt as a signal of decreased risk of the reporting firm. The authors consider this empirical evidence of financial statement users systematically misinterpreting income statement effects due to liability measurement at fair value.

Foster (1979) studies the susceptibility of markets to what he calls ‘cosmetic’ accounting. In Foster's study, the analyst Abraham Briloff reveals cases of firms making ‘cosmetic’ accounting choices through publication of articles. Foster (1979) finds statistically significant negative stock price reactions resulting from Briloff's articles, a finding that contradicts market efficiency. Findings of markets being misled by cosmetic accounting choices are in line with what is called the ‘mechanistic hypothesis’, i.e. that markets take accounting information at face value. However, the regard for the

mechanistic hypothesis, and the perceived need for accounting standards to protect naïve investors, have faltered over time due to the prevalence of the EMH (White et al., 2003:168).

5.5 Agency problems during financial distress

Laux and Leuz (2009) and Lipe (2002) contend that FVA, and the practice of having market prices affecting accounting book values, can become problematic if these values are tied to management compensation plans or contractual terms such as covenants. Within the positive accounting stream of research, the importance of contracting is emphasized, with the firm viewed as a Coasian nexus of contracts (White et al., 2003:173). This research draws upon agency theory, and it is assumed that firm managers are value-maximizing and self-interested individuals. For instance, managers are assumed to act in the interest of shareholders rather than on behalf of creditors and thus accounting is seen as a necessary tool to ensure that contracts are adhered to (White et al., 2003:173). Positive accounting theory therefore considers accounting a monitoring device (White et al., 2003:173), hence the stewardship objective of accounting is emphasized to a greater extent. Some of the main findings attributed to positive accounting research are the ‘debt-to-equity’ and ‘bonus-plan’ hypotheses (Watts and Zimmerman, 1990). These hypotheses are derived from the agency literature and point to the importance of managers’ and preparers’ incentives in relation to accounting. The two hypotheses identified by Watts and Zimmerman (1990) in turn postulate that firms with higher debt-to-equity ratios and with bonus plans linked to accounting earnings are more likely to apply accounting methods that increase current income. Thus, Watts and Zimmerman (1990) argue that accounting has an ability to influence management decisions and that it has real economic consequences on its own.

Laux and Leuz (2009; 2010) are examples of more recent research, which could be considered to be within the positive accounting theory stream, where issues with regard to FVA are discussed. In Laux and Leuz (2009) it is argued that during financial distress, accounting judgments are likely to favor prices taken directly from a distorted market due to institutional forces, even though it may be more appropriate to use model inputs in such situations. Laux and Leuz (2009) argue that this follows from that auditors and directors face the risk of litigation, and that these personal risks will induce the use of market price inputs, as it will shift the responsibility of the valuation to the market. According to Laux and Leuz (2009), this type of problem is prone to be especially severe during distress when there is a large risk of bankruptcy and follow-on investigations into whom should be blamed for the corporate failure. In addition, given that the firm does opt for using model inputs in the face of distress, the threat of litigation could induce the use of, for instance, too high discount rates to avoid penalties if bankruptcy occurs (Laux and Leuz, 2010). However, it can also be argued that these issues can be countered by changing incentive systems and contracts instead of the accounting measurement practice (Laux and Leuz, 2009).

5.6 Different views on the objective of accounting

In order to understand and interpret the implications of the issues we identify, we need to consider the implications in relation to the objective of accounting. However, what the objective of accounting is depends on who you ask, as argued by Whittington (2008), who classifies the views held in accounting theory discussions by standard setters or accounting researchers as two competing world views, labeled the *fair value view* and the *alternative view*. The fair value view is argued by Whittington (2008) to be held by a significant number of the members of the FASB and the IASB. He describes

that within this view, the objective of accounting is determined by its usefulness to current and prospective investors when making economic decisions based on forecasting of future cash flows. Whittington (2008) also finds that in this view, relevance is prioritized over reliability and the role of accounting in providing forward looking information is emphasized. Regarding markets, he argues that the fair value view assumes these to be efficient and able to provide representationally faithful measurements. Finally, he argues that the implication of this view is that the balance sheet becomes the most important financial statement.

The alternative view, presented by Whittington (2008), consists of views held by different constituents, but unified in the view that the aim of accounting is to serve investors, with priority given to existing shareholders. In this view, Whittington (2008) identifies stewardship, i.e. accountability to shareholders, as the objective of accounting. Whittington (2008) argues that similar to the fair value view, the aim of the alternative view is to provide information relevant to cash flow forecasting, however, the alternative view takes a more indirect approach to valuation, rather than providing 'fair values', accounting should provide inputs that can be used by investors in valuation. This means that accounting flows are prioritized over stocks, and that the income statement is the source used by investors in valuation. He classifies the aim of financial reporting under the alternative view to be to reduce information asymmetry, hence the information needs to be reliable. According to Whittington (2008), the alternative view also acknowledges the possibility that future cash flows may be endogenous, that is, accounting reports may influence decisions made by firms which in turn can influence future cash flows. He argues that the alternative view acknowledges that markets may be imperfect and incomplete.

6 DATA

6.1 Assumptions in IFRS

6.1.1 Fair value measurement principles

Fair value is defined in IFRS as “*the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date*” (IFRS 13, para. 9). When measuring fair values, different types of inputs are used. An input is defined as assumptions that market participants would use in pricing, and these are in turn grouped into Level 1-3 inputs in a fair value hierarchy. Level 1 inputs are “*quoted prices ... in active markets*” (IFRS 13, para. 76), Level 2 inputs are “*inputs other than quoted prices included within Level 1 that are observable for the asset or liability*” (IFRS 13, para. 81) whereas Level 3 are “*unobservable inputs*” (IFRS 13, para. 86). The fair value hierarchy sets the priority of the sources for the inputs used in fair value measurement, with priority determined by level (IFRS 13, para. 3). Level 3 inputs are used when “*relevant observable inputs are not available*” (IFRS 13, para. 87), this is the case when the market is not *active* or transactions are not deemed *orderly* (ibid.). Both Level 2 and Level 3 fair value measurement inputs demand judgment to be made by the preparer. For Level 2 inputs, these judgments include determining what constitutes similar assets, selecting suitable yield curves, interest rates and credit spreads (IFRS 13, para. 82). The preparer is also assumed to make adjustments to inputs to factor in “*the extent to which inputs relate to items that are comparable to the asset or liability*” (IFRS 13, para. 83). For Level 3 inputs, the preparer should model unobservable inputs with the aim to “*reflect the assumptions that market participants would use when pricing the asset or liability, including assumptions about risk.*” (IFRS

13, para. 87). IFRS therefore assume the preparer to be able to model the judgment made by market participants when determining the market equilibrium. As Level 3 inputs are to be used in cases when a market is inactive (IFRS 13, para. 87), the preparer therefore also needs to make a judgment if the market is active. The proxy used for this, is the existence of orderly transactions, which is also assumed to be a condition for using fair value (IFRS 13, para. 15). Non-orderly transactions can be indicated by significant decreases in the traded volume and level of activity (IFRS 13, para. B37). However, a decrease in volume or the existence of any of the other factors discussed in IFRS 13 para. B37, are not sufficient to conclude that a transaction is not orderly. Rather, the following circumstances should be evaluated (IFRS 13, para. B43):

- A. There was not adequate exposure to the market for a period before the measurement date to allow for marketing activities that are usual and customary for transactions involving such assets or liabilities under current market conditions.
- B. There was a usual and customary marketing period, but the seller marketed the asset or liability to a single market participant.
- C. The seller is in or near bankruptcy or receivership (i.e. the seller is distressed).
- D. The seller was required to sell to meet regulatory or legal requirements (i.e. the seller was forced).
- E. The transaction price is an outlier when compared with other recent transactions for the same or a similar asset or liability.

The entity has to exercise judgment based on the above listed circumstances and available evidence to determine if a transaction is orderly (IFRS 13, para. B43). Furthermore, when measuring the fair value of a liability at initial recognition, it is stated that *“In many cases the transaction price will equal the fair value”* (IFRS 13, para. 58). However, to determine if

the transaction price is actually equal to the fair value, judgment by the preparer needs to be exercised (IFRS 13, para. 59).

Assumption 1: It is assumed that the preparers are capable and willing to make judgments that result in a replication of market values.

6.1.2 Own credit risk and transactions

Measurement of liabilities at initial recognition using the effective interest method implicitly incorporates an assumption regarding the inclusion of an entity's own credit risk in measurement of liabilities. As stated in the standard: *"The fair value of a liability reflects the effect of non-performance risk. Non-performance risk includes, but may not be limited to, an entity's own credit risk"* (IFRS 13, para. 42). Another important assumption with regard to non-performance risk is that *"Non-performance risk is assumed to be the same before and after the transfer of the liability"* (IFRS 13, para. 42).

Assumption 2: It is assumed that own credit risk is unaffected by discrete transactions.

6.1.3 Own credit risk and fair value measurement

The inclusion of non-performance risk in the fair value measurement of liabilities in IFRS 13 was precluded by the discussion paper (DP) 'Credit Risk in Liability Measurement' issued by the IASB in June, 2009 (DP 2009/06) wherein the topic is debated. The controversy primarily concerns fair value measurement subsequent to initial recognition with criticism captured by the following argument: *"When liability measurement includes credit risk, an entity reports a gain from a decline in the credit quality of its liabilities. This gain (or loss, in the case of improving credit quality) is counterintuitive."* (DP 2009/06, para. 48). Concerns of an accounting mismatch are also expressed:

“A decline in an entity’s credit quality usually signals a decline in the value of assets that may not be measured on a current basis (like fixed assets and goodwill)” (DP 2009/06, para. 53). However, the argument of accounting mismatch is also used in favor of including own credit risk (DP 2009/06, para. 42). Another argument against the inclusion of own credit risk is that the liabilities are seldom transferred and therefore an entity cannot realize changes in value (DP 2009/06, para. 58).

The primary argument in the DP in favor of incorporating credit risk in liability measurement is expressed as follows: *“Accountants accept that the initial measurement of a liability incurred in an exchange for cash includes the effects of the borrower’s credit risk [...] Barring evidence to the contrary, the cash exchange represents fair value in that market”* (DP 2009/06, para. 21). This reasoning follows from a historic convention (DP 2009/06, para. 31). As pointed out by one respondent to the DP, Richard Macve (2009) of LSE, there is an unresolved question in FVA of how to treat the ‘Modigliani-Miller’ effects, that is, that new debt increases the risk for existing equity holders, but at the same time, incurring new debt is a 0-NPV transaction. The current practice effectively encompasses the latter (DP 2009, para. 31) and disregards the former. The background to this reasoning is that it can be assumed that the company expects to invest the money received from a loan; however, the benefit of doing so does not meet accounting recognition criteria, therefore the increased risk from borrowing, which could be captured by e.g. using a risk-free discount rate, is not accounted for (Macve, 2009).

One argument in favor of inclusion of own credit risk is that of wealth transfer *“Liabilities and equity represent the two classes of claims against the entity. A change in the credit risk of the entity’s liabilities represents a transfer of wealth between those two classes.”* (DP 2009/06, para. 32). Those

in favor of this view argue that that mechanism works through value changes in the put-option (default option) described as follows: “*Equity holders have an option to put the entity to the debt holders for an amount equal to the face amount of the liabilities. The value of that option increases when the value of the entity’s assets decreases.*” (DP 2009/06, para. 34). Consistent with this view is that the *entity* holds the put-option. However, others disagree, and argue that it is rather the *equity holders*, not the entity, that own the put-option (DP 2009/06, para. 35). This reasoning was used by one of the respondents to the DP, the American Academy of Actuaries (2009), that argued for using default free discount rates since this would allow for representation of the implicit put-option (default option) held by equity holders.

Following the DP 2009/06, the IASB acknowledged the concern primarily regarding the counterintuitive effect on income due to changes in own credit risk and suggested a ‘frozen credit spread’ approach to solve this, however, it would only be applicable to structured or hybrid liabilities (IASB staff paper, 2010/01).

Assumption 3: It is assumed that own credit risk is a factor that should be incorporated when measuring the fair value of liabilities.

6.1.4 Valuation techniques and complexity

When there is no observable price for an item, an entity should measure fair value using a *valuation technique* that maximizes the use of observable inputs (IFRS 13, para. 3). There are three commonly used valuation techniques, the market approach, the cost approach and the income approach (IFRS 13, para. 62). It is in the standard stated that the objective when applying a valuation technique is to replicate the assumptions used by market

participants (IFRS 13, para. 3). This is done by using the inputs derived from the fair value hierarchy, which are assumed to be a proxy for the market participants' assumptions. However, as discussed above, the fair value hierarchy is dependent on judgments made by the preparer. Judgments made by the preparers are also necessary when it comes to deciding how to apply the inputs derived from the fair value hierarchy when using a valuation technique to determine fair value. For example, if the market approach is used, a suitable set of comparables needs to be derived, which requires judgments to be made (IFRS 13, para. B6). When it comes to the income approach, which encompasses both present value and option pricing techniques, the following is stated: “[the standard] neither prescribe the use of a single specific present value technique nor limit the use of present value techniques to measure fair value to the techniques discussed” (IFRS 13, para. B12). It can be noted that IFRS 13 does not mention anything about variations in underlying complexity of instruments to be measured, hence it is implicitly assumed that everything can be valued.

Assumption 4: It is assumed that preparers can replicate the judgments made by market participants irrespective of the complexity of the instrument to be measured.

6.1.5 Effective interest rate method

When measuring the value of liabilities at amortized cost, the effective interest method is used to determine the balance sheet value and interest expense. The effective interest rate is defined by the IASB as “the rate that exactly discounts estimated future cash payments or receipts through the expected life of the financial instrument or, when appropriate, a shorter period to the net carrying amount of the financial asset or financial liability” (IAS 39,

para. 9). When a new liability is assumed it should initially be measured at fair value, that is, the exit price should be used (IFRS 13, para. 57). However, the price that is known at this point in time is the transaction price, which reflects the entry price. Paragraph 58 of IFRS 13 states, that in many cases, the transaction price is equal to the fair value, but this needs to be determined by the entity (IFRS 13, para. 59). If this practice is used, it is assumed that the balance sheet measurement of a liability should be represented by the consideration received. This value, the amortized cost, or the present value using the effective interest rate, will subsequently increase over the expected life of the debt by a factor determined by the effective interest rate.

Assumption 5: It is assumed that the historical proceeds, as measured by the effective interest rate method, are representative of the obligations of a firm.

6.2 The Northland Resources case

6.2.1 Case background

Northland is a group of mining companies with a business strategy of acquiring, exploring, evaluating and developing mineral assets. The group's main focus is on high quality iron ore concentrate. The Luxembourg registered Northland Resources S.A. is since 2010 the parent company of the group after having moved the site of incorporation from Canada where the group was founded in 1987 (Reorganization plan, 2013:10-11; Northland website, 20 March 2014). The main operating units of the group are located in northern Sweden and Finland where two projects are in operation, the Kaunisvaara project in Sweden focusing on iron ore concentrate and the Hannukainen project in Finland focusing on iron ore, copper and gold ore (Northland website, 20 March 2014). The first shipments from the Kaunisvaara project

began in 2012 and consisted of premium quality iron ore (Reorganization plan, 2013:11).

The operation of the Kaunisvaara mine and its logistics chain were supposed to be financed by a new issue of shares that took place in April 2012. However, due to unexpectedly high operating costs, low iron ore prices on world markets and disadvantageous exchange rate changes, the share issue proved insufficient to cover the costs (Reorganization plan, 2013:18). Having failed to secure lease and bridge asset financing in late 2012, Northland probed the market among institutional investors in the beginning of 2013 to assess the interest for providing additional equity financing. However, the fact that Northland suffered from liquidity problems and was looking for additional financing got known publicly and the share price plummeted, rendering the option of a new share issue prohibitively expensive (Reorganization plan, 2013:27). As a consequence of the failed financing attempt, the Swedish operating subsidiary Northland Resources AB became insolvent and was placed into company reorganization by the Luleå District Court on 8 February 2013 (Reorganization plan, 2013: Appendix 21a).

During the reorganization, Northland was delisted from the Toronto Stock Exchange and changed its primary listing to the Oslo Stock Exchange. In addition, short term funding was obtained from bondholders and trade creditors in order to allow the operations at the Kaunisvaara mining sites to continue (Northland website, 21 March 2014). After several changes to the proposed financing setup and multiple extensions of subscription time periods, Northland managed to restructure its long term financing in order to be able to continue carrying out its operations on a long term basis. The new proposed financing setup received required approval from bondholders, trade creditors and shareholders during spring 2013. On 12 July 2013 the

reorganization plan was approved by the Luleå District Court and Northland formally terminated the reorganization on 23 August 2013 (Northland Q3, 2013:8). The new financing structure is described in detail in sections below.

6.2.2 Classifying Northland's distress

Given that the distress situation in the Northland case was due to insufficient financing of the Kaunisvaara mining project, we classify the distress as financial as opposed to economic. This distinction follows from Asquith et al. (1994). The distress was not due to a reduced value of the mining project itself which would have been the case if Northland, for instance, would have discovered that its iron ore quality was lower than expected, resulting in an asset write-down. Northland conducted impairment tests of its exploration assets during Q3 2013 which resulted in unchanged asset values (Northland Q3, 2013:20), indicating that the value of the operations had not decreased.

6.2.3 Fair value measurement of the First lien bond

In this section we will discuss the fair value measurement process of Northland's First lien bond. This bond has a face value of \$335 million, an issue price of \$311.6 million and the liability component was initially recognized at a fair value of \$236.6 million in the Q3 2013 financial statements (Northland Q3, 2013:29). The bond is measured at amortized cost using an effective interest rate of 23.5% per annum (Northland Q3, 2013:29). The issuance of the first lien bond by Northland followed after several failed attempts during the spring 2013 to secure new financing and thereby ensure that the operations of the firm could be carried out (Söderqvist, 2014). The effective interest rate method was used to determine the discount rate at initial recognition for the First lien bond (Northland Q3, 2013:29). Therefore,

the last transaction was seen as representing fair value and resulted in the effective discount rate of 23.5% per annum (Söderqvist, 2014). However, during the time at which the 23,5% transaction based discount rate was derived, Northland was restricted from using its own funds. This was due to a decision by the bond trustee Norsk Tillitsmann to restrict Northland's access to its own bank accounts in order to hinder the company from making any payments that would reduce the amount of collateral available to the current bondholders. The period of frozen access to the accounts came in effect on 24 May 2013 and continued until 4 June 2013 (Northland website, 17 April 2014). The First lien bond was settled 6 June 2013, but the transaction closed 29 May 2013 and was thus effectuated during the period when Northland did not have access to its own funds and was suffering from a severe liquidity shortfall (Northland website, 17 April 2014). However, Northland's preparers made the decision that the market for this bond was deemed active and that in following IFRS 13 para. 15, the availability of a market price rendered this price the input to use when determining the discount rate.

6.2.4 Fair value gain

In the Q3 2013 report, Northland reported a fair value gain of \$379.8 million due to liability measurement at fair value, which can be compared to revenue in the same period of \$31.4 million (Northland Q3, 2013:3). The reported gain emanated from an increase in the discount rate used on existing trade payables, mark-to-market valuation being used on a previously issued bond ('the Second lien bond') and the derecognition of two previously outstanding bonds reinstated as the Second lien bond (Northland Q3, 2013:29-30).

6.2.5 Liability complexity

The post-restructuring liabilities of Northland are relatively complex instruments. The First lien bond is a payment-in-kind (PIK), callable bond with attached warrants. It also contains a pay-if-you-can cash interest feature subject to cash availability from 15 July 2016 semi-annually until maturity in 2020 (Northland Q3, 2013:29). The Second lien bond is a mandatorily convertible, PIK bond that contains a pay-if-you-can cash interest term from 15 July 2015. Furthermore, the Second lien bond is subject to an operational trigger in that it is mandatorily convertible either when Northland has produced and sold 4 million dry metric tons of iron ore on a twelve month basis or at 14 July 2016. In addition, the bond is divided into two different tranches denominated in NOK and USD respectively which both are different from Northland's functional currency CAD (Northland Q3, 2013:14 and 29-30).

6.2.6 Northland's credit rating

On the reporting date of the Q3 2013 report, 30 September 2013, Northland had recently had its issuer probability of default credit rating lifted from a limited default status rating of Caa3-PD/LD to Caa3-PD (Moody's, 2013 (1)) by Moody's, one of the three dominant global corporate credit rating agencies (Becker, 2011). The rating was subsequently affirmed on 19 December 2013 and on this date Moody's also gave an issue specific rating to the First lien bond of Caa2 (Moody's, 2013 (2)). The previous limited default rating had been given to Northland due to its missed interest payments on the bonds it had outstanding prior to the restructuring (Moody's, 2013 (1)). The upgrading of the probability of default rating one step above the previous limited default rating was due to the completion of the reorganization process and that the company had been given access to new funds by issuing the First

lien bond. The issue specific rating of Caa2 given to the First lien bond, was due to the senior priority given to the bond's investors in case of default and the substantial amounts of debt in Northland's capital structure junior to the First lien bond, including the Second lien bond (Moody's, 2013 (2)).

7 ANALYSIS

7.1 Analytical approach

Following the above identification of the main assumptions underpinning fair value measurement in IFRS, issues with these assumptions given a condition of financial distress, or otherwise impeded market efficiency, are identified in the following section. In order to analyze the identified assumptions and identify issues, we employ the theoretical framework previously presented. The identified issues with fair value measurement due to financial distress can be classified as both theoretical and practical based on the source of the issue. That is, the background to some of the issues identified is due to other theory contradicting the assumptions in the standard whereas the practical issues emanate from concerns in relation to the implementation at the reporting entity level. To deeper explore the implications of these issues, the Northland case is used.

7.2 Analysis of identified assumptions in IFRS

7.2.1 Fair value measurement principles

As discussed in Assumption 1, the general principle of fair value measurement is that when market prices (Level 1) are not available, hypothetical market values using Level 2 or 3 inputs are derived as a result of the judgments made by the preparer. Although this use of hypothetical prices

in and of itself can, and is questioned (e.g. Milburn, 2008), there is particular reason to question the assumption that judgments made by the preparers can represent a proxy for market values. The potential for inclusion of subjectivity through this process is a criticism of fair value measurement in general. However, there is reason to suspect that such concerns are especially acute during a situation of financial distress. This argument can be made on basis of the work done by Watts & Zimmerman (1990), who emphasize the need to look at the incentives of the preparers in order to explain accounting outcomes. One of the original hypotheses presented in Watts & Zimmerman (1990) is the ‘debt-to-equity-hypothesis’, stating that firms facing financial distress are likely to make accounting choices that improve current income. Therefore, in a situation of financial distress it is not unthinkable that such incentives drive the accounting judgments made. A more specific concern with regard to accounting judgments relates to the determination of an ‘active market’. This is a crucial test, employed in IFRS 13 to verify if transactions are ‘orderly’ and hence, can be used as inputs in fair value measurement. The assumption in IFRS is that markets are normally active, and that in exceptional cases, when this is not the case, the burden of proof is placed on the preparer. If preparers deem a market to be non-active this also entails extra work in the sense that subsequent adjustments are needed. Laux and Leuz (2009) point out that in situations of financial distress, there is an incentive for preparers and auditors to choose market values in favor of mark-to-model values, in fear of litigation.

Issue 1: There are implementation issues with accounting judgments at the entity level given a situation of financial distress

7.2.2 Own credit risk and transactions

With regard to Assumption 2, the underlying theoretical basis for the assumption that credit risk is unaffected by a discrete transaction is that investors already price in the effect that their own actions might have on the credit risk. This implies that the market for this ‘before-and-after’-effect on the company's credit risk is also efficient. This assumption is appealing in a theoretical setting when markets are liquid, financial distress is not present, and the magnitude of debt issuance relative to total capital is small. However, Krishnamurty (2010) finds that in debt markets during distress, the quoted prices of securities may deviate from the underlying fundamental value. Furthermore, for example, in the case of a restructuring during financial distress, where the source of the distress is primarily liquidity driven due to insufficient financing, as opposed to a firm in economic distress where the crisis emanates from the asset side of the balance sheet (Asquith et al., 1994), it is unlikely that *ex ante* restructuring credit risk is the same as the *ex post* restructuring credit risk given that the source of the distress is eliminated. Financial distress coincides with increased credit risk, therefore, the magnitude of change in credit risk as a result of a successful restructuring during financial distress we assume to be substantial. However, whether the market for this change in credit risk is efficient is more of an open question and discussed in the subsequent paragraph.

In fair value measurement under IFRS, it is implicitly assumed that discrete, entity specific, transactions can represent market values (Milburn 2008). Furthermore, when transaction prices are used to measure fair value, which is common for liabilities at initial recognition, entry prices are used as a proxy for fair value, although fair value is defined as an exit price measure (IFRS 13 paras. 58:B4:9). As noted in Assumption 1, at initial recognition,

entities need to employ judgment to determine if entry prices in transactions represent fair value (IFRS 13, para. 57). However, as argued by Milburn (2008) the factors used for such judgments, provided in IFRS 13 para. B4, may not be sufficient for the preparers to determine if a transaction is in fact equal to fair value and, in addition, it is dependent on the unbiased judgment of the preparers. The practice of using entity specific transactions as proxies for market values combined with the issues of determining when a transaction constitutes fair value could create issues during financial distress. This follows from previous research that points toward excess returns to be earned on defaulted bonds, and hence there is a risk that ‘distress profits’ are incorporated in fair value measurement. Thorsell (2008:100) studies the return on 279 defaulted corporate bonds and finds excess returns, indicating issues with market efficiency. Furthermore, Thorsell (2008:74) notes that: “*The existence of vulture funds indicates there are opportunities to earn good returns on distressed or defaulted assets*”. Since IFRS 13 para. B4, which states conditions when a transaction does not represent fair value, includes a provision for a situation of “*financial difficulty*” the concerns in this area hinge on the implementation of the standard.

Issue 2: IFRS 13 does not provide any underlying principle to determine when a transaction based entry price equals the exit price based concept of fair value, therefore judgments by the preparer are necessary. This lack of principles to assess transaction prices might create *implementation issues*, and such implementation issues could be especially acute during financial distress since previous research points towards excess returns during such circumstances, which might result in entity specific, ‘distress profits’ being included in the fair value measurement.

7.2.3 Own credit risk and fair value measurement

As discussed in Assumption 3, fair value is assumed to incorporate own credit risk with arguments for and against this treatment discussed in DP (2009/06). One concern raised in DP (2009/06) regards the counterintuitive effects in the income statement resulting from deteriorating credit quality and fair value measurement incorporating own credit risk. The primary concern in the discussion paper revolves around situations when firms measure changes in the fair value of liabilities on a subsequent basis. However, a situation where firms remeasure previously issued liabilities, such as a restructuring, would produce similar effects.

An argument put forward in favor of including own credit risk in liability measurement is that not doing so would induce an accounting mismatch since assets measured at fair value are likely to decrease in value given changes in own credit risk. This line of reasoning is used by Barth et al. (2008) when assessing the applicability of own credit risk in liability measurement. However, this argument rests upon the assumption that firms have assets primarily measured at fair value or that firms write down asset values. For a non-financial firm facing a situation of financial distress rather than economic distress, it is unlikely that such conditions are present. The assets will presumably not be measured at fair value, and asset write-downs are probably not applicable, given that the condition for the distress is financial rather than economic. A situation where this is the case was also put forward as an argument against inclusion of own credit risk in liability measurement (DP 2009/06, para. 53).

Issue 3: There are flaws in the arguments put forward in favor of including own credit risk in liability measurement for non-financial firms in situations of financial distress.

7.2.4 Valuation techniques and complexity

The IASB takes a non-prescriptive approach with regard to the modelling needed when measuring fair values using the valuation techniques described in IFRS 13. Hence, it is at the discretion of the preparer to determine which valuation technique is most suitable, with the only limitation that the use of observable inputs should be maximized. However, given the high degree of latitude, the reliability of the fair value measurement is highly dependent on the ability of the preparer to make judgments, as noted in Assumption 4. Furthermore, there is no mechanism in the standard to handle differences in instrument complexity. The lack of such a mechanism gives rise to concern, especially when complex derivative instruments are involved, since instrument complexity is likely to increase the magnitude of error in the fair value measurement. Barth et al. (2001) find the reliability of fair values for derivatives to be uncertain given that estimation methods for these instruments are still under development. A recent example of accounting issues in this area involves Virtu Financial, a high-frequency trading firm, whose regulatory filing for a now postponed initial public offering, pointed out a “*material weakness*” with regard to its “*inability to prepare accurate financial statements*” (Alloway, 2014). Furthermore, when firms go through financial restructurings it is common to use structured liabilities with embedded options (Bhanot and Mello, 2009).

Issue 4: In IFRS 13 it is implicitly assumed that fair value measurement is unaffected by instrument complexity. However, in situations of financial distress and restructurings, it is likely to be both more common with complex derivative instruments and to be more difficult to reliably determine input variables to be used. Therefore, the magnitude of error increases when measuring complex derivative instruments, and a situation of financial distress

further magnifies this effect due to less certainty in the input variables. Therefore, this increase in the magnitude of error contradicts the assumption that fair value measurement is unaffected by complexity, given a situation of financial distress.

7.2.5 Effective interest rate method

The effective interest rate method, as discussed in Assumption 5, is used to measure many liabilities, and assumes that the balance sheet value of those liabilities is reflected by the historical proceeds. However, this allocation is arbitrary, and produces counterintuitive effects as argued by Chasteen and Ransom (2007). They provide the example with two firms, named ‘weak’ and ‘strong’, that both borrow an equal amount, with the difference that ‘weak’ has a lower credit rating than ‘strong’. When applying the effective interest rate method to the borrowings, this produces the image that ‘weak’ has a lower amount of liabilities, since the borrowings of ‘weak’ are discounted with a higher discount rate than for ‘strong’. Situations of financial distress are likely to lead to higher discount rates being employed in the effective interest rate method, which accentuates the counterintuitive effects on the liability measurement induced by the effective interest rate method as claimed by Chasteen and Ransom (2007). That is, the increased credit risk resulting from financial distress leads to a greater divergence between reported balance sheet value and the obligation value, representing the eventual cash outflows.

Issue 5: The combination of the inclusion of own credit risk and the use of the effective interest rate method in liability measurement create issues with the information content of the reported balance sheet values of liabilities during situations of financial distress.

7.3 Northland analysis

To illustrate the implications of the issues identified above we analyze the Northland case. The analysis broadly follows the same outline as the analysis of the assumptions embedded in IFRS. By further analyzing the identified issues by use of the Northland case, an assessment of the empirically observable implementation issues is made as well as providing a clearer illustration of the theoretical issues. In addition, special attention is given to the determination of the discount rate used when measuring the fair value of Northland's First lien bond in the Q3 2013 financial statements. The reason for this being that the discount rate is such an important factor related to several of the issues identified above.

7.3.1 Analysis Issue 1

A key assumption in IFRS 13 is that financial statement preparers are able to make judgments to determine if a market for financial instruments is active. This judgment has to be done in order to determine from where in the fair value hierarchy inputs can be used. In the case of Northland, this assumption can be explored in connection with the issuance of the First lien bond that occurred as part of the restructuring. As the liability is measured at amortized cost, the effective interest rate had to be determined when issuing the bond. Thus, Northland's preparers had to make a judgment of what type of input to use for the determination of this discount rate. As outlined in the empirics section, the preparers used the market rate of 23.5% that was implied by the last transaction in the market. Thus, the preparers made the judgment that the market for the input used to value the First lien bond was indeed active.

To evaluate the reasonableness of this active market decision, the guidance that IFRS 13 provides is used. A market is deemed active when there exists

orderly transactions (IFRS 13, para. 15). Non-orderly transactions can be indicated by a low volume of transactions and a low activity (IFRS 13, para. 37). According to the administrator of Northland's reorganization, a low activity and very few transactions took place when issuing the First lien bond and he also considered the market to be distorted due to the situation of Northland which at the time did not even had access to its own funds (Söderqvist, 2014).

However, as outlined above, a low trading volume and level of activity is not a sufficient condition to deem a market inactive due to a lack of orderly transactions. Thus, IFRS 13 para. B43 is also invoked and applied to the First lien bond issuance. Most of the circumstances that are outlined in this paragraph do not apply to Northland, or it is hard to determine if they did from an outsider's perspective. However, the provision regarding distress of the issuer applies to Northland. Even though the firm was in distress, evidenced by the fact that Northland issued the bond during a time period where the bond trustee had frozen the accounts, the preparers deemed the transactions orderly. Notwithstanding the frozen bank accounts, the fact that Northland was currently placed in reorganization due to a severe liquidity shortfall also speaks in favor of a situation of financial distress that led to the issuance of the First lien bond. This concern was also raised by the administrator who questioned the practice of using the 23.5% discount rate market input, given the prevailing situation (Söderqvist, 2014). He especially noted that it was a strange practice by both the preparers and auditors to use a market price as input at a point in time when an issuer of bonds do not even have access to its own funds as this can hardly be considered a normal situation with a well-functioning market (Söderqvist, 2014). However, he did not indicate any wrong-doing by Northland's preparers and auditors, but he was rather critical to the strong preference for using market prices in IFRS FVA in almost all

situations. He consequently found good reasons to question the valuation of Northland's liabilities in the Q3 2013 financial statements (Söderqvist, 2014).

Hence, the Northland case indicates that there are issues also in practice with the assumption in IFRS that preparers are able to make the judgment whether a market is active and if transactions are orderly. The strong inclination in IFRS to use market inputs as opposed to own valuations performed by preparers using observable and/or unobservable inputs has the potential effect of making distorted market prices arising in distress situations entering financial statements. Of course, it could be argued whether the company was in fact distressed and if all the conditions in IFRS 13 para. B43 were indeed fulfilled. However, we argue that the empirical evidence weighs in favor of a situation where the firm was affected by financial distress and that the transaction should not have been deemed orderly. If a case like Northland at the time of issuing the First lien bond cannot be used to illustrate a situation of distress, the question arises what type of situation could be classified as a distress situation.

The question then is why did the preparers choose to use a market input when the situation called for another method to determine the discount rate. A potential explanation is provided by (Laux and Leuz, 2009; 2010) that point to the institutional factors that are likely to have an effect when using FVA in distress situations. When choosing to leave Level 1, or market, inputs in favor of model inputs (Level 2 and 3), the burden of proof is shifted towards the preparers, auditors and board of directors to be able to show that the fair values are indeed fair. This fear of litigation provides incentives to allow the market to value the bonds instead of using more appropriate inputs that control for any distress effects. These effects are especially likely to be present in a highly publicized case as the Northland case, where the bankruptcy risk is

high and follow-on investigations are likely to scrutinize many of the decisions made by the people responsible at the company. The litigation risk is evidenced by the fact that in September 2013, a statement of claim seeking certification as a class proceeding against Northland was issued by the Ontario Superior Court of Justice in Canada. The filing named as defendants both Northland, managers, former managers and former directors of the board and the plaintiff was seeking damage as it was alleged that the defendants had failed to make timely disclosures of the problems with the Kaunisvaara mining project that led to the financial distress of the company (Northland website, 25 April 2014).

The decision taken by Northland's preparers to use the market inputs that resulted in a high discount rate is also in line with the argument that the higher debt-to-equity ratio that a firm has, and thus the higher the default probability, the more likely the preparers are to make use of accounting methods that increase current income (Watts and Zimmerman, 1990).

Conclusion Issue 1

Conditions present in the Northland case confirm the hypothesis put forward by Laux and Leuz (2009), and adapted by us into Issue 1; that the risk of litigation is a real phenomenon in these circumstances, and that fear for such litigation could affect judgments in favor of applying mark-to-market valuation. However, although we cannot test for the causality between the existence of the litigation risk and the judgments made by Northland, we can nevertheless conclude that conditions for such causality exist. In addition, the debt-to-equity hypothesis was also hypothesized to have potential implications in the Northland case and during distress more generally. However, the conditions supporting such a claim are not as strong, primarily given the lack of a clear incentive for the management to act in such manner given that a

large proportion of the officers in charge were replaced following the restructuring. For example, the previous CEO Karl-Axel Waplan and the CFO Eva Kaijser announced that they would resign from Northland on 1 June 2013 and 18 July 2013 respectively (Northland website, 28 April 2014). Considering the wider implications of this conclusion, although fair value as a measurement system is based on economic theory, standard setters have ignored the potential biases induced by the preparers, acting as rational individuals in line with economic theory. Consequently, bias in judgments may impair the reliability of the reported values and thus reduce their decision usefulness, the objective of the fair value view defined by Whittington (2008).

7.3.2 Analysis Issue 2

In Issue 2, the assumption in IFRS 13 para. 42, that own credit risk is unaffected by discrete transactions was problematized in the context of financial distress and financial restructurings. In the Northland restructuring, the financing provided can be characterized as a rescue operation of the firm, whereby Northland moves from financial distress to non-distress. As result of the issuance of the First lien bond, the company was given access to \$311.6 million in cash (Northland Q3, 2013:29) which is approximately equal to 277% of the current assets at the last reporting date prior to the bond issue (Northland Q1, 2013:4). In the press release on the day following the closing of the transaction, 30 May 2013, the CEO of Northland announced that the proceeds from the bond issue would be sufficient to complete the main operation of the company, the Kaunisvaara mining project (Northland website, 21 April 2014). The company also completed its reorganization on 23 August 2013 as a result of the successful issuance of the First lien bond and infusion of new cash. As a result of this, the firm was also once again given a 'going concern' qualification from the auditors in the Q3 2013 report and an

upgraded credit rating from Moody's. Given these circumstances, the issuance of the First lien bond appears to have had a substantial impact on the ability of the firm to continue its operations, and given that the nature of Northland's distress was financial, we argue that this should have affected Northland's credit risk. However, the question that remains to be explored is if the change in own credit risk, induced by the issuance of the First lien bond, is captured in a way so that the 'market' for this change in credit risk is *efficient*.

Regarding the 23.5% discount rate used to measure the First lien bond, there are issues with the applicability of this rate and the objective that "*Fair value is a market-based measurement, not an entity-specific measurement*" (IFRS 13, para. 2). The 23.5% rate was derived by the preparers using the implied internal rate of return in the First lien bond issuance, however, this return represents what the subscribers to the rescue package will receive, and as such, it is an entity specific return. As discussed in the paragraph above, the infusion of cash resulting from the issuance of the First lien bond secured the firm's continued operations, and as such, this transaction removed the immediate financial distress of the company.

Conclusion Issue 2

When comparing the 23.5% rate used to measure the value of the First lien bond to our entity specific benchmark discount rate implied by the credit rating (see section 7.4), this discount rate is 7.4 percentage points below the 23.5% rate. Given the magnitude of this difference in implied credit risk, and that previous research points toward the existence of excess returns from investing in bonds during distress (Thorsell, 2008), there is a possibility that the fair value measurement of the First lien bond incorporates such excess returns. However, it is difficult to measure with any certainty to what degree the 23.5% discount includes excess returns since there were no quoted prices

on the bond available immediately following the completion of the transaction. In conclusion, the lack of underlying principles when it comes to determining if discrete transactions are representative of market prices, and if these prices are efficient, create conditions for implementation issues of the standard. With respect to the wider implications of this issue, the following quote by Milburn (2008) captures the challenges: *“The concept of fair value implicit in the provisions of SFAS No. 157 [and IFRS 13] might, taken as a whole, be considered to comprise a family of current value measurement bases ranging from reasonably efficient market values to current cost and present value bases that are significantly dependent on entity expectations – all described as fair value”*. This can be set in contrast with the objective in IFRS 13 para. 2, defining fair value as a *“market-based measurement”*, hence there are challenges in operationalizing this objective in the standards.

7.3.3 Analysis Issue 3

According to IFRS 13, an issuer’s own credit risk is included when measuring the fair value of liabilities. This is the current standard situation both at initial recognition and in situations where subsequent remeasurement is required. An issue with this assumption on a theoretical basis pertains to the counterintuitive effects that such measurement can have. As mentioned above, these effects are often mainly discussed in the context of remeasurement when liabilities are recognized at fair value through profit or loss but similar effects are likely to arise in distress situations when a firm’s financing is restructured. The Northland case will be used to analyze whether this assumption causes issues also in practice.

The reorganization of Northland and the concomitant restructuring of the capital structure had substantial effects on the group’s Q3 2013 financial statements. When undertaking the restructuring, the new First lien bond was

recognized at fair value since this is the practice at initial recognition of liabilities. At the same time, the reinstated and restructured Second lien bond and trade payables were restated at fair value since these liabilities were also recognized for the first time, albeit in their new form. Since the restructuring occurred at a time when the group's credit standing had deteriorated compared to when the old capital structure was still in place, the value of the liabilities was lower compared to prior to the restructuring. If this lower value is not matched by a lower value on the asset side of the balance sheet, the equity increases through a gain in the income statement to make the balance sheet balance. This was the case for Northland as no concurrent asset write-downs were recognized. These gains amounted to a total of \$379.8 million in the Q3 2013 financial statements out of which \$289.8 million was due to the simultaneous derecognition of the two old bonds and initial recognition of the restructured Second lien bonds and \$90.0 million was due to the remeasurement at fair value of the restructured trade payables (Northland Q3, 2013:30). As an indication of the magnitude of these effects, the gain of \$379.8 million can be compared to Northland's Q3 2013 operating loss of \$33.7 million and the \$1,495.5 million in total assets (Northland Q3, 2013:3-4).

Thus, the assumption of including own credit risk when using fair value measurement of liabilities can have issues also in practice in connection with financial distress. Northland represents a case where financial distress and the consequent restructuring of its financing have given rise to counterintuitive financial statement effects. The credit risk of the company had evidently increased since before the financial distress affected the financial statements but resulted in both a lower debt-to-equity ratio as the equity must increase to balance the balance sheet absent effects on the asset side and a substantial credit to the income statement which was not a reflection of Northland's operating performance.

When the credit quality of a firm declines, it is commonly due to a decline in the value of the assets and consequently the gains in the income statement should not be a problem since the gains will be offset by write-downs and declining earnings from the assets. This is especially so for firms that carry a large proportion of assets measured at fair value and would thus avoid the FVA mismatch discussed by Nissim and Penman (2008). However, in the Northland case, where the decreased credit standing is due to financial distress and not a value crisis on the asset side, the fair value measurement of the liabilities gives rise to problems. This we argue to be a general problem for industrial firms in financial distress that often do not have substantial assets carried at fair value. For these types of firms, the declining credit quality can be reflected in decreased internally generated business goodwill (Barth et al., 2008) but this goodwill is not recognized as an asset and thus the fair value mismatch will not be offset by a write-down. This can be seen as a reflection of FVA standards having to a large extent been designed with financial firms, carrying a large proportion of assets measured at fair value, in mind and that most academic studies on fair value measurement of liabilities have been conducted in the insurance and banking industries (Barth et al., 2008).

An argument that is sometimes put forth in favor of the inclusion of own credit risk when measuring the fair value of liabilities, and that is criticized by others (see e.g. Lipe, 2002; DP 2009/06, para. 58), is that the lower value that is due to a higher discount rate reflecting credit risk, should be seen as a gain since the issuer should be able to realize these lower values. However, the criticism to this argument especially applies to a firm like Northland that due to financial distress has restructured its financing to increase its low liquidity. Then it is unlikely that Northland by repurchasing the liabilities in the market would realize the fair value gains given its liquidity problems, otherwise the question arises why the company would raise cash in the first place.

Thus, Northland's own credit risk induced gains have similarities to the case firm studied by Lipe (2002). However, in his study, it is fair value measurement of liabilities that are remeasured at fair value through profit or loss that is argued to lead to counterintuitive effects in the financial statements of a financially distressed firm. In the Northland case, the main effects are due to the remeasurement at fair value due to a restructuring. Thus, the Northland case shows that there are also broader implications of fair value measurement of liabilities than just the practice of subsequent remeasurement of liabilities that Lipe (2002) focuses on.

It could be argued that these gains should not be a problem as financial statement users will be able to reverse these effects and exclude them when analyzing a company. However, alluding to Gaynor et al.'s (2011) findings that highly knowledgeable users of financial statements represented by CPA's to a large extent misinterpret these effects, we argue that these counterintuitive effects are indeed problematic. Such effects are also in line with the findings of Foster (1979) that investors in many cases interpret accounting numbers at face value.

An indication of investor misinterpretation can be deduced by the share price reaction following the release of Northland's Q3 2013 report. The report, which was delayed and released on 28 November 2013, was followed by an intraday share price gain of 34% as the share closed at 2.76 NOK compared to the previous day's closing price of 2.06 NOK. The 2.76 NOK can also be compared to the five day average pre-report price of NOK 2.02 and the five-day average post-report price of 2.42 NOK (Thomson Reuters Datastream, 28 January 2014). However, such a share price reaction should be interpreted with care as multiple factors affect the market value of a company. On the other hand, the operating results of Northland, with an operating loss of \$33.7

million, and the subsequent decline in the share price in the immediate days following the Q3 2013 report are indications of a share price overreaction, at least partly, driven by the positive net income of \$387.2 million reported due to the inclusion of the fair value gains (Northland Q3, 2013:3).

Conclusion Issue 3

In this section we have analyzed the arguments for and against the inclusion of own credit risk in fair value liability measurement put forward in the discussion paper regarding this topic. We find flaws in the arguments in favor of including own credit risk in situations of financial distress and for non-financial firms, thus supporting Issue 3. To begin with, we find that the inclusion of own credit risk when measuring the fair value of Northland's liabilities has given rise to counterintuitive financial statement effects. In addition, we find that a situation of financial restructuring, where a firm remeasures a large proportion of outstanding liabilities gives rise to similar counterintuitive income statement effects as those argued to be an issue for liabilities remeasured at fair value through profit or loss (c.f. DP 2009/06, para. 48). The reaction on Northland's stock price following the release of the Q3 2013 report provides conditions in support of Gaynor et al.'s (2011) assertion that market participants misinterpret gains due to an increase in own credit risk, although further research is necessary for definite conclusions. Accounting mismatch is an argument put forth both in favor of and against including own credit risk when measuring the fair value of liabilities. The argument in favor of including own credit risk regarding accounting mismatch is that firms write down assets prior to increases in own credit risk and thus, not including own credit risk in liability measurement would induce an accounting mismatch between the treatment of assets and liabilities. However, this argument appears to be flawed in the Northland case as the distress is of

a financial character and consequently there are no offsetting asset write-downs. Also, there are no unrealized declines in value on the asset side, as Northland is an industrial firm with no substantial assets measured at fair value. Therefore, the accounting mismatch argument rather favors the opponents of including own credit risk in liability measurement. In conclusion, the observations made from the Northland case support Issue 3.

The wider implications of the concerns raised against including own credit risk in liability measurement, regarding counterintuitive income statement effects, depend to what degree financial statement users take information at face value. Given findings in previous studies like Foster (1979) and more recently Gaynor et al. (2011), the prospect of investor misinterpretation cannot be ruled out, and would in that case support the mechanistic hypothesis. In such an environment, it could be argued that standard setters would have to focus more on the reliability and stewardship dimensions of accounting, in accordance with the alternative view in Whittington (2008).

7.3.4 Analysis Issue 4

In IFRS 13, it is assumed that market prices can be proxied by the use of valuation techniques and that Level 2 and 3 fair value inputs can be used when Level 1 inputs are not available or reliable. From this follows the assumption that financial statement preparers are able to replicate prices that would exist in a hypothetical market for assets and liabilities that are to be measured at fair value. Thus, in the Northland case, for the determination of fair value of its liabilities during financial distress, it would then be assumed that the preparers should be able to correctly value the instruments given that not all the conditions in IFRS 13 para. B43 required for judging a transaction orderly were fulfilled.

In addition, IFRS 13 does not make a difference between different types of liabilities to be measured and the different levels of difficulties that can be expected to be involved in valuing different types of liabilities. These assumptions are likely to be problematic in the Northland case. The preparers are relied on, together with the external valuers that are employed in some of the company's fair value measurement processes (Northland Q3, 2013:12), to be able to replicate the market price that reflects the assumptions that market participants would use (IFRS 13, para. 87). In a distress situation, like the one which Northland has been in, complex structured and hybrid liabilities are often used (Bhanot and Mello, 2011). This is also the case for Northland, where the First lien bond is a PIK callable bond with attached warrants and the Second lien bond is a mandatorily convertible, PIK bond that also contains a pay-if-you-can cash interest term from 15 July 2015. Considering the structure of these instruments, it seems to be involved a larger amount of complexities in replicating a hypothetical market price for these than it would be to replicate the price of a more plain-vanilla liability. In fact, the release of Northland's Q3 2013 report was delayed and the postponement was in a press release from 13 November 2013 motivated with the following: *"[The restructuring of the group] leads to technically complex accounting and valuation impact on the financial statements of the Group as at September 30, 2013. The Company and the Board has today taken the decision to postpone the Third Quarter Result to enable for further judgments and review procedures together with its auditors."* (Northland website, 26 April 2014).

Milburn (2008) is of the opinion that accounting standards assume that establishing a fair value is always possible, given that sufficient amounts of time and cost are involved in deriving a valuation based fair value in the absence of market inputs. However, the cost and time required in valuing these types of complex instruments that are often used in financial distress

and restructurings are most likely high in addition to the risk of measurement errors that are likely to be involved as evidenced by the above statement provided in Northland's press release.

This required time and costs can be a further explanation to why issuers of such complex instruments in connection with financial distress choose to use market prices as inputs to their fair value measurement even though the transactions are not orderly as specified in IFRS 13. In fact, Northland has for the Second lien bond accounted for the instrument at fair value through profit or loss and it has thus allowed market prices to determine the fair value measurement with the motivation: *"Due to the complex structure of the embedded derivatives included in the bond the Group has elected to account for the entire bond at fair value through profit or loss."* (Northland Q3, 2013:30). Thus, instrument complexity seems to have affected accounting choices in favor of market price inputs during Northland's financial distress.

Conclusion Issue 4

In the Northland case there are several observations indicating issues for preparers to measure the fair value of liabilities. These issues include the delay of the Q3 2013 report and the arguments made to justify accounting choices. Furthermore, we question if it even exists any reliable method to measure the effects of the operational trigger on the mandatory conversion feature attached to the Second lien bond. This trigger is based on the amount of iron ore produced by Northland. However, it cannot be assumed that it is always optimal for Northland to maximize its production, which creates valuation issues. The use of complex derivatives attached to liabilities issued during Northland's restructuring is also in line with Bhanot and Mello's (2009) observation that such instruments are common during financial distress. In conclusion, we find support for instrument complexity influencing the fair

value measurement process in accordance with Issue 4, which contradicts the implicit assumption in IFRS that fair value measurement is unaffected by instrument complexity.

Given the ever increasing degree of complexity of financial instruments as a result of financial engineering, the underlying assumption that this complexity does not create valuation issues for preparers becomes ever more strenuous. The wider implications of this assumption can be seen in the occasional discoveries of misvaluations of complex derivatives (e.g. Alloway, 2014), which in due time will lead to a lower regard for the reliability of accounting.

7.3.5 Analysis Issue 5

An underlying assumption used by the IASB when designing the standards is that the historical proceeds from issuing a liability are representative of a firm's obligation. This follows from the effective interest method used when measuring a liability at amortized cost. Since another assumption in IFRS is that an issuer's own credit risk should be included when measuring liabilities at fair value at initial recognition, the credit standing of a firm will affect both the financing side of the balance sheet and subsequent interest expenses in the income statement. Thus, we will explore what implications these assumptions have in practice for a firm that issues liabilities in connection with financial distress.

When Northland on 30 September 2013 for the first time reported the First lien bond, it applied the amortized cost method for the liability component of this compound instrument. The effective interest rate used was the previously discussed 23.5% rate. This resulted in a balance sheet amount of \$236.6 million at initial recognition, representing the liability part of the

instrument while \$55 million was recognized in equity for the attached warrants (Northland Q3, 2013:29). However, as a result of the relatively high discount rate being used, the balance sheet amount of the bond is significantly lower than the obligation value, i.e. the nominal undiscounted amount that Northland has to transfer to the bondholders during the term of the bond. As outlined in the data section, the liability component of the First lien bond is a callable PIK bond with 15% annual interest rate, maturing in 2019. To illustrate the different outcomes of the methods, an approximation of the obligation value can be derived by assuming that full PIK interest is paid and capitalized to the nominal amount of the instrument with the pay-if-you-can interest paid as late as possible while excluding the value of Northland's call option. The obligation value is calculated as the sum of the nominal amount of the bond of \$355 million added to the total interest of \$412 million for a total of \$747 million. Although this is quite a crude estimation, it nevertheless illustrates that the potential maximum cash obligation amounts to more than three times the balance sheet amount of \$236.6 million. An alternative method of liability measurement is to use the risk-free rate to discount at initial recognition and thereby including the time value of money but excluding own credit risk (Chasteen and Ransom, 2007). Applying a risk-free rate of 2.9% to Northland's First lien bond at initial recognition using the rate taken from the PwC's Norwegian market risk premium survey for 2013 and 2014, yields an initial recognition value of \$636.8 million for the liability part of the First lien bond, using the same assumptions as in the obligation value example. When comparing this to the reported value this example shows that the liability would be higher by an amount of \$400.2 million which would result in a lower value of book equity of the same amount.

Conclusion Issue 5

The inclusion of own credit risk when calculating the effective interest and amortized cost has substantial implications for Northland's financial statements. The Northland case and the measurement of the First lien bond illustrate the problem with the effective interest rate method during financial distress, and the arbitrary balance sheet allocation argued by Chasteen and Ransom (2007), where a lower credit quality implies a stronger financial standing when looking at the balance sheet. The application of the effective interest rate method to the First lien bond during distress, with a subsequent high interest expense reflecting the own credit risk, gives prominence to the income statement as the main informative financial statement and thus appears to be a departure from the balance sheet view. By doing this, the standard setters do not prioritize treating the balance sheet as a measure of financial risk, rather, risk is visible through the income statement by higher interest expenses. Given that the balance sheet is paramount in the fair value perspective of Whittington (2008), it is something of a paradox that the standard setters appear to have prioritized the income statement when defining fair value measurement through the use of the effective interest rate method. Furthermore, we argue that the type of balance sheet found in the Northland case is inconsistent with the underlying IFRS assumption of a going concern (*Conceptual Framework*, para. 4.1), given that the reported value deviates substantially from the maximum obligation value that the firm will potentially pay.

7.4 Benchmark discount rate

The own credit risk of a firm that is in financial distress is relatively high, evidenced by for example the 23.5% discount rate applied to Northland's First lien bond. Given that the discount rate is a key input variable to the valuation

of liabilities in financial statements and that own credit risk is assumed to be included in the discount rate according to IFRS, we will investigate the effects of an alternative approach to estimating the discount rate.

The CAPM is a much used method for estimating the required return of an asset that is then used to discount the cash flows from the asset (Berk and Demarzo, 2007:363). As one of the key underlying assumptions of the CAPM is that all investors are well-diversified, investors are not rewarded for taking entity specific risk but only for taking systematic risk. This perspective thus differs from the view taken in IFRS since the unsystematic own credit risk should be included in the discount rate when fair valuing a firm's liabilities in financial statements.

To explore and illustrate the effects of the assumption to include own credit risk in the discount rate, we will below derive our own estimate of the discount rate by relating it to the risk of Northland. This will be done by using two different, but complementary, methods to determine an appropriate discount rate for Northland's First lien bond. These discount rates will then be compared to the discount rate used in Northland's Q3 2013 financial statements. The methods used are CAPM and the credit rating of Northland. Our own estimates of the discount rate will then provide for further analysis of the IFRS assumptions in the practical case setting of Northland.

7.4.1 CAPM benchmark rate

The CAPM can be expressed in the formula below:

$$E(R_i) = r_f + \beta_i(E[R_m] - r_f)$$

Where:

$E(R_i)$ = the expected return of asset i

r_f = the risk-free rate

β_i = asset i's systematic risk

$E[R_m] - r_f$ = the market risk premium

Thus, the CAPM relates an asset's required return to its systematic risk measured by beta and investors are rewarded in proportion to the beta of the asset while unsystematic risk, such as non-performance risk is assumed to be fully diversified (Berk and DeMarzo, 2007:303). Though the model is often used to estimate the cost of capital for equity, the cost of debt can also be derived by the model given that a debt beta can be estimated. The debt beta of a firm can be derived from the relationship below that expresses the beta of a firm's assets as a portfolio of the equity and debt betas weighed by the equity's and debt's relative contributions to the market value capital structure (Berk and DeMarzo, 2007:442):

$$\beta_i = \frac{E}{E + D} \cdot \beta_e + \frac{D}{E + D} \cdot \beta_d$$

Where:

β_i = firm i's asset beta

β_e = equity beta

β_d = debt beta

E = market value of equity

D = market value of debt

From this relationship, it follows that in order to estimate Northland's debt beta; the asset beta, equity beta and market values of Northland's debt and equity need to be estimated. The asset beta is estimated by a comparables approach using a set of 134 mining companies. The data is taken from the NYU Stern Business School database. The average asset beta is

equal to 0.90 while the average for the equity beta is 1.26 using an average debt-to-equity ratio of 48.21% and a tax rate of 1.90% (Damodaran, 2014).

The market values of equity and debt for Northland are estimated with values as of 30 September 2013, the reporting date of the Q3 2013 report. The market value of equity is calculated as the number of shares outstanding as of 30 September 2013 multiplied by the closing price for the same date. The number of shares amounted to 38,728,049 (Northland Q3, 2013:23) and the closing share price on the Oslo Stock Exchange was equal to NOK 3.64 (Northland website, 2 May 2014), resulting in an equity market value of NOK 141 million. Using the closing USD/NOK exchange rate for 30 September 2013 of 6.0081 (Norges Bank, 2 May 2014), the market value of equity on the reporting date amounted to \$23.5 million.

The market value of debt is approximated by the book value of debt, using the values in Northland's Q3 2013 financial statements. Though this is a crude estimation method, especially for a high-yield firm like Northland where the market and book values of debt can differ quite substantially, we believe this to be a valid method given that the alternative would have been to carry out a fundamental valuation of the debt; an approach that in itself carries many potential errors especially for such complex instruments that constitute part of Northland's capital structure. Also, given that Northland had recently restructured its financing, the debt had been remeasured at fair value, thus the book value approximation is deemed reasonable. Our choice is also supported by the findings of Bowman (1980) who finds that accounting values of debt are reliable surrogates for market values in the leverage variable in these types of estimations. The total debt for the reporting date amounted to \$557 million (Northland Q3, 2013:4). Thus, as of the 30 September 2013, the estimated market value debt-to-equity ratio amounted to 23.7.

Northland's equity beta is taken from the Thomson Reuters Datastream database as of 7 May 2014 and amounts to 1.092. This is a historical beta measure estimated from market returns. Using all the estimated values, the value of the debt beta is solved for using the above formula and amounts to 0.892. The debt beta can be compared with the equity beta of 1.092, and this shows that the risk of debt is comparable to the equity risk.

Having estimated the debt beta of Northland, the risk-free rate and the market risk premium are needed to get the required return by use of the CAPM formula. As input for the market risk premium, we use the estimate from PwC's yearly survey among large capital market actors. Given that the Northland share is traded on the Oslo Stock Exchange, we have used the estimate for the Norwegian market which in 2013 amounted to 5.1% (PwC, 2013). The estimate in the survey was derived by the use of 188 responses of market participants and the results are thus an *ex ante* required return above the risk-free rate. The majority of the survey respondents used the 10-year government bond yield as the risk-free rate which for the 2013 survey amounted to 2.9% (PwC, 2013). We thus use this as the risk-free rate for all our calculations to ensure consistency. Furthermore, 83% of the respondents replied that they apply a small-stock premium to their required return and for a stock with Northland's market capitalization at 30 September 2013 amounting to approximately NOK 141 million, the average premium was 3.6 percentage points (PwC, 2013). The CAPM formula we use does not include any small-stock premium, however, since the market participants use such a premium we therefore conduct our CAPM calculation both with and without this premium to investigate the effect on the discount rate.

A strength of using an *ex ante* method to estimate the market risk premium compared to using a historical returns estimation method, is that it

is a forward looking measure which reflects the nature of market pricing. On the other hand, the results of the study should be interpreted with care given that it reflects the view of only a subsample of market participants. However, we believe that the PwC survey results can be used for our purposes given the estimation errors involved in these types of estimations and that the outcome of the CAPM is used in our study mainly for illustrative purposes.

Using these estimates of the debt beta, risk-free rate and the market premium we get a CAPM required return of 7.45% for Northland's debt. Adding the size premium of 3.6 percentage points yields a discount rate of 11.05%.

7.4.2 Credit rating benchmark rate

Another method to estimate the appropriate cost of debt for Northland is to use credit ratings from credit rating agencies. The relation between credit ratings and bond yields is explored by John et al. (2003) who find that while credit ratings do not fully incorporate some effects on bond yields, such as collateral, the credit rating dummies in their regressions used to explain bond yields are highly economically and statistically significant. They thus conclude that credit ratings play a large role in determining bond yields (John et al., 2003). Hence, we find credit ratings to be an informative measure to use for estimating an appropriate credit spread for Northland.

By using the credit rating method, we are able to find out what is a normal spread above the risk-free rate for an issuer with a particular rating and this measure complements the result we find by employing the CAPM. Using multiple methods increase the internal validity of our findings as the results of the different methods act as sanity checks of each other. The only credit rating agency that covered Northland for the time period under study

and at the time of writing is Moody's Investor Services and consequently this is the only rating we use.

As outlined in the data section, at the time of the first reporting date of the liabilities in the Q3 2013 financial statements, 30 September 2013, Northland had a Moody's credit rating of Caa3-PD/Caa3 and this double rating was affirmed shortly after the reporting date. At the affirmation of the issuer ratings, the First lien bond was rated for the first time and was given a Caa2. Hence we argue that this rating was applicable at the reporting date and that an immediate risk of downgrading, that should imply a higher credit spread, was not factored in by market participants given the affirmation of the credit rating. When looking at what a certain Moody's credit rating implies in terms of credit risk for traded USD bonds of firms with a market capitalization below \$5 billion, a spread of 8.75% applies for the rating range of Caa2-Caa3 according to the NYU Stern School of Business database (Damodaran, 2014).

In recent years, the global financial system has been recovering from one of the most severe financial crises in history that started in the US market for housing credit in 2007 (Laux and Leuz, 2010). As a consequence, financial markets have performed strongly and investors' returns have been substantial. This recuperation of previous losses has also spread to credit markets where the financial crisis started. The market for high-yield debt has not been an exception and concerns have been raised that the market is becoming overheated and detached from fundamentals which has been discussed in financial news media (see e.g. Rodrigues and Alloway, 3 April 2014; *The Economist*, 19 October 2013). This trend, fuelled by exceptionally low interest rates, has sparked a hunt for yield among investors, and could thus have affected yield spreads in the sense that the spreads have been driven below a

level that reflects the underlying riskiness of the issuers. Thus, the typical spread of 8.75% could have been affected by investor exuberance and institutional pressure among bond fund managers to provide end investors with sufficient returns. To control for such potential overpricing, we also use a credit rating implied yield spread that has been calculated using data from a period before the financial crisis. This spread is taken from Hull et al. (2005) and for a Moody's Caa rating is equal to 13.21%.

The two spreads of 8.75% and 13.21% added to the risk-free rate of 2.9% that was used in the CAPM calculations result in discount rate estimates of 11.65% and 16.11% respectively. Consequently, these estimates are substantially lower than the discount rate of 23.5% applied by Northland when valuing the First lien bond in its Q3 2013 financial statements.

7.4.3 Benchmark rates and Northland

The discount rates derived by the CAPM and the credit rating were estimated to fall in the range between 7.45%-16.11%. These different types of rates differ with regard to whether they account for unsystematic risk or not. The CAPM rates range between 7.45%- 11.05% depending on whether the small-size premium is included. This range is lower than the 11.65%-16.11% derived when using the credit rating method. The CAPM method does not incorporate an estimate of Northland's own credit risk whereas the credit rating method does. In FVA own credit risk is included in the estimates, hence only the credit rating based discount rate is directly comparable to the rate used by Northland.

Our derived benchmark rates have implications on several of the above presented issues. For instance, looking at Issue 1, the wide range of outcomes both in our own estimates and between our estimates and the estimate used

by Northland illustrates the impact that accounting judgment have on the estimation of inputs used in fair value measurement. This latitude in estimation of the discount rate also has impact on both liability valuation in the balance sheet and the income effects in the profit or loss statement. For example, if we revisit the First lien bond issued by Northland, a hypothetical valuation example of this bond can be conducted by disregarding the call option on the bond and assuming full PIK interest and pay-if-you-can interest deferred as long as possible. We then arrive at a bond value of \$231.8 million using the 23.5% rate. This result is quite close to the reported value of \$236.6 million, however, we do not know the exact assumptions used by Northland. Using the highest estimated benchmark rate of 16.11% we get a bond value of \$325.4 million using the same assumptions as in the previous example. Using the 16.11% benchmark would also affect the income statement since it would result in loss of \$13.8 million at recognition due the issue price of the First lien bond being \$311.6 million. This valuation example illustrates the effects that accounting judgments can have, as argued in Issue 1.

With regard to Issue 2, we discuss the applicability of transaction prices as a proxy for market values and the risk of including distress profit when using such values in fair value measurement. Looking at the difference between our highest credit rating based discount rate of 16.11% and the transaction based discount rate, used by Northland, of 23.5% we argue that the 23.5% is in fact an entity specific return rather than a market return. However, from an IFRS perspective, although IFRS 13 para. B4 contains a provision for “financial difficulty”, it is apparent from Northland’s application that such a provision has not ruled out the use of the transaction based, 23.5% rate, as proxy for the market rate.

Issue 3 regarding the inclusion of own credit risk in liability measurement and Issue 5 regarding the balance sheet effects induced by the use of the effective interest method are interrelated in relation to the benchmark rates. The question of including own credit risk relates to how to view systematic and unsystematic risk, where our CAPM benchmark rates only include the systematic risk and the credit rating benchmark rates also include the unsystematic risk. There is a substantial difference between the benchmark rates that include systematic risk, derived using CAPM, ranging between 7.45%-11.05% and the benchmark rates that include unsystematic risk, derived from credit ratings, ranging between 11.65%-16.11%. The difference between these two ranges illustrates the impact that the assumption of including an issuer's own credit has on liability measurement.

8 CONCLUSIONS

By analyzing the underlying assumptions of fair value measurement in IFRS, we identify potential issues that could affect the validity of these assumptions given a condition of financial distress. The issues we identify point toward both theoretical issues regarding the internal consistency of the FVA standards and potential implementation issues at the reporting entity level. The five issues we identify from the theoretical analysis are further assessed by analyzing the Northland case. In doing this, we find support for all of our identified issues. Hence, we conclude that the validity of the underlying assumptions of fair value measurement of liabilities is affected by financial distress.

In Issue 1, we identify the reliance on judgments as a potential implementation issue, given the potential agency problems that arise during financial distress. The existence of a class action lawsuit in the Northland case

provides the conditions for the type of fear of litigation that Laux and Leuz (2009) argue could affect the judgments by financial statement preparers. We find it somewhat surprising that fair value measurement seems to disregard the potential for preparers acting as self-interested rational individuals. A wider implication of this issue is that a bias in judgment can impair the reliability of reported numbers. In Issue 2 we identify the use of transaction based valuation techniques as a practice that can create implementation issues during financial distress. Fair value has an objective to be an exit price, market based measure, however, transaction based valuation is based on entry price, and is an entity specific measure, and IFRS 13 lacks a clear underlying principle to determine when such a measure meets the objective of fair value. In addition, during financial distress, previous research points towards excess returns being earned on debt transactions (Thorsell, 2008), which we also find indications of when looking at the Northland case given the difference between our credit rating based benchmark rate and the rate used by Northland, implied from a transaction. When measuring the fair value of liabilities, IFRS 13 assumes that own credit risk should be included in such a measurement, and this topic is discussed in Issue 3. In Issue 3 we analyze how the arguments for and against inclusion of own credit risk are affected by financial distress and find that there are flaws in the arguments in favor of including own credit risk in the case of non-financial firms during financial distress. This is due to an accounting mismatch that gives rise to counterintuitive income statement effects, which could have implications given that previous research finds risk of investor misinterpretation. In the Northland case, the gain of \$379.8 million in Q3 2013, with the subsequent rise in the stock price of 34% could be an example of such misinterpretation. Issue 4 relates to the implicit assumption in IFRS that fair value measurement is unaffected by complexity of the instrument measured. When we analyze this assumption in the Northland

case we find that instrument complexity has caused both delays in the reporting and that instrument complexity has governed accounting choices. Given the increasing complexity of financial markets, the ability of fair value measurement to handle instrument complexity has implications on the reliability of accounting. In Issue 5 we discuss the effective interest rate method and the implications of financial distress on the balance sheet allocation. In the Northland case we find a substantial deviation between both the obligation value and the default free debt values compared to the values reported in the balance sheet. This follows from the 23.5% discount rate being used, where the inclusion of own credit risk emphasizes the income statement as the main measure of credit risk. We argue that this contradicts the balance sheet view, which normally governs FVA. Furthermore, we argue that in an extreme case, like Northland, the balance sheet values are not representative of a going concern given the large deviation between the balance sheet value and the obligation value. Finally, given the importance of the discount rate in many of the issues discussed, we derive our own range of benchmark rates. When comparing these benchmark rates to the discount rate used by Northland we provide further support for our arguments, given the substantial difference between the benchmarks and Northland's rate. In conclusion, we find that financial distress affects the validity of many of the assumptions underlying fair value measurement of liabilities in IFRS.

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