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7. The role of IFRS accounting fundamentals in predicting the market risk and return of the common stock – The case of companies listed on the Oslo Stock Exchange

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SAMMENDRAG Denne artikkelen studerer sammenheng mellom IFRS (International Financial Reporting Standards) baserte regnskapstørrelser (via offisielle regnskapstall) opp imot pris og risiko fra børsnoterte markedsrapporter. Hovedpoenget med artikkelen er en avklaring om IFRS bidrar til økt informasjonseffisiens i markedet ved sammenstilling av regnskapsbetaer og markedsbetaer. Regnskapsbetaer er definert som årlig kovarians mellom selskap i sin regnskapsmessige inntjening og samlet regnskapsmessig inntjening for markedet dividert på variansen til samlet regnskapsmessig inntjening for markedet. Markedsbetaer er definert som kovariansen for selskap i sin avkastning opp imot markedets avkastning dividert på variansen til markedets avkastning. Regresjonskoeffisienter beregnes for regnskapsmessige betaer ved bruk av metoder som knyttes til Fama Macbeth (1973), panelregresjoner og markedsmodeller. Regresjonene viser et signifikant forhold mellom regnskapsbeta og markedsbeta. Artikkelen gir derfor en økt innsikt i effekter fra innføring av IFRS og systematisk risiko. Samtidig gir artikkelen bedre forståelse for sammenhengen mellom relevant risiko fra regnskap og marked størrelser og gir støtte til den voksende litteratur som vurderer IFRS og informasjonseffisiens.

ABSTRACT This paper explores the relationship between the IFRS based accounting variables and market price and risk variables. The main objective of this paper is to determine whether International Financial Reporting Standard's (IFRS) accounting variables can add information efficiency to market participants on stock returns and systematic

risk. Similar to the security betas, the accounting betas for individual securities are defined as the covariance between the earnings of securities and market to price ratios divided by the variance of market earnings to price ratios. Using the regular market model and Fama and MacBeth (1973) panel regressions the analysis determines a relationship between market and accounting relevant risk (betas). The paper provides insight into how the mandating of IFRS has influenced the systematic risk associated with common stocks listed on the Oslo Stock Exchange. The paper finds a statistically significant relationship between the accounting beta and the systematic risk of common stocks. The paper contributes to the efforts of researchers who have been trying to link the accounting variables to the market return variables and to the growing literature on the informational role of IFRS.

KEYWORDS information efficiency | IFRS | accounting betas | systematic risk

MERKNAD

Forfatter har ingen interessekonflikter.

REMARKS

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7.1 INTRODUCTION

Over the past few years, the adoption of IFRS (International Financial Reporting Standards) has gained significant attention around the world with more than 100 countries allowing or mandating the use of IFRS for financial reporting purposes (Daske, Hail, Leuz, & Verdi, 2008, 2013). The European Union takes a unique position in this regard as the use of IFRS was first mandated here in January 2005 for all the listed companies on European Stock exchanges. Accounting regime changes have made an impact on the informational environment of the country. Past research shows that such changes in the informational efficiency can impact the fundamental characteristics of the common stock, that is, its risk and return. Thus, the same is expected from mandatory IFRS adoption (Barth, Landsman, & Lang, 2008; George & Shivakumar, 2016).

Regulation EC 1602/2002 mandates that the IFRS cite that the primary reason for corporate switching to IFRS is the capital market benefits. By adopting IFRS,

it contributes to "the effective and cost-effective functioning of the capital markets". It is conjectured that IFRS are principal based standards deemed to be of high quality that improve transparency through increased disclosures, better cross country comparability and more economically motivated reporting. Indeed some studies find that transparent financial reporting and disclosures can lower information asymmetry in capital markets (Botosan & Plumlee, 2002; Diamond & Verrecchia, 1991; Lambert, Leuz, & Verrecchia, 2007). The effect is improved quality of corporate reporting and decreased cost of capital (Barry & Brown, 1985). Moreover, recent studies have found that earnings of IFRS firms are less noisy and exhibit low levels of earnings management. This implies that accounting betas (the measure of the sensitivity of securities' earnings to price ratios to that of the market's earnings to price ratios) of firms, using IFRS should be less cyclical. In other words, improved financial reporting along with lower cyclicality of earnings should lead to lower risk and return of a common stock, as firm's earnings affect stock returns and thus its systematic risk. This paper therefore asks the following research questions: How has the adoption of IFRS affected the risk and return of a common stock in Norway? Can IFRS based earnings cyclicality inform investors about the systematic risk of the common stock?

Previous research has used the cost of capital, bid-ask spreads and future cash flows analysts forecast accuracy to address the impact of IFRS on the relevant risk of the common stock. In contrast this paper uses the already established link between accounting risk measures and the market beta as defined in Mensah (1992). Market betas and stock prices are influenced by an investor's expectations of the firm and accounting data forms a part of these expectations. Thus, using the established link between accounting betas and market risk the paper establishes a model to test the market beta against the accounting beta and other variables composed using accounting information as defined in (Ball & Brown, 1968, 1969; Mensah, 1992). Mensah (1992) points out that expressing the exogenous variables, in this case the market beta in terms of accounting variables, is likely to be useful as accounting reports provide an overview of the financial status of a particular entity. Market betas were estimated using market model regressions. Fama and MacBeth's (1973) procedure was used to test those betas against relevant variables, that is, degree of financial and operating leverage. Accounting betas as defined in Ball & Brown (1969) were computed in a similar manner.

From a stationary and well established panel of 28 companies that had information available on the Oslo stock exchange, the cross sectional analysis shows that the adoption of IFRS seems to lower the systematic corporate risk. Moreover, corporate accounting betas are significant predictors of systematic risk.

The cross-sectional analysis yielded the following results: absent confounding events, the adoption of IFRS lowers the systematic risk of the common stock. Accounting betas are significant predictors of the systematic risk. However, they have a very low predictive power perhaps due to the lack of huge differences between the Norwegian Generally Accepted Accounting Principles (NGAAP) and the IFRS. Moreover, accounting betas are measured with a larger amount of error than market betas as they are estimated using yearly data. The degree of financial leverage is found to be a significant predictor of market risk, but with very low predictive power. The paper fails to find support for the degree of operating leverage. Analysis was conducted on a sample of 28 companies listed on the Oslo Stock Exchange that had complete information available both during the pre and post IFRS periods.

The paper contributes to the literature in the following ways: accounting based risk measures are used to assess the impact of IFRS adoption on market risk, while existing studies have mainly used bid ask spreads or cost of equity to assess the impact of IFRS on the informational efficiency (Barth et al., 2008; Li, 2010). Second, this paper contributes to the efforts of researchers who have been trying to link the accounting variables to the systematic risk of the common stock.

The rest of the paper is organized as follows. Section 2 presents the theoretical background regarding the link between accounting based and market based measures of risk. Section 3 presents the data and methodology of the study. Section 4 presents the results; section 5 discusses the results and presents some limitations while section 6 concludes.

7.2 THEORETICAL PERSPECTIVES, BACKGROUND AND MOTIVATION

7.2.1 ACCOUNTING AND MARKET MEASURES OF RISK

Linking the accounting and market measures of risk dates back to the seminal works of Ball and Brown (1968) and Ball and Brown (1969). The former paper found that the income number captured one-half or more information about an individual firm that is available during a given year. The latter paper adresses the implications of portfolio theory for accounting. It found that the accounting incomes are moderately good predictors of the estimated systematic risks of the firms. The co-movements between accounting income numbers explain about 35–40 percent of cross-sectional variability in degrees of association with the systematic risk when taken in first differences. However, their results are only tentative

as risk is a expectational concept and they assume that income variables are constant through time.

Building upon their work Beaver, Kettler, and Scholes (1970) examine the contemporaneous association between the accounting determined and market determined measures of risk. More specifically, they identify dividend payout, growth, leverage, liquidity, asset size, variability of earnings and accounting beta defined as covariability of earnings to price ratios with that of the market's earnings to price ratios as measures that reflect both the accounting risk and individualistic risk components. They find evidence supporting the view that accounting measures of risk are compounded in the market based risk measured and conclude that investors do use accounting risk measures. The strongest association was for the measure of earnings variablity, the dividend payout and the accounting beta. However, the accounting beta was not the most important predictor of the market beta as it was estimated with a large amount of error due to a low number of estimators.

Gonedes (1973) reported findings that contradict those of Beaver et al. (1970), finding a low association but a "statistically significant" relationship between accounting and market based risk variables. The reason is that Gonedes (1973) scaled income numbers by another accounting income numbers as opposed to Beaver et al. (1970), who scaled income numbers with market prices. However, it is unknown whether the significant association is due to differences in scaling the income numbers or other factors such as a smaller and substantially different sample from previous studies (Beaver & Manegold, 1975). Further in the same vein, Beaver and Manegold (1975) composed accounting betas under a variety of specifications and used the bayesian adjustment procedure to reduce measurement errors. They found a statistically significant relationship between market and accounting betas. Later, Bowman (1979) used these findings and those of Hamada (1972) and Hamada (1969) and under the assumptions of the Capital Asset Pricing Model and unlimited lending and borrowing at risk free rate, showed that there is a theoretical relationship between market risk and accounting variables. More specifically, Bowman (1979) stated that systematic risk is related to a firm's leverage, growth, size and accounting beta and not to earnings variability, dividend policy as shown in Beaver et al. (1970).

Hill and Stone (1980) developed an accounting analogue to Hamada (1972) and Rubenstein's (1973) formula that decomposed systematic risk into financial and operating risk of the common stock. They specified an accounting measure of intrinsic systematic risk and expanded the concept of the relationshpip between the accoutning risk and systematic risk beyond the correlations, as was done in the previous studies. They found that their risk composed measure is superior to the

covariance based measures for this sample. Expanding on this note, Mandelker and Rhee (1984) studied the joint impact of operating and financial leverage on the common stock. They found that both the components explained a large variation in the market beta. Mensah (1992) extended their model and added the intrinsic business risk as another factor related to the market beta. He found that the real determinants of the market beta can be explained by the accounting flow measures. This study will thus use this approach to assess the impact of IFRS accounting fundamentals on the systematic risk and return of the common stock. The model is further explained in the methodology section.

7.2.2 IFRS RELATED RESEARCH AND BACKGROUND

IFRS was mandated in 2005 for all the companies listed on European stock exchanges with the main intention to improve transparency by providing a "single set of high quality accounting standards". One of the successes of IFRS was its global adoption with at least 100 countries adopting IFRS or linking their local accounting standards closely to the IFRS. The IFRS are principal based standards deemed to be of high quality with cited benefits such as improvements in reporting quality, increased transparency and improved information flow, reduced information asymmetry and positive stock market effects (George & Shivakumar, 2016).

Improved disclosure quality and transparency as conjectured by the proponents of the IFRS should reduce information asymmetry and estimation risk. Barry and Brown (1985) show that risk averse investors prefer to invest in those securities that have more information included. Moreover, they point out that the amount of information provided by a firm in its financial statements influences its risk, return and cost of capital. This view is common among regulators and standard setters. Proponents of the IFRS argue that principal based standards do not provide guidance on dealing with specific circumstances, while rule based standards can make it easier for firms to manipulate the accounting data (Hofheinz, 2002). For example, the bankruptcy of Enron has shown how advantage can be taken of rule based accounting standards. Thus, audit firms can detect fraud more easily (Ijiri, 2005).

In terms of stock market benefits, both the voluntary and mandatory IFRS adoption have increased market liquidity and decreased the cost of equity capital mainly in the countries with strict enforcement regimes (Daske et al., 2008). In a similar vein, Li (2010) investigates whether mandatory adoption affects equity cost of capital and observes a significant decrease of 47 basis points in the cost of equity capital for mandatory adopters. Empirical analysis of stock market benefits generally reveal that both voluntary and mandatory IFRS adoption have increased

market liquidity and decreased the cost of equity capital (George & Shivakumar, 2016).

Studies have shown that information provided under IFRS standards provides higher information quality than the local accounting standards. For instance Barth et al. (2008) and George and Shivakumar (2016) show that firms that adopted the IFRS revealed higher accounting quality post adoption in addition to less earnings management and timely loss recognition. Moreover, several studies have shown that disclosures under IFRS provide higher information quality to outside investors than domestic accounting standards. The higher accounting quality of the adopting firms and increase in accounting information should thus reduce the information asymmetry and lead to a lower cost of capital for a firm, especially when investors form their portfolios based on the existing information on risk and return of the stock (Barry & Brown, 1985; Coles & Loewenstein, 1988). Given the greater disclosures required under the IFRS framework, estimation risk and information asymmetry decreases thereby reducing the price of holding the common stock. This should thus result in reduction of the systematic risk of the common stock.

7.2.3 IFRS AND NORWEGIAN GAAP (NGAAP)

IFRS are based on a balance sheet-oriented conceptual framework, which starts with defining assets, debt and equity. The IFRS represented a substantial shift in financial reporting from domestic to international standards. Rules and requirements differ between the IFRS and domestic accounting standards within a given country with most notable being the use of fair value measurement (Barth, Landsman, Young, & Zhuang, 2014). NGAAP, on the other hand are based on an earnings-oriented conceptual framework where calculation of annual performance is the starting point. The major difference between these two standards is thus the preferred principal of measurement, which is fair value for the IFRS and the cost model for NGAAP. However, neither of these standards are faithful to their original measurement principal. For example, whenever fair value is not available the IFRS permit the use of the cost model (Gjerde, Knivsflå, & Sættem, 2008).

Some of the other differences that influence the calculation of earnings between the two standards are: NGAAP allow to expense the development expenditures leading to future economic benefits while under the IFRS they should be recognized as an intangible asset. Under the IFRS, most of the financial instruments are measured at fair value, whereas in NGAAP financial assets are measured at cost unless they are short-term instruments traded in a liquid market. Other differences

between NGAAP and the IFRS arise in relation to pensions, deferred taxes and share based payments (Gjerde et al., 2008).

According to auditing firm Ernst and Young, of the 110 companies listed on the Oslo Stock Exchange in 2005, 28% reported a reduction in the 2004 net income after restating it in IFRS terms, while the remaining reported an increase in net income. The average increase was 17%. Non-amortization of goodwill and capitalization of the development expenditures were the largest influencers of the net income, thereby indicating that intangible assets are the cause for large differences in reported income between the IFRS and NGAAP. The IFRS and NGAAP based earnings are different from each other and will therefore affect the systematic risk of the common stock.

7.3 DATA AND METHODOLOGY OF THE STUDY

7.3.1 DATA AND SAMPLE SELECTION

Data related to stock prices was obtained from Data Stream, while financial accounting data was obtained from world scope including the accounting standards followed. The sample consists of the firms listed on the Oslo Stock Exchange. A possible concern is that the adoption of the IFRS could cause sample attrition which could bias the coefficients. In order to avoid this source of bias, only firms with complete information available for both pre-IFRS and post IFRS periods were selected. Altogether 28 firms that adopted the IFRS in 2005 were chosen for the period 1996 to 2017. One year was lost due to the need to lag observations in order to compute the DOL and DFL variables. Firms belonging to the financial sector, such as banking and insurance, were not included in the sample. The total number of firm year observations is 518.

The monthly data to compute market beta was obtained from the year 1991 to 2017. The betas were computed by using rolling regressions with a 60-month window. Accounting betas were computed similarly. However, the rolling window in this year was only three years owing to the limited availability of the accounting data. The data series used to compute accounting betas were obtained for the years 1994 to 2017. The estimated betas were used as input in the main market model. The following table presents the yearly averages of market and accounting betas along with other control variables used in the panel regressions:

TABLE 7.1 Average of the variables (in time) used in study *

Year	lnMbeta	lnAbeta	lnDOL	lnDFL
1997	1.190944	4.331048	6.635084	7.08459
1998	1.405249	4.329371	6.54893	7.085207
1999	1.420987	4.310142	6.637141	7.085403
2000	1.420384	4.250058	6.63256	7.123223
2001	1.423037	4.333229	6.636332	7.0872
2002	1.423161	4.375356	6.63921	7.09066
2003	1.432063	4.375541	6.69056	7.086784
2004	1.443099	4.380969	6.633243	7.085104
2005	1.439839	4.329312	6.642185	7.085502
2006	1.439474	4.329633	6.621601	7.085175
2007	1.435562	4.177286	6.631587	7.181782
2008	1.424587	4.282343	6.612872	7.103854
2009	1.421705	4.346891	6.637333	6.822781
2010	1.421535	4.359349	6.65237	7.084978
2011	1.421331	4.345037	6.659818	7.083141
2012	1.422029	4.337147	6.64598	7.08449
2013	1.421581	4.323766	6.627895	7.085211
2014	1.420607	4.329548	6.64256	7.08729
2015	1.420108	4.3298	6.629834	7.085662
2016	1.42054	4.32918	6.608273	7.085488
2017	1.420123	4.329359	6.723567	7.08511

*lnMbeta = Logarithm of the Market Beta (systematic risk of the common stock)
lnAbeta = Logarithm of the Accounting Beta
lnDOL = Logarithm of Degree of Operating Leverage
lnDFL = Logarithm of Degree of Financial Leverage

7.3.2 STATIONARITY AND AUTOCORRELATION

Table 7.1 above shows the averages of the variables in time. Since this paper deals with the data that change over time (time series data), it was deemed necessary to carry out the unit root tests for stationarity and tests for autocorrelation prior to proceeding with the main analysis. The data for each of the variables were tested for stationarity and unit roots. Fisher type augmented Dickey Fuller test for unit roots was chosen as it can handle unbalanced panels. The following table shows the results:

The results in table 7.1 indicate the absence of unit roots thereby revealing that all the variables are stationary. As the number of groups is relatively small (N=28), the inverse chi squared (P) test value was used in assessing the stationarity of the series (Choi, 2001).

TABLE 7.2 Fisher type – Augmented Dickey Fuller Test for Unit Roots*

Variable	Inverse Chi Squared	P - Value
lnMbeta	315.7511	0.0000
lnAbeta	272.1639	0.0000
lnDOL	432.9473	0.0000
lnDFL	545.4294	0.0000

*lnMbeta = Logarithm of the Market Beta (systematic risk of the common stock)
lnAbeta = Logarithm of the Accounting Beta
lnDOL = Logarithm of Degree of Operating Leverage
lnDFL = Logarithm of Degree of Financial Leverage

Autocorrelation was tested by regressing the residuals against the lagged residuals. The series were found to be auto-correlated on the levels. The residuals were however uncorrelated in their first difference. Therefore, the model will be tested in the first differences.

7.3.3 METHODOLOGY

Previous studies have used the panel data time series regressions to assess the impact of the IFRS on the dependent variable of interest (Daske et al., 2008, 2013; Li, 2010), while market betas (systematic risk) were found by regressing stock returns against the returns of the market. Researchers such as Beaver et al. (1970) have shown a statistically significant relationship between the systematic risk of a

common stock and the accounting beta. Moreover, there was an association among the systematic risk and earnings variability and growth. Mensah (1992) argues that expressing exogenous variables in accounting terms is likely to be useful as accounting reports provide an overview of the financial and operational status of a particular entity. Thus, building upon the work of Beaver et al. (1970) and Mandelker and Rhee (1984) the model that relates a firm's financing decisions and accounting beta to the firm's systematic risk is as follow:

$$lnMbeta = \propto_0 + \propto_1 \ln\left(Abeta_i\right) + \propto_2 \ln\left(DFL_i\right) + \propto_3 \ln\left(DOL_i\right) + \varepsilon_i \quad (1)$$

where:

Mbeta = Systematic risk of the common stock

Abeta = Accounting beta of a firm computed as $\frac{Cov\left(E_t / P_t, M_t\right)}{Var\left(M_t\right)}$

$M_t = (\sum_{t=1}^{N} E_t / P_t) / N$ represents a market wide measure of earnings, derived in a similar manner as the stock exchange indices.

N = Number of Norwegian companies found in the Oslo stock exchange index for which the earnings and price data were available for the time period considered.

DFL = Degree of Financial Leverage computed as $(\Delta X Lit/X_{Lit-1})/(\Delta X_{Uit}/X_{Uit-1})$, where X_{Lit} represents earnings per share of a financially leveraged firm *i* at time *t.*

DOL = Degree of Operating Leverage $(\Delta X Uit/X_{Uit-1})/(\Delta S_{it}/S_{it-1})$ where X_{Uit} represents earnings per share of a firm without financial leverage at time *t* and S represents sales of a firm.

As indicated in previous research, DOL captures the effects of a firm's choice of production system and other operational decisions, while FL reflects a firm's financial structure. DOL reflects the operating risk, the pure systematic influence of economy wide events and uncertainty associated with a firm's operating efficiency. When the firm is completely unlevered then DOL and DFL equal 1. This intrinsic business risk therefore represents the systematic risk of a common stock (Mandelker & Rhee, 1984). Both of these variables will thus be used as control variables. Accounting beta reflects the cyclicality of the firm's accounting flows relative to those of other firms in the economy. Thus, actions taken by the management related to expanding the product line will affect the systematic risk of the

common stock to the extent that they affect the cyclicality of the net accounting flows (Mensah, 1992).

The paper is open to the finding that IFRS might not have had any impact on the systematic risk of the common stock, thus two sided tests are employed. Since the study involves assessing the impact of IFRS accounting variables on the systematic risk of the common stock, the model in equation 1 was extended to include a binary variable *IFRS*, which takes the value of 1 when the firm allowed IFRS that is after the year 2005. Since the sample consists of firms that were mandatory adopters and includes a complete set of information available for both the pre and post adoption period, inclusion of interaction terms as in Daske et al. (2013) and Li (2010) are not necessary. The *IFRS* variable captures the average effect on the systematic risk of the common stock. The final regression model is as follows:

$$\Delta lnMbeta = \propto_0 + \propto_1 IFRS + \propto_2 \Delta \ln\left(Abeta_i\right) + \propto_3 \Delta \ln\left(DFL_i\right) + \propto_4 \Delta \ln\left(DOL_i\right) + \varepsilon_i \quad (2)$$

This research design allows for investigating the change in market risk in the pre and post the IFRS period. In order to control for firm specific determinants of the dependent variable, the regressions include fixed firm effects along with the clustered robust standard errors.

The two stage regression procedure as in Fama and MacBeth (1973) was applied to estimate the above model. To be included in the sample, the stock must have monthly returns for at least 24 to 60 (2 to 5 years) months prior to the $Year_t$. First, the market beta of the stock was estimated using monthly price data and the rolling market model regressions of the form as in Fama and French (1992):

$$R_{it} = \alpha_i + b_i R_{Mt} + e_{it} \quad (3)$$

The beta coefficients were then used as the dependent variable in the model to be tested. Accounting betas were estimated in a similar manner. The variables here were required to have data for three years prior to the $Year_t$. Rolling regressions of the following form were carried out:

$$Z_{it} = b_0 + b_1 Z_{mt} + a_t \quad (4)$$

where b_1 is the accounting beta (*Abeta*).

7.4 RESULTS

7.4.1 REGRESSION RESULTS

The analysis begins by examining the average differences in the systemic risk of a common stock before and after adoption of the IFRS. Cross sectional time series panel regressions with entity and time fixed effects are used which benchmark IAS firms against their own local GAAP history before adoption of the IFRS. Table 7.3 below presents the regression coefficients along with firm and adjusted standard errors, t-statistics and two tailed p-values for the full sample period (1997–2017):

TABLE 7.3 Regression analysis of systematic risk of common stock for mandatory IFRS adopters*

Model Estimated:

$$\Delta \ln Mbeta = \propto_0 + \propto_1 IFRS + \propto_2 \Delta \ln(Abeta_i) + \propto_3 \Delta \ln(DFL_i) + \propto_4 \Delta \ln(DOL_i) + \varepsilon_i$$

Parameter	Coefficient	Standard Error	T statistic
IFRS	–0.006	0.002	–3.11
ln*Abeta*	–0.004	0.004	–2.14
ln*DOL*	–0.002	0.002	–0.81
ln*DFL*	0.002	0.0001	25.63
Intercept	0.004	0.001	3.48
R^2	0.042		
Number of firms	28		
Number of observations	518		
F(4, 27)	180.40		
Prob > F	0.00001		

*IFRS: difference in difference estimator that takes value of 1, when a given firm adopts IFRS and 0 otherwise.

lnMbeta = Logarithm of the Market Beta (systematic risk of the common stock)

lnAbeta = Logarithm of the Accounting Beta

lnDOL = Logarithm of Degree of Operating Leverage

lnDFL = Logarithm of Degree of Financial Leverage

Using differences in market betas as dependent variables, the coefficient on the IFRS is significant and negative, suggesting that mandatory IFRS adoption resulted in the very low reduction of systematic risk of the common stock. The coefficient for change in accounting beta is negative and statistically different from zero, however not as low as the IFRS thereby suggesting that IFRS based earnings have little impact on reducing the systematic risk of the common stock. The coefficient on changes in the degree of financial leverage is significant and has the expected sign, however very low in power. If one were to forecast market betas, they could be improved if one predicted the financial structure of the firm. The coefficient on degree of change in operating leverage is found to be statistically indifferent from zero.

7.5 DISCUSSION AND LIMITATIONS

7.5.1 DISCUSSION

The purpose of this paper is to study the impact of mandating the IFRS on the risk and return of common stocks listed on the Norwegian Stock Exchange. The effect of the IFRS being mandatory is measured by the IFRS difference estimator that equals 1 after the IFRS were mandated and accounting betas. Based on the international literature review, the degree of operating and financial leverage are used as control variables. A panel data approach is employed where the period is 1997 to 2017 and 2005 was the year of the IFRS being mandatory and the model is tested in first differences.

The paper's main finding is a lower systematic risk of a common stock from adoption of the IFRS. This finding is in line with Daske et al. (2008) who finds that the cost of capital decreases after adoption of the IFRS in countries with strong regulatory enforcement. The accounting betas seem to have a low negative impact on systematic risk, which is consistent with previous research in this area (Beaver et al., 1970; Beaver & Manegold, 1975). One of the possible reasons for this could be that the difference in value relevance between the IFRS and NGAAP is only incremental, caused by the adjustments of net operating income, operating revenue and costs. The IFRS require fair values of assets to be reported which are reported at cost when acquired and are subsequently revalued, while offering reporting at cost as an alternative, if fair values cannot be measured reliably. NGAAP, on the other hand requires recognizing assets at cost. According to the revaluation model, the carrying amount between revaluations is reduced by depreciation and possible impairments. Due to difficulties in measuring fair value of the assets based on fair value reliably, most firms using the IFRS will report according

to a cost model. Thus the reported earnings may not differ much (Gjerde et al., 2008). This is also in line with the fact that for the adoption of the IFRS to noticeably affect stock markets, reporting practices must vary significantly from the previously used local GAAP (George & Shivakumar, 2016).

A positive relationship is found between the systematic risk and degree of financial leverage. This result is also consistent with Hill and Stone (1980) and Huffman (1989) who find a positive relationship between systematic risk and degree of financial leverage. Hence, the more levered the firm is, the higher its systematic and financial risk. Moreover, studies also find that IFRS adopters are more likely to issue less risky public bonds (Florou & Kosi, 2015; George & Shivakumar, 2016; Naranjo, Saavedra, & Verdi, 2017).

The degree of operating leverage is positively related to systematic risk of a common stock, in contrast to Taussig and Akron (2017) who find that higher operating leverage is associated with higher stock returns. One possible explanation for the degree of operating leverage failing to explain the systematic risk is that it is dependent on the sector the firms belong to and its capital structure. Another explanation may be that it is caused by differences in accounting methods used to calculate earnings (Huffman, 1989). Overall, it appears that evidence on this link is mixed.

In summary, the results reveal that in the absence of confounding events (for example the financial crisis), the changes in the systematic risk of the common stock is lower during the IFRS period. Accounting betas have less explanatory power when it comes to predicting systematic risk; however, the coefficient is statistically significant. The degree of financial leverage is a significant predictor of systematic risk, however this paper fails to find support for the degree of operating leverage.

7.5.2 LIMITATIONS

The study suffers from some caveats. First, it is empirically difficult to filter out the effects of confounding events around adoption of the IFRS. Thus, the results of the study cannot be solely attributed to this. Since mandatory IFRS adoption was a major corporate event and constant efforts were made to improve the enforcement system, the reduction in systematic risk could be the combined result of IFRS adoption and other concurrent events. As the cost of adoption of the IFRS is high, there are other benefits as well as other indirect costs associated with the adoption. Another limitation is the fact that accounting betas are measured with error. While market betas are estimated using the monthly data, accounting betas

and other accounting variables use yearly data. Thus, the fewer number of observations for the accounting variables reduces the precision with which they are measured. Since only firms present in both pre and post the IFRS period are selected, the results may suffer from data snooping bias such as survivorship bias. The results are also dependent on how different the local GAAP and the IFRS are from each other.

Finally, the results of this study should be interpreted with caution as there could have been other (confounding) events that led to lower systematic risk of the common stock and are due to the possible influence of omitted variables. In order to identify only the effect of the standards, one has to identify such events and separate their effects from the effects of financial reporting. While the paper finds support for the IFRS based accounting variables towards predicting the systematic risk of the common stock, the model is not designed to analyze the relevant contribution of the IFRS alone. This is left to future research in this area.

7.6 CONCLUSION

This paper examines the impact of IFRS adoption on the systematic risk of the common stock through the use of accounting betas and other measures composed using IFRS figures from the balance sheet. Using the regular market model and panel data regressions along with Fama and MacBeth's (1973) procedure, a model is tested with market beta as the dependent variable. The study finds that mandatory IFRS adoption has lowered the systematic risk of a common stock for the sample of 28 Norwegian listed companies. Accounting betas and degree of financial leverage were found to be significant towards explaining the market risk, however with very low predictive power. The degree of operating leverage was found to be an insignificant predictor of market risk.

Finally, the results should be interpreted with caution as there could be other confounding events that could have impacted the risk and return of a common stock, and the possible influence of omitted variables and measurement errors of the results. Future research should thus focus on the research designs that could enable analysis of the contribution of the IFRS alone on the risk and return of a common stock.

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