Financial Reporting Quality and Debt Contracting in Emerging Economy

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Abstract   This study investigates relations between debt contracting and asymmetries in timely recognition of firms' earnings in emerging market economy. The asymmetric timelines of earnings, as a measure that determines predictive power of financial reports, is observed proxy explaining borrowers' earnings management. This study use longitudinal research design to explore asymmetric timeliness of earnings and its association to debt contracting. The study result suggests that the change in asymmetric timelines of earnings is significantly associated with intention of long term debt contracting application that ends with the long term debt contract closure. In more particular, the positive (or negative) change in net income in previous period is associated with the decrease in net income change in consecutive periods for firm-years when no contract is closed. Vice versa, negative net income change in prior period, reported by firm-years prior long term debt application, is associated with an increase of net income change in consecutive period. On the other hand, there is no earnings management detected in years prior to long term debt application for the firms that have reported prior positive change in net income. The research is based on specific data set extracted from financial reports in Bosnia and Herzegovina.

Key words   Earnings Timeliness, Financial Reporting Quality, Accounting Conservatism, Debt Contracting

1. Introduction

Mandatory adoption of International Financial Reporting Standards (IFRS) and mandatory audit of financial statements for non-small undertakings, last updated in the Directive 2013/34/EU, is the process led in European Union Member states for past decade. The process of accounting regulation harmonisation implicated legislative adoption of IFRS as mandatory set of accounting standards across south-eastern Europe by 2010. Nevertheless, the evidence of its impact in emerging economies is insofar rather poor. This paper extends the literature on financial reporting quality and therefore usefulness on debt contracting in southeaster European emerging economies in International Financial Reporting Standards (IFRS) post-adoption era.

ICAEW (2015) reports on IFRS adoption positive impact on transparency, comparability, cost of capital, market liquidity, corporate investment efficiency and international capital flows. Extensive prior literature supports these remarks. We argue that these findings need particular disaggregation, distinguishing between IFRS adoption impact on predominantly equity markets against its impact on debt markets as well as moderating against relevant legislative regulation.

Daske and Gebhardt (2006) report on the perceived disclosure quality significant increase with the adoption of IFRS for listed companies in three developed countries of continental Europe. Ahmed et al. (2013) synthesise IFRS adoption studies that investigate financial reporting effects and report on the value relevance of book value of equity and earnings in both pre- and post-IFRS periods, associated by legal origin, accounting and auditing enforcement; earnings' value relevance increase and becomes more correlated with market prices in the post-IFRS adoption period; and that significantly contributes to an improvement in analysts' earnings forecast accuracy.

Beyond this, some authors argue that IFRS adoption does not *per se* lead to increase in financial reporting quality and improvement in equity market efficiency. Daske *et al*. (2013) argue that firms use IFRS

in considerable judgement and the use of private information thereby exercising substantial discretion, whereas the level of participatory discretion is in relation with the incentives for transparent financial reporting on case-by-case firm-level basis. Burgstahler *et al.* (2006) moderate for reporting incentives and conclude that earnings management is more pronounced in countries with weaker legal systems and enforcement. Houqe and Zijn (2014) report on significant improvement in both forecast accuracy and forecast dispersion following mandatory IFRS in eight years' time-series, with greater effect on information quality the lower the strength of investor protection.

While many authors focus on equity markets, there is poor evidence concerning IFRS adoption impact on quality of financial reporting information, especially used information within debt contracting process, or quality of IFRS application in predominantly debt finance markets. Having in mind that EC regulation (Directive No 1606/2002) focuses on accounting standards' contribution to the efficient and cost-effective functioning of the capital market, protection of investors and the maintenance of confidence in the financial markets of the internal market, adoption of IFRS is not primarily focused on alleviation of conflicts arising from divergent interests of borrowers and lenders. Ball *et al.* (2015) argue that financial statements prepared under IFRS have important limitations for debt contracting, and possibly for contracting more generally, a result that does not appear to be reflected in standard-setting. Armstrong et al. (2010) emphasize the heterogeneous nature of the informational demands of contracting parties and resulting governance and debt contracts.

The fair value measurement (FVM) of assets and liabilities based on quoted prices (level 1) or comparable observables (level 2) is qualified as non-orderly transaction in circumstances of: not adequate exposure to the market, assets or liability marketed to a single market participant, financial distress, the transaction price is an outlier when compared with other recent transactions (EEG, 2011). This deterioration Schivakumar (2013) conceptualizes around fair value reporting incentive where equity represents a call option on the firm's assets, and because option value increases with the volatility of the underlying asset, equity holders have an incentive to shift the firm's investments into high-risk projects, to the detriment of debt holders, where incorporating forward-looking information in financial reports through fair-value accounting improves a report's relevance for the subjective evaluation of a firm's performance or financial health and weakens its role in debt covenants. We propose that firms in emerging economies may find third level FVM, based on unobservable inputs for the asset or liability using the best information available in the circumstances, as only feasible option to base on.

Frankel and Litov (2007) report that the use of accounting-based covenants is not clearly associated with the asymmetric timeliness of earnings, neither is significantly associated with the absolute value of discretionary accruals.

We investigate whether IFRS adoption led disappearance of earnings management activities, especially motivated by debt contracting application, analysing firms' reporting quality proxy against long-term debt proxies on sample of firms' financial reports in Bosnia and Herzegovina. There is not consent about unique definition of financial reporting quality, or earnings quality. Therefore, within literature different proxies are employed and different views about quality are presented. This study adopted earnings timeliness as proxy for financial reporting quality. Proxy earnings timeliness is presented within studies Francis et al. (2004), Ball and Shivakumar (2005) and Haw *et al.* (2014). While addressing potential significant association that long term debt contracting application could have on earnings timeliness as one earnings attribute, or proxy for financial reporting quality, it is suspected that if potential association exists, than earnings management activity is present. We argue that the existence of earnings management activity lead to extensive information asymmetry and impedes reliable forecasting. Consequently, the banks predominantly make use of balance sheet accounting covenants on pledge able assets.

Our study contributes to the literature by examination how attribute of financial reporting quality change is associated with long term debt contracting application within emerging economy context. This examination is filling existing gap within financial reporting literature. This study will present exploration change in earnings timeliness within emerging economy with mostly bank based financial market. It is little known, especially within emerging economy context, about how firms change financial reporting behaviour for long term debt contracting application and how firms respond on debt holders' expectations to obtain qualitative accounting information for debt application decision making process.

Relations with lenders are associated with the asymmetric timeliness of reported earnings and that implies changes in financial statements' predictive power. Awareness of asymmetric timeliness of reported earnings and therefore financial reporting quality change could stimulate enhancement of analysis long term debt contracting application.

2. Literature review

2.1. Debt contracting and financial reporting quality

Private firms in emerging economies often find it difficult to raise debt or equity. Underdeveloped equity and public bonds market underpins necessity of debt contractibility between banks and mainly small firms that are in lack of pledge able assets. The lenders alternatively make use of income statement accounting covenants to enforce debt contracting, whereas literature suggests that the relationship enables banks to acquire private information about the firm's credit risk over time and influence earnings management as to reduce information asymmetry and moral hazard (Boot, 2000; Elsas, 2005). Financial performance evaluations of firms include combination of wide range of indicators that depend on financial reporting quality since they are constituted of financial reporting information. The lenders should be aware that financial performance evaluation is based on indicators which can be specific for some sectors, like construction (Onder and Altintas, 2017). These indicators can be driven by specific characteristics of industry, environment and firms' intellectual capital, for instance ability for doing business with state (Serdarevic *et al.,* 2016).

The adoption of high quality accounting standards is expected to improve financial reporting quality and implicitly reduce transaction cost. Chen *et al.* (2010) suggests that IFRS adoption is generating effects on the quality of financial reporting only if other factors associated with managerial incentives and environment are held constant, but not necessary generate same results on quality across countries. On the other hand, as suggested by Ball *et al.* (2015) IFRS adoption could be viewed by lenders as affording greater discretion to opportunistic managers, because its standards are perceived to be more principles-based than many prior domestic rules-based standards and give borrowers greater choice among alternative accounting policies as well as greater discretion in their implementation.

Following positive accounting hypothesis (Watts and Zimmerman, 1986), the larger firm's debt-equity ratio, the more likely the firm's manager is to select income-increasing accounting procedures, i.e. accounting procedures that shift reported earnings from future periods to the current period. Sweeney (1994) study provides direct evidence in support of the covenant-based hypothesis that managers' accounting responses depend on whether default costs are imposed by creditors, whether managers have accounting flexibility, and whether significant tax costs are associated with the available accounting changes. According to García Lara *et al.* (2005) in continental European countries discretionary accruals are more consistent with earnings in periods with bad news than with good news because prevalent management incentives to decrease earnings mainly for tax.

Bharath *et al.* (2008) find that the institutional differences between lenders in private debt markets and those in public debt markets play an important role in how accounting quality is incorporated into contracts, justifying that the banks have superior information-processing abilities, and consequently borrowers with poorer accounting quality prefer private debt in order to reduce the adverse selection costs. But, Chen *et al.* (2011) provide evidence that financial reporting quality in private firms positively related to investment efficiency. Further, authors document that mentioned relation is increasing in case of bank financing and decreasing when tax avoidance incentives are present. Bigus (2016) reports that private firms with fewer bank relationships have lower financial reporting quality, meaning negative association between these two constructs. Mentioned study used dataset of private firms in Germany from 2009 to 2012. Concurrently, Fang *et al.* (2016) report that borrowing firms with greater financial statement comparability are able to complete the loan syndication process more swiftly, form loan syndicates enabling the lead lenders to retain smaller percentages of loan shares, and attract a greater number of lenders and, particularly, a greater number of uninformed participating lenders.

In their cross-country study over the 2000–2007 period Florou and Kosi (2015) investigate the economic consequences for debt financing around the mandated adoption of IFRS, finding that, after first-time IFRS reporting, there is an increase in the likelihood of accessing the public bond market (rather than

the private loan market) and a decrease in bond yield spreads for first time adopters, relative to a benchmark sample of non-adopters, but there is no relationship between mandatory IFRS adoption and the cost of loans. Based on a sample of new debt issues in twenty-two IFRS-adopting countries and twenty-one non-IFRS countries, Ball *et al.* (2015) document a significant decline in both the frequency and intensity of accounting-based covenants in IFRS-adopting countries after adoption, but not in other countries.

In this study it is assumed that the debt contracting is to some extent impeded by low financial reporting quality and high information rent exercised through relationship banking. Gigler *et al.* (2009) notice that financial reporting opacity induces inefficient and costly investment decisions, whereas relationship with particular bank increases the likelihood of contracting liquidity support in the event of financial distress (Puri *et al.,* 2013). If firm's performance is observed and liquidity degree, firms with a high degree of liquidity and high performance have less incentive to disclose extensive information with motivation to reduce information asymmetries (Hyytinen and Pajarinen, 2008). Recent study (Curak *et al.,* 2013) shows negative relationship between size of the bank and non-performing loans in south-eastern Europe, whereas authors conclude that larger banks make use of information rent by providing more effective credit analysis based on qualitative information. This is expected to reduce information asymmetry.

Motivated by Elsas (2005), Ball and Shivakumar (2005), García Lara *et al.* (2005), Franken and Litov (2007) and Ball *et al*. (2015), this study attempts to capture outcomes of earnings management in the year of applying for a long term loan. So, this study predicts that in year of long term debt application following outcomes of earnings management will appear: (1) income smoothening and (2) postponing bad news in disclosed income.

3. Methodology of research

This study inspects financial reporting quality through timeliness in gains and loss recognition motivated by debt contracting application. Timeliness in gains and loss recognition is considered to be important attribute of reporting quality within studies of various authors including Francis *et al.* (2004), Ball and Shivakumar (2005) and Haw *et al.* (2014). In this study, it is argued that management issue financial statements that reflect aggressive accounting in year prior to debt contracting application, otherwise management apply conservative accounting. That conservative accounting application is probably led by income tax avoidance. Successful long term debt contracting applications based on financial statements are observed and compared with others financial statements in observed period.

Therefore, following hypothesis is formulated:

H_1: *Firms reported net income increases in year prior long term debt contracting, while reported net income decrease in the period consequent to the period of debt contracting.*

Net income increases and decreases are reflected through net income change variable based on earlier asymmetric timeliness measure in accounting conservatism literature. For instance, to identify asymmetric timeliness in income statement, this study is adopting and modifying Ball's and Shivakumar's (2005) approach in identification of transitory gain and loss components in reported income. This approach is based on Basu's (1997) specification of piecewise-linear regression. Basu's (1997) specification is one of the most accepted in literature regarding accounting conservatism. Specification of piecewise-linear regression Basu (1997) used to treat asymmetric timeliness as representation of conditional accounting conservatism. Mentioned piecewise-linear regression authors modified by adapting variables and spreading it for testing difference between private and public firms. Variables adaptation was made as successful attempt to limit spread of data usage on only reported information. That enabled asymmetric timeliness analysis, as representation of conditional accounting conservatism analysis, in non-listed or private companies, what was impossible to do with Basu's (1997) specification that designed market data usage. Market data are quite used for testing hypothesis in studies concerning accounting conservatism, and that represents limitation of most studies regarding conservatism, for example in Mohammadi *et al.* (2013) research. Market data usage limit studies regarding conservatism on listed companies data, although conservatism is characteristic of all firms, not only listed companies. Inspired by examination private companies Ball and Shivakumar (2005) offered following specification:

$$\Delta NI_t = \beta_0 + \beta_1 * du\Delta NI_{t-1} + \beta_2 * \Delta NI_{t-1} + \beta_3 * du\Delta NI_{t-1} * \Delta NI_{t-1} + \varepsilon_t \tag{1}$$

Reason for usage of Ball's and Shivakumar's (2005) modified specification of piecewise-linear regression is wide spread usage possibility. So, previous conservatism measure, and simultaneously financial reporting quality measure was suitable for testing proposed hypothesis of this study regarding debt contracting intention enhancement earnings management manipulation with reported net income. Similar, García Lara et al. (2005) argue that deliberate accounting conservatism should be classified as earnings management and that coefficient that capture bad news in Basu's (1997) regression can be influenced by earnings managements practices. Therefore, in order to document earnings management existence, following expanded specification motivated by Ball's and Shivakumar's (2005) approach is used:

$$\Delta NI_t = \beta_0 + \beta_1 * du\Delta NI_{t-1} + \beta_2 * \Delta NI_{t-1} + \beta_3 * du\Delta NI_{t-1} * \Delta NI_{t-1} + \beta_4 * duLD_t + \beta_5 * duLD_t \\ * du\Delta NI_{t-1} + \beta_6 * duLD_t * \Delta NI_{t-1} + \beta_7 * duLD_t * du\Delta NI_{t-1} * \Delta NI_{t-1} + \varepsilon_t \tag{2}$$

Adopting theirs approach, in this study as dependent variable is used change in net income from fiscal year *t-1* to *t*, scaled by book value of assets in fiscal year *t-1* that represent beginning book value of assets.

Following independent variable is dummy variable taking value depending of change net income sign, change of net income in previous year *t-1* and variable that represent interaction effect of previous variables. So, dummy variable that takes value 1 when net income change in *t-1* scaled with book value of assets in *t-2* is negative, otherwise when change is positive this dummy variable takes value 0. Rest of independent variables ware modified in order to test proposed hypothesis regarding long term debt contracting. So, intention of raising long term debt is reflected as dummy variable that takes value 1 in year t, meaning in year of debt contracting application, if change of long term debt liabilities in year *t+1* is positive, or year antecedent to long term debt approval, otherwise dummy variable takes value 0 when change is negative or null. Therefore, only approved, meaning successful long term debt contracting applications is observed.

Gains timely recognition in reported net income is taking place if *β₂<0*, meaning if change of net income has increases at transitory income level. So, proposed sign of estimated coefficient on independent variable change of net income in period *t-1* is negative.

We do acknowledge that these proxies do not *per se* explain accounting choices and total scope of construct financial reporting quality, but do indicate earnings management, through conditional conservatism level.

According to International Monetary Fund, Bosnia and Herzegovina is classified into emerging and developing economies group. Therefore, data are extracted from financial reports of firms based in Bosnia and Hercegovina.

Financial reports of 15,323 firms are obtained from multiple sources including various web pages[1] and direct contact. Sample covers annual financial reports from 2009 to 2013. This sample is called initial sample. Initial sample of 15,323 firms constitute 61.8% average total number of firms operating in Bosnia and Herzegovina during observed period. Taking into account research stream of this study, financial institutions reports (bank, insurance companies and others) are not obtained. Usually, financial institutions are not part of financial reporting analysis with enterprises, because they have significantly different financial reporting in comparison to enterprises. Besides financial reporting differences, economic roles are noticeably quite different. For example, some financial institutions are counter disparities in long term debt contracting relationship. The research findings and conclusions may not be applicable in other countries considering differences in regulation, financial reports quality and lenders' practice.

Firm-years observations with missing values were excluded in order to obtain strongly balanced panel data. Then, firms that did not have long term debt contracting in these five years were excluded, since this study is directed into earnings management exploration within only successful long term debt

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[1] Used official web pages are: SASE (Sarajevo Stock Exchange), BLSE (Banjaluka Stock Exchange), Securities Commission of the Federation of Bosnia and Herzegovina, Republic of Srpska Securities Commission and companies web pages.

contracting applications. Successful long term debt contracting is crucial to highlight as sample coverage criteria in order to obtain distinguished insight into income timeliness asymmetry within firms reporting practices in emerging economy. And finally, extreme observations are excluded, because its influence on regression estimates. Thus, final sample includes 27,075 firm-year observations from 2009 to 2013. Final sample composition statistics is presented in Table 1.

Table 1. Final sample composition statistics

Size of firms	Number of firms		Total revenue	
	Final sample	**Total**	**Final sample**	**Total**
Small	4,986	23,546	7,396,361,312	15,020,022,000
	22%	*100%*	*49%*	*100%*
Medium	356	1,059	7,156,762,864	19,687,721,000
	34%	*100%*	*36%*	*100%*
Large	73	185	7,819,809,163	18,180,110,000
	86%	*100%*	*43%*	*100%*
Total	5,415	24,790	22,372,933,339	52,887,853,000
	22%	*100%*	*42%*	*100%*

Table 1 presents overview of final sample comparison with population using two dimensions: number of firms and generated annual total revenue. Total number of firms represents average total number of all firms operating in Bosnia and Herzegovina from 2009 to 2013, as total revenue represents average total amount of total revenue of all firms operating in Bosnia and Herzegovina from 2009 to 2013. This aggregate information is obtained from official web page of Agency for Statistics Bosnia and Herzegovina.

Taking into account that final sample is constituted only of firms that incurred additional long-term debt during observed years in this emerging country, final sample portion of 22% total number of firms is acceptable. Another interesting fact is that final sample generated 42% total revenue of all firms operating in Bosnia and Herzegovina. If size of firms, using the most common[2] classification, is analysed final sample includes 22% of small firms that generated 49% total revenue of total small firms, 34% of medium firms that generated 36% total revenue of total medium firms and 86%of large firms that generated 43% total revenue of total large firms.

Mentioned initial and final sample represents micro panels that are adequate for longitudinal research design. In order to capture better insight into income statement items and balance sheets items trend through time, Table 2 present summary statistics. Summary statistics covers total final sample. Descriptive statistics across all observed firms and observed years provides interesting overview of some typical financial statements items and ratios.

Table 2. Summary statistics

Year		Net income (BAM)	Net income/ assets (%)	Long term debt liabilities/ assets (%)	Total liabilities/ assets (%)	Long term assets (BAM)	Total assets (BAM)	Employees
2009	Mean	22,529.76	-80.4	14.9	317.2	3,555,991	5,093,999	25.4
	Std deviation	-12.0e+08	5,134.9	79.2	15,563.3	5.35e+07	6.54e+07	134.8
	Skewness	-23	-72.9	60.1	72.6	40.4	44.8	22
2010	Mean	34,013.22	-77.3	62.4	277	3,606,158	5,161,733	25.4
	Std deviation	-8.94e+07	5,295.8	3,232.5	10,712.6	5.41e+07	6.17e+07	135.8
	Skewness	-21.5	-73	73.5	65.9	40.9	41.7	22.2
2011	Mean	54,041.36	-9.2	58.7	113.9	3,611,007	5,330,241	26.5
	Std	-2.72e+07	473.2	2,742.3	2,273.3	5.47e+07	6.20e+07	147.3

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[2] This classification is used by Eurostat, and defined by European Commission. Avaible online at:
http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Enterprise_size (accessed 03 January 2017)

Year		Net income (BAM)	Net income/ assets (%)	Long term debt liabilities/ assets (%)	Total liabilities/ assets (%)	Long term assets (BAM)	Total assets (BAM)	Employees
	deviation Skewness	12.3	-53.5	73.4	71.8	41.6	41.6	21
2012	Mean	34,495.33	-11.6	55.1	232.6	3,360,260	5,101,657	24.6
	Std deviation	-6.58e+07	581	2,408.2	8,489.8	5.06e+07	5.79e+07	123.6
	Skewness	-18.9	-38.2	73.3	65.1	48.7	47.7	21.6
2013	Mean	24,019.6	-417.3	62.7	1,068.1	3,319,253	5,061,180	24.8
	Std deviation	-8.54e+07	22145.2	2,324.1	41,273.1	5.08e+07	5.75e+07	128.4
	Skewness	-22.3	-55.4	69.8	57.1	49.4	47.9	21.3

Variable definitions: *Net income (BAM)* – total amount of net income in BAM; *Net income/assets (%)* – net income multiplied by 100 and divided by total assets at beginning of year; *Long term debt liabilities/assets (%)*- long term debt liabilities multiplied by 100 and divided by total assets at end of year; *Total liabilities/assets (%)*- total liabilities multiplied by 100 and divided by total assets at end of year; *Long term assets (BAM)* – total amount of long term assets in BAM; *Total assets (BAM)* – total amount of total assets in BAM; *Employees* – average number of employees in observed year.

Table 3. Summary statistics by groups

Year		Group	Net income (BAM)	Net income/assets (%)	Long term assets (BAM)
2009	Mean	0	18,194	-225	3,461,412
	Skewness		-8.1	-41.6	32.5
	Mean	1	24,574	-12	3,600,582
	Skewness		-23.3	-53.9	41.4
2010	Mean	0	2,764	-196	3,287,358
	Skewness		-6.3	-44.6	40.1
	Mean	1	52,155	-8	3,791,240
	Skewness		-19.7	-56.7	40.4
2011	Mean	0	35,021	-19	3,179,448
	Skewness		3.4	-37.9	48.1
	Mean	1	72,269	0.7	4,024,618
	Skewness		13.7	-28.1	33.4
2012	Mean	0	27,135	-13.7	3,045,385
	Skewness		0.8	-48.3	57.3
	Mean	1	41,549	-4.7	4,386,887
	Skewness		-22.1	-20.7	32.5

Variable definitions: *Net income (BAM)* – total amount of net income in BAM; *Net income/assets (%)* – net income multiplied by 100 and divided by total assets at beginning of year; *Long term assets (BAM)* – total amount of long term assets in BAM. Group 0 represent group of firms that do not have incentive to incure long term debt in following year. Group 1 represent group of firms that have incentive to incure long term debt in following year.

As expected, total assets and long term assets presented in absolute amount of domestic currency (BAM) are more stable items through years than net income presented in absolute amount of domestic currency (BAM).

4. Results and discussions

First fixed effect regression estimation of basic specification, hereby expressed as equation 1, using Basu's (1997) indicator of transitory gain and loss components formulated by Ball and Shivakumar (2005), is conducted with initial sample and then with final sample. Following Table 4 show mentioned comparison.

$$\Delta NI_t = \beta_0 + \beta_1 * du\Delta NI_{t-1} + \beta_2 * \Delta NI_{t-1} + \beta_3 * du\Delta NI_{t-1} * \Delta NI_{t-1} + \varepsilon_t$$

Table 4. Fixed-effects (within) regression estimation

Independent variable	Initial sample			Final sample		
	Coefficients	t-statistics	Significance	Coefficients	t-statistics	Significance
$du\Delta NI_{t-1}$	0.750	1.03	0.30	0.801	1.54	0.12
ΔNI_{t-1}	-0.134	-15.27	0.00	-0.092	-23.08	0.00
$du\Delta NI_{t-1} * \Delta NI_{t-1}$	-0.009	-0.06	0.95	1.892	9.22	0.00
β_0	-0.029	-0.06	0.95	0.071	0.21	0.83
Sigma_u	39.661			18.849		
Sigma_e	67.310			28.591		
rho	0.258			0.303		
R^2 (%)	0.77			5.19		
Prob>F	0.00			0.00		
Number of firms	15,323			5,415		

Variable definitions: ΔNI_t - change in net income from fiscal year t-1 to t, scaled by beginning book value of assets; $du\Delta NI_{t-1}$ - dummy variable that takes value 1 when net income change in *t-1* scaled with book value of assets in *t-2* is negative, otherwise when change is positive this dummy variable takes value 0.

Estimation on initial sample show significantly negative coefficient for prior change of net income, meaning that gains have recognition at transitory income level.

In final sample estimation significantly negative coefficient for prior change of net income is smaller, meaning only 9% of prior change of net income will influence on following change of net income. Reporting 1% positive prior change of net income will lead to negative following change of net income. Also, reporting 1% negative prior change of net income will lead to almost equal negative following net income change.

This estimation describe only 0.77% variation of net income change within initial sample and only 5.19% variation of net income change within final sample. Obviously model of asymmetric timeliness in income statement have more explanatory power within sample of firms that had one or more long term debt contracting in observed period.

$$\Delta NI_t = \beta_0 + \beta_1 * du\Delta NI_{t-1} + \beta_2 * \Delta NI_{t-1} + \beta_3 * du\Delta NI_{t-1} * \Delta NI_{t-1} + \beta_4 * duLD_t + \beta_5 * duLD_t * du\Delta NI_{t-1} + \beta_6 * duLD_t * \Delta NI_{t-1} + \beta_7 * duLD_t * du\Delta NI_{t-1} * \Delta NI_{t-1} + \varepsilon_t$$

Table 5. Fixed-effects (within) regression estimation

Independent variable	Model			Reduced model		
	Coefficients	t-statistics	Significance	Coefficients	t-statistics	Significance
$du\Delta NI_{t-1}$	0.606	0.74	0.46			
ΔNI_{t-1}	-0.497	-29.68	0.00	-0.497	-29.70	0.00
$du\Delta NI_{t-1} * \Delta NI_{t-1}$	0.650	3.73	0.00	0.642	3.69	0.00
$duLD_t$	0.059	0.04	0.97			
$duLD_t * du\Delta NI_{t-1}$	-0.382	-0.21	0.83			
$duLD_t * \Delta NI_{t-1}$	0.497	25.35	0.00	0.497	25.36	0.00
$duLD_t * du\Delta NI_{t-1} * \Delta NI_{t-1}$	-1.183	-2.75	0.01	-1.177	-2.74	0.01
β_0	0.216	0.37	0.71	0.485	1.56	0.12
Sigma_u	41.560			41.563		
Sigma_e	66.618			66.615		
rho	0.280			0.280		
R^2 (%)	2.81			2.81		
Prob>F	0.00			0.00		

Number of firms	15,323	15,323

Variable definitions: ΔNI_t - change in net income from fiscal year t-1 to t, scaled by beginning book value of assets; $du\Delta NI_{t-1}$ - dummy variable that takes value 1 when net income change in *t-1* scaled with book value of assets in *t-2* is negative, otherwise when change is positive this dummy variable takes value 0; $duLD_t$ – dummy variable for intention of raising long term debt that takes value 1 if change of long term debt liabilities in year *t+1* is positive, otherwise dummy variable takes value 0 when change is negative or null.

After exclusion of variables that are not significant reduced model is created.

Table 5 reports estimation of model presented as equation 2, previously presented as modified model in order to obtain insight into financial reporting behaviour, conducted on initial sample. This model describes only 2.81% variation of net income change. Same quota of net income change variation is described by reduced model that in comparison to previous does not include insignificant variables. So, this model describe more variation of net income change in comparison to previous estimation (2.81%>0.77%). Obviously inclusion of variable that reflect long term debt contracting application presence contributes to model with more explanatory power.

If firm that do not have intention of raising long term debt in observed year have positive 1% net income change in previous year will decrease net income change in following year by 0.497%. Negative 1% net income change in previous year will decrease net income change in following year for 0.145%. Firms without intention of raising long term debt in observed year have timely recognition of economic gains that tend to reverse since significant coefficient on prior net income change is -0.497 and timely recognition of economic losses that tend not to reverse since significant coefficient is 0.65. Decreases in firm-year without intention of raising long term debt are substantially less transitory, but increases are substantially more transitory, so these companies in observed year without intention of raising long term debt report less asymmetry in the timely recognition of gains and losses. Therefore, firms without intention of raising long term debt in observed year are will disclose decrease of net income change after experiencing positive or negative net income change. It is suspected that this type of behaviour is led by intention of income tax avoidance. Exploration of this intention could be motivation for future research.

Coefficients indicate different reporting of economic gains in firms that have intention of raising long term debt. Firms in year when have intention of raising long term debt have untimely recognition of economic gains, meaning persistent gains that tend not to reverse since estimated significant coefficients of net income change is $\beta_2 + \beta_6 = -0.497+0,497=0$, and timely recognition of economic loses that tend to reverse since $\beta_3 + \beta_7 < 0$ ranging from -0.535 to -0.533. So, positive 1% net income change in previous year will have 0 significant effects on net income change in following year. Negative 1% net income change in previous year will increase net income change in following year for 0.535%. It is evident different reporting behavior of firms that in observed year have intention raising long term debt from reporting of firms in years without that intention.

$$\Delta NI_t = \beta_0 + \beta_1 * du\Delta NI_{t-1} + \beta_2 * \Delta NI_{t-1} + \beta_3 * du\Delta NI_{t-1} * \Delta NI_{t-1} + \beta_4 * duLD_t + \beta_5 * duLD_t * du\Delta NI_{t-1} + \beta_6 * duLD_t * \Delta NI_{t-1} + \beta_7 * duLD_t * du\Delta NI_{t-1} * \Delta NI_{t-1} + \varepsilon_t$$

Table 6. Fixed-effects (within) regression estimation

Independent variable	Model			Reduced model 1			Reduced model 2		
	Coefficients	t-statistics	Significance	Coefficients	t-statistics	Significance	Coefficients	t-statistics	Significance
$du\Delta NI_{t-1}$	1.446	2.35	0.02	1.491	2.78	0.01	0.943	2.13	0.03
ΔNI_{t-1}	-0.557	-67.95	0.00	-0.557	-67.95	0.00	-0.557	-67.94	0.00
$du\Delta NI_{t-1} * \Delta NI_{t-1}$	9.224	32.12	0.00	9.225	32.12	0.00	9.194	32.07	0.00
$duLD_t$	-0.094	-0.15	0.89						

$duLD_t * du\Delta NI_{t-1}$	-1.123	-1.20	0.23	-1.217	-1.82	0.07			
$duLD_t * \Delta NI_{t-1}$	0.557	61.84	0.00	0.557	61.85	0.00	0.557	61.85	0.00
$duLD_t * du\Delta NI_{t-1} * \Delta NI_{t-1}$	9.790	-27.00	0.00	-9.790	-27.00	0.00	-9.725	-26.94	0.00
β_0	0.320	0.76	0.45	0.276	0.96	0.34	0.278	0.96	0.34
Sigma_u	27.858			27.858			27.856		
Sigma_e	24.331			24.329			24.332		
rho	0.567			0.567			0.567		
R^2 (%)	31.37			31.37			31.35		
Prob>F	0.00			0.00			0.00		
Number of firms	5,415			5,415			5,415		

Variable definitions: ΔNI_t - change in net income from fiscal year t-1 to t, scaled by beginning book value of assets; $du\Delta NI_{t-1}$ - dummy variable that takes value 1 when net income change in *t-1* scaled with book value of assets in *t-2* is negative, otherwise when change is positive this dummy variable takes value 0; $duLD_t$ – dummy variable for intention of raising long term debt that takes value 1 if change of long term debt liabilities in year *t+1* is positive, otherwise dummy variable takes value 0 when change is negative or null.
After exclusion of variables that are not significant reduced model is created.

Better insight into different net income change predictive power with respect to raising long term debt intention is obtained by estimation of equation 2 on final sample. This estimation resulted with more significant estimates than previous estimation on initial sample, but with same significant coefficients' signs. Also, this estimation describes substantially more variation of net income change (31.37%>5.19%) in comparison to previous ones including estimation of basic specification formulated by Ball and Shivakumar (2005).

Reduced model 2 describes 31.37% variation of net income change. Positive 1% net income change in previous year will decrease net income change in following year by 0.557% in firms without intention of raising long term debt in observed year, but negative 1% net income change in previous year will decrease net income change in following year by 7.177%.

Firms that express intention of raising long term debt in observed year and report negative 1% net income change in previous year, in following (observed) year net income change will be increased for 0.839%. Positive 1% net income change in previous year will have no effect on observed year net income change. In comparison to previous results of model on initial sample it is evident that results on final sample reflect significantly stronger association between prior net income change with respect of long term debt contracting application and following net income change. Obviously, results support our hypothesis that firms reported net income increases in year prior long term debt contracting application, while reported net income decrease in the period consequent to the period of debt contracting.

5. Conclusions

The study results support the argument that financial reporting behaviours, reflected within firm performance reporting, change with respect to motivation for debt contracting application. The management of firms that has no intention to close new debt contract in particular year will report decreased change in net income in consecutive year. Net income change reduction will be smaller for previous positive net income change, and grater for negative net income change. Vice versa, the management of firms that have reported negative change in net income applies earnings management techniques and increase change in net income in consecutive year to enforce debt contracting. This implies that the firms with negative change in net income apply earnings management techniques to improve predicted earnings in the period preceding debt contracting application. Greater degree of gains and loss asymmetry recognition is reflected within firm that have long term contracting application intention than within firms that do not have that intention. So, changes in financial reporting quality is evident, even dough observed economy is in IFRS post-adoption period.

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