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Revenue Recognition and Real Earnings Management in Bosnian Construction Industry

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Abstract

This study explores revenue recognition and reporting expenses relevant to the stage of completion of the contract agreements. Literature suggests that the taxation effects financial reporting, realization of capital gains as well as revenue recognition. We argue that construction firms make use of these estimates to postpone revenue and value added tax recognition. The analysis grounds on the assumption that the value added tax effects timely recognition of revenues from construction agreements, where managers are incentivized to underestimating stage of completion and suppress recognition of gross earnings to better align emerging of the value tax related liability with contracted and expected inflows of cash. Results show that the revenue recognition is positively associated with reported income before tax and cost of material as a direct expense that can be allocated to the execution of construction agreements. These findings build baseline for future research that assesses effects of newly adopted standard IFRS 15 on real earnings management practice in construction industry of Bosnia and Herzegovina.

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1. Introduction

Recently adopted International Financial Reporting Standard 15, Revenue from Contracts with Customers, effective on or after 01 January 2018, replaces International Accounting Standard 11, Construction Contracts. This is especially the case with the revenue recognition when a performance obligation is satisfied by transferring a promised good or service to a customer over time.

IAS 11 required that the outcome of a construction contract is estimated reliably, contract revenue and contract costs associated with the construction contract are then to be recognized as revenue and expenses respectively by reference to the stage of completion of the contract activity at the end of the reporting period.The construction agreement for which IAS 11 is applicable set of rules, is such agreement where the buyer is able to specify the major structural elements of the design of the real estate before construction begins and/or specify major structural changes once construction is in progress.

IFRIC 15 Agreements for the Construction of Real Estate, preceding IFRS 15, announced standardized accounting practice across jurisdictions for the recognition of revenue by real estate developers for sales of units, such as apartments or houses, before construction is complete.

IFRS 15 requires an entity to select an appropriate measure of progress to determine how much revenue should be recognized in relation to satisfied performance obligation over time. The performance satisfaction is established in one of the cases: the customer simultaneously receives and consumes the benefits provided by the entity's performance as the entity performs; the entity's performance creates or enhances an asset, such is the case with work in progress, that the customer controls as the asset is created or enhanced; or the entity's performance does not create an asset with an alternative use to the entity and the entity has an enforceable right to payment for performance completed to date.

However, revenue recognition with reported capital gains in financial reporting directly impacts taxable income. This is well explored in literature and coined under the term lock-in effect (Constantinides, 1983, Daunfeldtetal, 2010, Hendershottetal, 1991, Seltzer, 1951).

Sahm (2008) makes connection between the firm asset subject to a tax by considering two models of collecting the tax, taxation of capital gains upon accrual or upon realization, where accrual or 'yield-to-maturity approach foresees payables for tax parallel to the change in the value of asset.

Value added tax in Bosnia and Herzegovina represent the key component of public revenue, but also a considerable fiscal burden for private firms as the tax liability is to be recognized following accrual basis of revenue recognition, disregarding the fact whether the revenue recognized is charged or not. In particular, the tax liability arises at the moment of delivery of goods or provision of services, issuing invoices, payment or partial payment made before the invoice is issued, the occurrence of the obligation to pay the customs debt upon import of goods.

The service is considered provided at the moment when the individual provision of the service is performed. In case the service is invoiced over time, the turnover of service is considered to have ended on the last day of the period for which the invoice is issued. A partial service is considered completed at the moment when the provision of that part of the service is completed.

We argue that the value added tax represent aggressive taxation and potentially creates lock-in effect in revenue recognition. This type of earnings management behavior is expected to be especially pronounced for timely revenue recognition in construction agreements. External users of accounting information should be aware of this practice regarding construction industry. Awareness of this practice would lead to better understanding revenue recognition timeliness in construction companies.

This paper investigates current practice of revenue recognition in the contraction agreements that do or do not transfer control and the significant risks and rewards of ownership of the work in progress to in its current state as construction progresses to the buyer. The paper has been structured as follows. First, the following section reveals literature review of a broader context of the theme related studies. In this section studies related with earnings management, real earnings management and revenue recognition are presented. Then, with respect to content of previous section, in following section hypothesis development is presented. Used methodology is briefly presented in next section that is followed by data analysis section.

2. Literature review

2.1. Earnings management

There are various earnings management definition. View of earnings management as a purposeful intervention in the process of external financial reporting with the intention of obtaining a certain private profit is provided by Schipper (1989). Further, Mulford and Comisky (2002) presented earnings management as an active manipulation of earnings toward a predetermined goal. One of extensively accepted definition is Healy and Wahlen (1999) definition of earnings management as managers' usageof estimates in financial reporting and transaction structuring to modify financial statements or mislead some users about the underlying performance of an enterprise or influence contracted results that depend on the number in the financial statements.

Firms do often manage earnings through discretionary adjustments of accrual positions, so Frank and Rego (2006) examine and present the main incentives in the capital market that triggering earnings management through valuation of allowances. Mills and Newberry (2001) conclude that financial problems are cause of larger differences between taxable financial reporting earnings in privately owned companies. Authors claim that this should be considered as a consequence of earnings management practice.

It is important to mention three earnings management settings presented by Phillips, Pincus, and Rego (2003). The first setting is revenue recognition timing management in order to avoid reporting a drop in earnings. The second setting is to manage earnings in order to avoid losses. The third is usage deferred tax expense in disclosing earnings management to avoid non-fulfillment analysts 'earnings forecasts.

The prevailing models of earnings management estimate nondiscretionary accruals using change in revenues, gross property, plant and equipment where most models rely on the modified Jones model (Dechow et al, 1995) that uses change in cash revenues and cash flows. However, these models operate with aggregate accruals, leaving less space for exploring what techniques of earnings management are applied.

Stubben (2010) argues that the ideal specific accrual for study is one that is common across industries, not industry specific, that is subject to discretion and such representing a large portion of earnings discretion available to firms. He also criticizes studies, such as McNichols and

Wilson (1988) that grounds its model on the discretion in the allowance for bad debts as bad debt expense is considered relatively small portion of the total amount of a firm's discretion.

Questionable practical application of revenue recognition under IFRS 15 is assumed due its complexity and requirement for extensive professional judgement that extends discretion. (Haggenmüller, 2019) It is assumed that divergent accounting for transactions will through time be potential indication of earnings management relation to the adoption of IFRS 15.The results of previous study is in line with findings of Fleischman & Valentine (2019). These authors explained that requirements of the relative new revenue recognition standards IFRS 15 will provide more managerial discretion that will result with increased untimely and unethical revenue recognition.

2.2. Real earnings management

Accounting scholars differentiated "real earnings management" undertaken through timing investment and financing decisions from earnings management based in accounting process or accrual earnings management. (Schipper, 1989; Degeorge, et al., 1999; Roychowdhury, 2006; etc.) Further, Roychowdhury (2006) provided valuable research that detailed in exploration of real activities manipulation with evidence that managers use real activities to avoid reporting losses. According to Roychowdhury (2006), in order to avoid losses managers use temporary price discounts, overproduction and reduction of discretionary expenditures.

One accounting research stream has focused on whether managers use real earnings managementwith or without exercising accrual earnings management. Real earnings management is exercised in line with making strategic decisions on the timing revenue recognition. For example, Zang (2012) finds the substitution between real and accrual earnings management, so that one form of earnings management decreases when its cost is higher and vice versa. Furthermore, some studies investigate whether some external factors impacts this substitution managerial choice between real and accrual earnings management, such as accounting and auditing regulation. (Cohen et al., 2008; Ewert and Wagenhofer, 2005)

2.3. Revenue recognition

Several prior studies investigate revenue recognition as earning management practice, but the literature body is rather poor.

Plummer and Mest (2001) examine discretion in earnings management by using distributional tests and find that the firms manage earnings upward to meet earnings forecasts by overstating revenues and understating operating expense, therefore not reflecting their findings through the prism of discretionary revenues recognition.

Marquardt and Wiedman (2004) analyze the unexpected portion of earnings, finding that the firms with poor reported earnings tend to underestimate special items, use discretion in revenues to increase earnings prior to management buyouts, but not overstating revenues.

Caylor (2009) test use of discretionary revenues aimed at avoiding reporting negative and surprising earnings in forecasts. He finds that management uses discretionary revenues affecting accounts receivable and deferred revenue to smoothen an income.

The study of Stubben (2010) provides evidence on the reliability of discretionary revenues and various measures of discretionary accruals by assessing their ability to detect both simulated and actual manipulation, wherebythe results indicate that the revenue model is less biased and better specified than accrual models, such that estimates from revenue models could be useful as a measure of revenue management or as a proxy for earnings management.

Sohn (2016) decomposes the actual CFO into the normal (expected) portion and the abnormal (unexpected) portion by estimating following equation for each industry and year in which the normal CFO isassumed to be a linear function of sales and changes in sales.

Consistent with results presented by

Revenue recognition and lock-in effect is often connected with capital gain taxation where capital gains are taxed upon realization that creates a distortional effect reflecting practice of deferring tax payments by deferring the asset disposal. (Rünger, 2018)

3. Hypothesis development

Due to the unique nature of capital intensive businesses companies within construction industry operate in a distinctive environment and with a specific requirements. One of the specific requirements is the special value added tax scheme for construction. Lock-in effect

arising from revenue recognition due to value added tax as an instrument of aggressive taxation is assumed to be incentive for higher level of real earnings management. Identification of the lock-in effect is quite challenging due to the detailed tax data limitations. So, this study attempts to determine whether managers exercise their discretion in revenue recognition timing as one form of real earnings management. Motivated by Graham et al. (2005) finding that there is willingness of the large majority of managers to meet a earnings target by delaying the timing of new investment projects. Long-term adverse implications of such a deferment do not impact managers' willingness according to authors. These findings are consistent with Gunny (2010) that captures relation between earnings management using different real activities manipulation and performance.

H1: *Construction firms' management exercise conservative revenue recognition in estimating construction agreements staging as a form of real earnings management, aiming to postpone value added tax liability recognition.*

It is assumed that value added tax as an instrument of aggressive taxation creates lock-in effect arising from revenue recognition in construction agreements.

4. Methodology

We observe financial reports of sampled firms in construction industry in one developing country. More specifically, the final dataset contains 90 firm-level longitudinal data in the time-series of five years, covering period 2014 – 2018. In total hundred construction firms residing in Federation B&H were randomly selected. Sampled firms reported 41% of total construction industry population revenue in 2018. The incomplete financial reports are excluded, so the sample is comprised of 450 firm-year observations within balanced panel data.

In order to test hypothesis accounting data are extracted from financial reports and consistent with variables definitions used by Gunny (2010), following variables are defined. Revenue recognition (RA) is dependent variable and it is obtained by deflating the sales revenues by the assets. Independent variables are formulated to capture whether managers exercise real earnings management using revenue recognition timing decision in order to postpone value

added tax liability recognition. So, it is observed cash-flows from operations deflated by the assets (CFOA), to capture whether managers adjust revenues with respect to cash inflows. Earnings before income tax deflated by the assets (EBITA), are proxies' earnings incentive and materials usage in the construction production (MA) is represented by material costs disclosed in financial reports deflated with assets.

5. Data analysis

As initial statistical analysis, descriptive statistics on the variables is performed and results are presented in following table.

Table 1: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
RA	450	1.162948	0.9079273	1	9.032094
CFOA	450	0.1546247	0.5642328	0	11.82103
MA	450	0.5020759	0.5283662	0	6.138666
EBITA	450	0.103082	0.1275588	0	0.9381558

Source: Author's calculation

Another initial statistical technique known as correlation analysis using Pearson's coefficient of correlation is employed.

Table 2: Correlations (obs=450)

	RA	CFOA	EBITA	MA
RA	1.0000			
CFOA	0.0105	1.0000		
EBITA	0.3447	0.1364	1.0000	
MA	0.2315	-0.0017	0.1517	1.0000

Source: Author's calculation

As presented in Table 2. correlation coefficients are lower than 0.35. So, presented coefficients do not show that there is problem with multicollinearity.

Table 3. Estimation of fixed-effect regression (obs=450)

Fixed-effects (within) regression				Number of obs	=	450
Group variable: A				Number of groups	=	90
R-sq: within	= 0.7515			Obs per group: min	=	5
between	= 0.7381			avg	=	5.0
overall	= 0.7405			max	=	5
				F(3, 357)	=	359.89
corr (u_i, Xb)	= 0.1090			Prob> F	=	0.0000
RA	Coef.	Std. Err.	t	P>|t|	[99% Conf.	Interval]
CFOA	-.0272025	.237999	-1.14	0.254	-0.740081	.0196031
EBITA	1.428567	.1394577	10.24	0.000	1.154305	1.702829
MA	1.300866	.0441384	29.47	0.000	1.214063	1. 38767
_cons	.366761	.0275445	13.32	0.000	.3125912	.4209307
sigma_u	.40823894					
sigma_e	.2525087					
rho	.72328473	(fraction of variance due to u_i)				
F test all u_i=0:		F(89, 357) =	12.90		Prob> F =	0.0000

Source: Author's calculation

Fixed effects estimation capture significant positive association of independent variables with revenue recognition variable.

Table 4. Estimation of fixed-effect regression

Fixed-effects (within) regression				Number of obs	=	450
Group variable: A				Number of groups	=	90
R-sq: within	= 0.7506			Obs per group: min	=	5
between	= 0.7379			avg	=	5.0
overall	= 0.7402			max	=	5
				F(3, 357)	=	538.73
corr (u_i, Xb)	= 0.1076			Prob> F	=	0.0000
RA	Coef.	Std. Err.	t	P>|t|	[99% Conf.	Interval]
EBITA	1.413098	.1388588	10.18	0.000	1.140016	1.686179
MA	1.30245	.0441355	29.51	0.000	1.215653	1.389247
_cons	.3633543	.0273944	13.32	0.000	.3094801	.4172285
sigma_u	.40830649					
sigma_e	.25261672					
rho	.72317973	(fraction of variance due to u_i)				
F test all u_i=0:		F(89, 358) =	12.90		Prob> F =	0.0000

Source: Author's calculation

Our results show a positive association between the revenue recognition and reported income before tax which suggests that managersof construction firms are more likely to choose revenue reporting practices regarding to revenue timing. Similarly, we find a positive association between the revenue recognition and disclosed material usage to assets, suggesting that pressures todisclosed relative material usage to assets influence the revenue recognition timing choices of construction firm managers. So, these results confirm that there exists incentive for managers' timing decision of revenue recognition.

In order to better adjust data analysis to panel (longitudinal) dataset that it is formed, it is employed dynamic estimation, because paned data capture dynamics of disclosed accounting information (Arellano & Bond, 1991)

Table 5. Arellano-Bond dynamic panel-data estimation

				Number of obs	=	270
Group variable: A				Number of groups	=	90
Instruments for differenced equation				Obs per group: min	=	3
GMM-type: L(2/.).PA				avg	=	3
Standard: D.CFOA D.EBITA D.MA				max	=	3
				Wald chi2(4)	=	464,82
	One-step results			Prob>chi2	=	0.0000
RA	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
RAL1.	0.0544632	0.0443368	1.23	0.219	-0.0324353	0.1413617
CFOA	-0.0450847	0.0261759	-1.72	0.085	-0.0963885	0.0062191
EBITA	1.551172	0.1914878	8.10	0.000	1.175863	1.926481
MA	1.28569	0.0727439	17.67	0.000	1.143114	1.428265
_cons	0.2969001	.0699103	4.25	0.000	1.1598784	0.4339217

Source: Author's calculation

There is no significant association between disclosed revenues in previous year with disclosed revenues in observed year. Presented results show a slightly negative association between the revenue recognition and cash flow from operation which is minor evidence that managersof construction firms are more likely to choose conservative revenue reporting

practices regarding to revenue timing with respect to their cash flow from operation. Similar results regarding other variables are presented.

6. Conclusions

The accounting literature in forensic accounting and related topics as earnings manipulation, fraud examination, creative accounting and earnings management has evolved significantly and continues to grow. Prior literature suggests that the taxation effects financial reporting, realization of capital gains as well as revenue recognition.

The main objective of this paper is to analyze whether value added tax leading to the tax liability on accrual earnings could cause on the probability of timely recognition of revenues from construction agreements. In more concrete, we argue that managers in construction firms' exercise conservative approach to revenue recognition by underestimating stage of completion and suppressing recognition of gross earnings to better align emerging of the value tax related liability with contracted and expected inflows of cash. We assume that the timely recognition of revenue is managed through with holding invoicing installments to the clients.

Our findings suggest that the revenue recognition is positively associated with reported income before tax and cost of material as a direct expense that can be allocated to the execution of construction agreements. The database is built on financial information for the period 2014 to 2018. At the time of financial reporting observed firms applied International Accounting Standard 11, Construction Contracts, recently replaced with the International Financial Reporting Standard 15, Revenue from Contracts with Customers.

From that perspective, our study presents baseline results for investigation whether real earnings management practices changed in construction industry of Bosnia and Herzegovina as a result of recently adopted accounting standard.

This study has a number of limitations so presented results should have interpretation with respect to that limitations. Time frame of five years and the lack of financial reports data accessibility determined sample range. Also, identification of the lock-in effect, revenue recognition decisions is quite challenging due to need for the detailed data, so this study is designed just to capture is there some signaling effect for tendency revenue unusual disclosure through time.

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Sažetak

Ovo istraživanje ima za cilj ispitati priznavanje prihoda i izvještavanje o rashodima po osnovu ocjene stepena realizacije ugovora o gradnji. Literatura navodi da oporezivanje utječe na finansijsko izvještavanje, realizaciju kapitalnih dobitaka kao i priznavanje prihoda. Mi smatramo da građevinske firme koriste procjene kako bi odgodile priznavanje prihoda i obaveza po osnovu poreza na dodanu vrijednost. Analiza se zasniva na pretpostavci da porez na dodanu vrijednost utječe na vremensko priznavanje prihoda u ugovorima o gradnji, pri čemu menadžeri imaju poticaj da potcijene stepen okončanja ugovorene obaveze i potisnu priznavanje bruto ostvarenih zarada kako bi vremenski nastanak obaveze po porezu na dodanu vrijednost uskladili s ugovorenim i očekivanim prilivima gotovine. Rezultati upućuju na to činjenicu da je priznavanje prihoda pozitivno korelira iskazanom dobiti prije oporezivanja i troškovima materijala kao direktnog troška koji može biti alociran na izvršenje ugovora o gradnji. Navedeni rezultati predstavljaju osnov za buduća istraživanja u domenu ocjene učinaka nedavno usvojenog standarda MSFI 15 na realno upravljanje zaradama u građevinskoj industriji Bosne i Hercegovine.

Ključne riječi: Stvarno upravljanje zaradama, Forenzično ispitivanje, Priznavanje prihoda