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The Impact of Growth Opportunities on the Relationship Between Firm Debt and Abnormal Accruals - Evidence from Europe

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Abstract: This study aims at exploring the way in which managers of levered firms use accruals in the financial reporting process. Particularly, we examine the relationship between firm debt level and the signed value of abnormal accruals, and whether expected growth opportunities shape the above relation. The analysis is based on a large panel of European non-financial listed companies over the period 2005-2014, with 16,176 firm-year observations. We focus on the European Union, recognizing the importance of specific institutional features (such as the prominence of bank debt and the creditor protection rational) in determining reporting choices. Our findings show that levered firms are more likely to use income-decreasing accruals. This result is consistent with prior studies that emphasize the monitoring role of debt over aggressive accounting policies. However, we also find that, as investment opportunities increase, managers of levered firms shift to a more aggressive use of their discretion. This result shows that growth expectations play a critical role in shaping the relationship between firm leverage and managerial discretion. Overall, our findings suggest that debt plays a monitoring role over managerial discretion, restricting managers' ability to boost earnings. However, the monitoring role of debt is weakened by the expected growth opportunities, as they constitute a stronger incentive to move earnings upward.

Keywords: Abnormal Accruals, Leverage, Growth Opportunities, Europe, Earnings Management

1. Introduction

Over the past decades, the relationship between firms' characteristics and earnings management has notably attracted the interest of researchers as well as financial market participants [1]. Particularly, a substantial body of research has examined the impact of firm debt level on managerial discretion [2-4], and earnings quality [5, 6], or the role of conservatism in debt contracting agreements [7-9]. However, despite the high bulk of studies, evidence appears to be not fully consistent and the relationship between firm leverage and accounting choices is far from being an uncontroversial question. Actually, while most of studies provide evidence that managers of levered firms are more likely to engage in income-increasing accounting choices in order to avoid breaking a covenant [4, 5, 10, 11], other studies suggest the opposite. For instance, Isidro H., and Raonic, I. [6] find a positive relation between firms leverage and financial reporting quality, consistent with the monitoring role of debt over managerial accounting discretion. Moreover, another stream of research emphasizes the efficient role of conservative accounting in debt contracting agreements, which highlights the higher demand of lenders for conservative accounting. Broadly speaking, evidence shows that conservatism reduces the debt cost of capital [7], as it enhances the identification of borrowers' default risk [9], providing accounting numbers that satisfy the lenders' claim for the "worst-case scenario" [8].

Therefore, the covenant violation avoidance hypothesis, dominant in US studies, appears to be not consistent with much of empirical evidence provided by prior studies.

One of possible reasons of this inconsistency may be

related to the institutional context which can affect the prevalence of certain earnings properties over others, such as conservatism or value relevance [12-14]. Essentially, the institutional environment influences the economic role of financial reporting and determines the set of managerial reporting incentives and constraints, which, in turn, affect financial reporting choices [15-18]. In bank-based economies, managers have lower incentives to rely on income-increasing earnings management, compared to market-oriented economies, and instead they may feel stronger pressure to manage earnings downward [13]. This is because banks assess the borrowing capacity of the firm through the financial statement and their claim is for prudent accounting numbers, in order to be sure that they will be able to recover the investment through the liquidation of assets if the firm faces financial troubles [13]. From this perspective, the relationship between firm debt level and managerial accounting choices could reflect the prominence of certain financial statement users according to their demand for specific properties of accounting numbers.

This study aims at providing empirical evidence on the relationship between firm leverage and managerial accounting choices in Europe. Basically, US and European contexts present strong differences in terms of socio-cultural environment, sources of financing, and firms' ownership structure. Overall, the specific features of the European context could lead to raise concerns about the effectiveness of the covenant violation avoidance hypothesis, supporting the role of debt in monitoring managers' ability to boost earnings, consistently with the creditor protection rational widespread in Europe [19, 20]. Generally speaking, in a context in which private debt is prominent and where lenders and banks are the primary source of funds, the governance function of debt [21] could be prevalent, inasmuch it increases lenders' claim for credible financial reporting [6] in the ex-ante definition of debt covenants. Actually, to guarantee their effectiveness, covenants are usually designed in order to curb managers' ability to manipulate accounting numbers, avoiding their break [22]. Accounting rules negotiated in debt contracts are oriented toward prudence rule and require a major use of income-decreasing accounting policies, because the need to assess borrower default risks leads lenders to claim for financial numbers that represent the "worst-case scenario". Thus, the monitoring of lenders may restrict managers' ability to inflate earnings, and even may lead to a higher use of income-decreasing policies.

However, recent studies have shown that, when expected investment opportunities arise, managers of constrained firms (e.g., levered firms) have a strong incentive to engage in income-increasing choices, in order to boost earnings. For instance, Linck, J. S., Netter, J., and Shu, T. [23] find that constrained firms with good future prospects are more likely to use positive abnormal accruals in order to attract external funds. In this case, accruals are used as a mean to signal positive growth expectations to the market, and to ease constraints that obstruct the retrieval of funds. Moving from studies on the efficient role of managerial discretion in signaling private information [24-26] and investment opportunities [23, 27] we conduct a complete analysis on the accounting choices of levered firms, examining whether expected growth opportunities shape the relationship between firm leverage and abnormal accruals. The idea is that, although managerial discretion is restricted within the boundaries of debt agreements, when growth opportunities arise, managers may have stronger incentives to manage earnings, shifting to a more aggressive use of accounting discretion.

In order to assess our research questions, we examine a large panel of European non-financial listed companies over the period 2005-2014, with 16,176 firm-year observations. We use three abnormal accruals measures: *a)* abnormal accruals estimated with the modified Jones model [28]; *b)* performance-adjusted abnormal accruals estimated with the modified Jones model, controlling for firm performance [29] and *c)* performance-adjusted measure of discretionary current accruals [30]. In order to measure firm growth opportunities, we follow Kaplan, S. N., and Zingales, L. [31] estimating investment opportunities as the expected level of investments. By adding the interaction term between firm leverage and growth opportunities, we capture whether, and the extent to which, the relationship between leverage and abnormal accruals is moderated by the expected growth.

Our findings show that debt plays a monitoring effect over aggressive accounting policies, leading to a larger use of income-decreasing accruals. Interestingly, we find that, as investment opportunities increase, also levered firms have a strong incentive to use discretionary accruals in order to manage earnings upward. This result confirms that growth expectations play a critical role in shaping the relationship between firm leverage and managerial discretion. Our study contributes to the literature in three ways. First, we find that, in the European Union, the presence of debt, not only reduces the likelihood of inflated earnings, but it also leads to a more pervasive use of income-decreasing accruals. From this perspective, we stress that specific institutional features influence the informative role of earnings which, in turn, affects managerial accounting choices. Second, our findings enrich the debate on the signaling role of managerial discretion, providing evidence that investment opportunities constitute a strong incentive to use discretion in order to signal growth expectations to the market. Moreover, we find that the signaling effect of the expected growth is not reduced by the monitoring effect of debt. Third, our study examines the relationship between firms leverage and abnormal accruals and the role of growth opportunity in shaping the above relation in the entire European Union. Actually, as Filip, A., and Raffournier, B. [32] argue, most of prior studies were conducted at a single-country level, which raises concerns about the external validity of their findings. Analyzing the European Union as a whole could provide stronger evidence, because country-specific influences are neutralized. Moreover, European listed firms are subject to the same regulation since 2005, year in which listed firms must comply with IFRS. This ensures that results are not

driven from differences in local accounting rules.

The structure of the paper is organized as follow. Section 2 describes our institutional setting. Section 3 provides literature review and hypotheses development. Section 4 reports research design. In Section 5 we report empirical results. Section 6 concludes.

2. Institutional Setting

Institutional context plays a key role in determining financial reporting outcome. The set of institutional features affects the way in which managers use discretion in the financial reporting process [33, 34]. Basically, the incentive to engage in income-increasing or income-decreasing choices depends on the role of accounting numbers in resolving information asymmetries and in communicating with external parties [17]. The prominence of certain financial statement users and their relative power affect the demand for specific properties of accounting numbers and the informative role of earnings, determining the way in which insiders exercise judgment in their financial statements [15].

The European Union context is strongly different from US context, in which most of prior studies were conducted. First, US and European contexts are heavily different in terms of socio-cultural environment, which is notoriously reflected in the spread of accounting practices [35]. Particularly, as Othman, H. B., and Zeghal, D. [36] point out, while professionalism, flexibility and transparency are prominent in the American environment, European context is characterized by higher statutory control, conservatism and uncertainty avoidance. Second, in contrast to the US context, Europe is a bank-based economy where banks and lenders have a stronger power over corporate decision, also through private credit contracts, which generate a higher demand for prudence in financial numbers. Essentially, in such a context, the primary role of financial report is the satisfaction of stakeholders' information needs among which priority is given to firm's lenders and banks. As a consequence, accounting practices are more conservatism-oriented, to guarantee creditors' claims. A crucial aspect of the European financial environment is the long-term nature of the lender-borrower relationships, which affect the structure of explicit contracts, in which extensive covenants are included, in order to enforce the monitoring over potential conflicts of interest [37]. Third, the European financial market is characterized by high ownership concentration and long-term relationships between shareholders and managers. This, together with the high incidence of family firms, reduces agency conflicts between owners and managers, and their incentive to manage earnings upwards for opportunistic reasons [13, 38]. Fourth, European listed firms face lower pressure from capital markets with respect to US companies, although they are insomuch socially relevant to be exposed to higher media supervision and reputational costs [39]. Thus, on one hand, the lower relevance of financial markets could reduce their incentive to engage in aggressive accounting choices. On the other hand, market pressure is substituted by the stronger social pressure, which may increase the willingness to window-dress financial statements, in order to show the health of the firm and the skills of those who manage it.

3. Theoretical Background and Hypotheses

Financial institutions, primarily banks, are the main providers of funds in Europe. The prominence of private debt determines the role of accounting numbers as guarantee of lenders' claim for the "worst-case scenario", in order to assess their satisfaction in the case of borrower's default. A number of studies have highlighted the role of accounting in contractual arrangements, showing how accounting numbers are used to delineate rights, measure performance and to reward and discipline contracting parties [40]. In particular, prior studies document the ex-ante role of accounting numbers in debt contracts [41-43]. These studies demonstrate that debt covenants are defined in order to guarantee the compliance of debt-holders rights, reducing the likelihood that managers use accounting discretion to transfer wealth to themselves or other stakeholders. Generally speaking, accounting defined covenants are designed in order to control the conflict of interest between borrowers and lenders. To ensure the effectiveness, accounting defined covenants rely on negotiated accounting rules which limit managerial discretion over financial statements reporting process. For example, evidence shows that the accounting rules negotiated in debt contracts do not allow certain increases in earnings and asset values permitted by GAAP, and require certain decreases in income and asset values or increases in liabilities not necessary under GAAP [22, 43].

Thus, the negotiated accounting rules are designed to offset managers' opportunistic tendency to cause the debt covenants to be ineffective [12, 22, 44]. Even though the exercise of judgment in a manner that ensure the choice of the lower value for income and the higher value for expenses partially reduces the reliability of earnings, this is consistent with the banks and lenders claim for the "worst-case scenario" [13]. Thus, for levered firms, managerial accounting discretion is restricted within the boundaries of accounting-based debt covenants, which favors the recourse to income-decreasing accounting choices, with a widespread use of negative abnormal accruals.

Overall, the above considerations lead us to formulate our first hypothesis as follows:

H1: Other things being equal, there is a negative relation between firm leverage and signed abnormal accruals.

Recent studies emphasize the role of investment opportunities in shaping accounting choices, arguing that growth potential constitutes a strong incentive to window-dress financial statements [23, 27, 45]. Basically, investment opportunities affect the need for external funds, which in turn, is a key driver of aggressive accounting policies [46-50]. In particular, when the firm has good growth opportunities, but

faces financial constraints in the raising of capital, managers have strong incentive to engage in income-increasing accruals in order to attract funds, by signaling future positive expectations to the market [23]. Generally speaking, because of information asymmetries between managers and external parties, when firms have positive NPV projects, the higher the constraints firms facing in the raising of funds, the stronger the incentive to use income-increasing accruals in the financial reporting process in order to attract external resources required for the exploitation of growth potential. Through the use of positive abnormal accruals, managers can signal the future good prospects to the market, easing the raising of equity capital and the exploitation of growth opportunities. As a consequence, for highly-levered firms, an increase in the investment opportunities expectations could lead to a turnaround in the exercise of managerial accounting discretion, shifting from a higher use of income-decreasing accruals (i.e., monitoring effect of debt), to a higher use of income-increasing accruals (i.e., signaling effect of growth). Essentially, firms with high debt level notoriously face the underinvestment problem [51, 52]. Indeed, since investors do not have perfect information about firm's future prospect, they price the higher risk associated to the high debt levels, which may lead to the investment rejection, because the higher cost of capital makes the project less attractive. Nevertheless, in such a case, managers can reduce the risk perceived by outsiders, by using accounting discretion in order to boost earnings and attract funds they need for the exploitation of investment opportunities. The major constraints they face in the retrieval of funds drive managers to use income-increasing accruals as a mean to signal growth expectations to the market.

These considerations lead us to formulate our hypothesis as follows:

H2: Investment opportunities positively moderate the relationship between leverage and abnormal accruals.

Table 1. *Sample description.*

Country	Industry						Total	
	Agriculture	Mining and Construction	Manufacturing	Transportation and Public Utilities	Trade	Services	#	%
Austria		1	4	1	1	1	8	0.25
Belgium		3	7	4	7	9	30	0.95
Bulgaria		5	48	5	7	6	71	2.26
Croatia	5	5	33	10	13	30	96	3.05
Czech Republic				4		1	5	0.16
Estonia						1	1	0.03
Finland		3	35	5	7	17	67	2.13
France	1	13	143	33	61	162	413	13.12
Germany	3	10	133	26	37	136	345	10.96
Greece	6	11	61	13	28	23	142	4.51
Ireland		4	3	1	3	11	22	0.70
Italy	1	9	71	20	16	29	146	4.64
Latvia			1				1	0.03
Luxembourg			2	2		7	11	0.35
Netherlands		5	15	3	6	17	46	1.46
Poland		12	47	17	46	81	203	6.45
Portugal		1	9	4	2	8	24	0.76
Romania	15	65	228	27	37	46	418	13.28
Slovakia		7	14		3	12	36	1.14
Slovenia		1	9	2	4	1	17	0.54
Spain	1	16	23	12	7	18	77	2.45
Sweden		20	29	8	27	96	180	5.72
UK	4	146	186	78	86	289	789	25.06
Total	36	337	1,101	275	398	1,001	3,148	100.00
%	1.14	10.71	34.97	8.74	12.64	31.80	100.00	

4. Research Method

4.1. Sample

In order to test our hypotheses, we examine a large panel of European non-financial listed companies over the period 2005-2014. Our initial sample consists of 8,098 nonfinancial[1] listed companies, operating in the 28[2] Member States of European Union. We collect financial reporting data from Amadeus[3]. After removing observations with missing data, the final sample includes 3,418 firms, with 16,176 firm-year observations. Because of paucity of observations, the final sample does not include firms from Cyprus, Denmark, Hungaray, Lithuania, and Malta. Table 1 reports country and industry distribution of our sample firms.

1 We exclude financial firms (SIC 6000-6999) because the nature of their capital structure is significantly different from the others.

2 Specifically, Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom.

3 https://amadeus.bvdinfo.com

4.2. Measurement of Variables

4.2.1. Measures of Abnormal Accruals

In order to quantify abnormal accruals, we use three measures identified by prior studies on accrual-based earnings management. Specifically, our first measure is the signed value of discretionary accruals (*DA*), estimated with the modified Jones model [28]. The second measure is the signed value of performance-adjusted discretionary accruals (*PDA*), estimated with the modified Jones model after controlling for firm ROA [29]. Finally, our third measure is the signed value of performance-adjusted discretionary current accruals (*REDCA*), estimated with the model provided by Chaney, P. K., Faccio, M., and Parsley, D. [30], and based on the method used in Ashbaugh, H., LaFond, R., and Mayhew, B. W. [53]. Details of these metrics are provided in Appendix A.

4.2.2. Measure of Investment Opportunities

In order to measure firm's growth opportunities, we follow Linck, J. S., Netter, J., and Shu, T. [23], measuring investment opportunities (*InvOpp*) as the predicted value of investments, estimated with the following regression model [31][4]:

$$Inv_{i,y+1} = \alpha_0 + \alpha_1 Cfo_{i,y} + \alpha_2 TobinQ_{i,y} + \alpha_3 Lev_{i,y} + \alpha_4 Cash_{i,y} + \alpha_5 SalesGrowth_{i,y} + Industry + Year \quad (1)$$

where, the dependent variable measures firm's investments in fixed assets, and the set of independent variables includes operating cash flow (*Cfo*), Tobin's Q (*TobinQ*), firm leverage (*Lev*), cash holdings (*Cash*), and the sales growth ratio (*SalesGrowth*). We include dummy variables to control for two-digit industries and years. Moreover, in order to control for outliers, we winsorize both dependent and independent variables at the 1st and the 99th percentiles. Appendix B provides clear details of these metrics.

4.3. Test of Hypotheses

In order to test our hypotheses we adopt the following model:

$$Abn\_Accruals_{i,y+1} = \beta_1 Lev_{i,y} + \beta_2 InvOpp_{i,y} + \beta_3 HighLev * InvOpp_{i,y} + \beta_4 Size_{i,y} + \beta_5 Cfo_{i,y} + \beta_6 Distress_{i,y} + \beta_7 Age_{i,y} + \lambda \eta_i + \alpha \mu_i \quad (2)$$

where, the dependent variable (*Abn_Accruals*) is one of the three proxies used to measure the signed value of abnormal accruals (*DA*, *PDA*, *REDCA*). Firm leverage (*Lev*) is the firm's total debt deflated by total assets. Investment Opportunities (*InvOpp*) is the predicted value of investment, estimated in Equation (1). *HighLev* is a dummy variable equals to 1 if the firm is in the top quartile of leverage, and 0 otherwise. *HighLev*InvOpp* measures the expected growth opportunities of highly levered firms. Since our first hypothesis predicts a negative relationship between firm debt level and the signed value of abnormal accruals, we expect β_1 to be significantly negative. If an increase in investment opportunities leads managers of levered firms to shift from a conservative use of accruals to a more aggressive one, then we expect β_3 to be significantly positive.

The set of control variables in Equation (2) includes: firm size (*Size*), operating cash flow (*Cfo*), the likelihood of financial distress (*Distress*) and firm age (*Age*). Moreover, we control for fixed effects at firm and year level.

Size is measured as the natural logarithm of total assets. We control for firm size because prior studies show that larger firms are more likely to engage in income-decreasing accounting choices in response to the greater political and regulatory scrutiny [5]. *Cfo* is measured as the sum of income before extraordinary items and depreciation and amortization, deflated by total assets. We include operating cash flow in order to control for firm's operating performance, since prior studies provide evidence that poorly performing firms are more likely to engage in income-increasing accounting manipulation [54]. We control for financial distress because the closer the likelihood of distress, the higher the likelihood that managers use discretion to mask the real financial position [55]. We measure financial distress with the bankruptcy statistic estimated by Zmijewski, M. E [56]. Details are provided in Appendix B. *Distress* is a binary variable equals to 1 if the predicted value of bankruptcy is greater than zero (1.2% of the firm-year sample) and 0 otherwise. Finally, *Age* is the number of years from firm incorporation. We control for firms' age because younger firms have higher internal control weakness and more deficiencies in their control procedures which may affect the magnitude of abnormal accruals [57].

5. Results

5.1. Summary Statistics

Table 2 presents summary statistics for the key metric of our analysis. The average size of our sample firms is about 2,232 million euro, quite consistent with prior studies. Our sample firms have an average debt level and operating cash flow level of 20% and 5%, respectively. The sample firms are averagely 33 years old, and present a mean of Tobin's Q of about 1.15.

5.2. Univariate Analysis

We first test our hypotheses on a univariate basis, by comparing means of abnormal accruals across groups of firms, identifying them according to their level of leverage (High or Low), and investment opportunities (High or Low). Specifically, firms are included in the group of high leverage (low leverage) if they are in the top (bottom) 25% of debt level. Firms are labeled in the group of high investment opportunities (low investment opportunities) if they are in the top (bottom) 25% of expected investment opportunities.

4 Because of the paucity of observations, we do not include firm's dividends payment as independent variable.

We test our first hypothesis, by comparing means of abnormal accruals of levered and unlevered firms. We expect that levered firms are more prone to use income-decreasing abnormal accruals. In Panel A of Table 3, we report results of this analysis. For reasons of clarity, here we present results relative to modified-Jones model abnormal accruals (DA). The difference between the mean of abnormal accruals for levered firms (-0.007) and unlevered firms (0.006) is statistically significant (-0.13; *p-value 0.000*). This result gives preliminary evidence that levered firms are more prone to use negative abnormal accruals.

In order to test our second hypothesis, we compare abnormal accruals of levered firms with high investment opportunities and their counterparts. We expect that levered firms with high investment opportunities are less likely to use income-decreasing abnormal accruals, and instead they could be more prone to use positive abnormal accruals, in order to signal good growth opportunities. Panel B of Table 3 reports the comparison of abnormal accruals across four groups of firms (i.e. firms with high leverage and high investment opportunities; firms with high leverage and low investment opportunities; firms with low leverage and high investment opportunities; firms with low leverage and low investment opportunities). Consistent with our hypothesis, results show that, on average, levered firms with high investment opportunities have significantly higher abnormal accruals (0.003) compared with levered firms with low investment opportunities (-0.122) (*p-value 0.004*). This result provides preliminary evidence that the willingness to signal positive prospects prevails over the monitoring effect of debt. We do not find a similar pattern for unlevered firms. Actually, we find that the difference between unlevered firms with high investment opportunities and their counterparts is statistically significant only for one measure of abnormal accruals (PDA; *p-value 0.015*), while it is not significant for the others (DA, *p-value 0.327*; REDCA, *p-value 0.475*). Interestingly, we find that, focusing on the high investment opportunities groups, there is no significant difference between abnormal accruals of levered and unlevered firms (*p-value 0.201*), while differences remain if we focus on the low investment opportunities groups (*p-value 0.001*). These results confirm that levered firms engage more in income-decreasing accruals, but, as investment opportunities increase, the signaling effect of expected growth prevails over the monitoring effect of debt.

Table 2. *Summary statistics.*

	Mean	Std.	P10	P25	P50	P75	P90
Asset Size (€ Million)	2,232.15	14,000.00	4.76	17.43	72.85	356.35	2,331.50
Leverage	0.20	0.19	0.00	0.03	0.15	0.30	0.45
Investment Opportunities	0.12	0.15	-0.02	0.03	0.09	0.18	0.30
Cfo	0.05	0.17	-0.08	0.02	0.07	0.12	0.19
Firm Age	33	31	6	12	21	42	83
Tobin's Q	1.15	1.19	0.34	0.53	0.80	1.29	2.23
DA	-0.004	0.13	-0.12	-0.05	0.005	0.05	0.10
PDA	-0.007	0.12	-0.12	-0.05	-0.005	0.04	0.10
REDCA	-0.007	0.12	-0.11	-0.05	-0.005	0.03	0.09

Table 3. *Univariate analysis.*

Panel A: Mean of Abnormal Accruals of Firms sorted on the basis of Debt Level

	DA		PDA		REDCA	
	#	Mean	#	Mean	#	Mean
High Leverage	4,256	-0.007	4,476	-0.009	4,365	-0.007
Low Leverage	3,013	0.006	2,949	0.001	2,939	-0.003
# Obs.	7,539		7,425		7,304	
Diff.	-0.13		-0.10		-0.004	
t-statistic	-4.022		-3.480		-1.412	
p-value	*0.000*		*0.000*		*0.079*	

Panel B: Mean of Abnormal Accruals of firms sorted on Leverage and Investment Opportunities groups

	DA							PDA						
	High Investment Opportunities		Low Investment Opportunities					High Investment Opportunities		Low Investment Opportunities				
	#	Mean	#	Mean	Diff.	t-stat.	*p-value*	#	Mean	#	Mean	Diff.	t-stat.	*p-value*
High Leverage	461	0.003	2,038	-0.122	0.016	2.62	*0.004*	440	0.001	2,022	-0.009	0.011	1.90	*0.028*
Low Leverage	1,584	0.011	424	0.007	0.004	0.45	*0.327*	1,545	-0.001	414	0.018	-0.019	-2.16	*0.015*
Diff.	-0.008		-0.019					0.002		-0.028				
t-stat.	-0.84		-2.98					0.23		-4.82				
p-value	*0.201*		*0.001*					*0.409*		*0.000*				

	REDCA						
	High Investment Opportunities		Low Investment Opportunities				
	#	Mean	#	Mean	Diff.	t-stat.	*p-value*
High Leverage	428	0.002	1,763	-0.012	0.014	2.29	*0.011*
Low Leverage	1,509	0.000	368	0.001	-0.001	-0.06	*0.475*
Diff.	0.002		-0.012				
t-stat.	0.27		-1.85				
p-value	*0.394*		*0.032*				

5.3. Multivariate Analysis

In Table 4, we report correlation among our key metrics. The symbol * denotes significance at 5%. Correlations between the three alternative measures of abnormal accruals (*DA*, *PDA*, and *REDCA*) are highly positive, which weakens any concerns about our alternative metrics used to measure abnormal accruals. Both *DA*, *PDA* and *REDCA* are negatively correlated to *Leverage*, while only *DA* is positively related to *Investment Opportunities*, and no correlation emerges between our alternative dependent variables and the interaction term, *HighLev*InvOpp*. Furthermore, *PDA* and *REDCA* are negatively correlated to *Size* and *Cfo*. As regards our independent variables, a negative correlation exists between *Leverage* and *Investment Opportunities*. Moreover, *Leverage* is positively correlated to the likelihood of *Distress*, firm *Age* and firm *Size*, and negatively correlated to firm's *Cfo*. Conversely, *Investment Opportunities* are positively correlated to firm's *Cfo* and negatively correlated to the likelihood of *Distress*, firm *Age* and firm *Size*. The VIF analysis we run in order to face concerns arising from correlation between our predictors, shows that our analysis is not affected by multicollinearity problem (VIF of the predictors are all lower than 2.5, except for *Size*, which is 4.22).

Table 4. *Correlation Matrix.*

	DA	PDA	REDCA	Lev	InvOpp	HighLev*Invopp	Size	Cfo	Distress	Age
DA	1									
PDA	0.946*	1								
REDCA	0.775*	0.811*	1							
Lev	-0.091*	-0.042*	-0.018*	1						
InvOpp	0.075*	-0.013	0.011	-0.421*	1					
HighLev*InvOpp	0.013	-0.010	-0.001	0.232*	0.219*	1				
Size	0.005	-0.047*	-0.018*	0.308*	-0.069*	0.201*	1			
Cfo	0.021*	-0.133*	-0.018*	-0.112*	0.352*	0.140*	0.237*	1		
Distress	-0.026*	-0.006	-0.009	0.078*	-0.057*	-0.033*	-0.093*	-0.100*	1	
Age	0.004	-0.006	-0.012	0.117*	-0.231*	-0.026*	0.248*	0.064*	-0.023*	1

Table 5 presents empirical results of our multivariate analysis. For reasons of clarity, here we report results relative to the model with DA as dependent variable, even if evidence is fairly similar for each abnormal accruals measure. The relationship between *Leverage* and *DA* is significantly negative (β = -0.09; *p-value 0.000*). This result confirms the existence of a monitoring effect of debt. The presence of debt not only reduces the likelihood that firms engage in income-increasing choices, but even lead to a more pervasive use of income-decreasing accruals, consistently with the lenders' and banks' request for the "worst-case representation" of the firm's value. Results highlight that *Investment Opportunities* have a positive impact on the level of abnormal accruals (β = 0.17; *p-value 0.000*), consistent with the signaling effect of expected growth. The coefficient of the interaction term *HighLev*InvOpp* is positive and statistically significant (β = 0.08; *p-value 0.000*). This finding confirms our second hypothesis, showing that, for levered firms, the willingness to signal good future prospects prevails over the monitoring effect of debt. As expected, firm *Size* and firm's *Cfo* have a negative impact on abnormal accruals, even if the economic relevance appears to be quietly low (β = -0.01; *p-value 0.000* and β = -0.001; *p-value 0.000*, respectively). The coefficient of *Distress* is significantly positive (β = 0.04; *p-value 0.003*) which shows that managers could be more prone to boost earnings in order to mask bad financial trend. Results show a positive association between firm *Age* and abnormal accruals (β = 0.004; *p-value 0.000*). Presumably, after controlling for firm's size, *Age* captures the incentive to preserve firm's reputation for fulfilling of stakeholders' claims, which affects income-increasing choices [58]

Table 5. *Panel Regression of Abnormal Accruals on Firm Leverage and Investment Opportunities.*

$$Abn_{Accruals_{i,y+1}} = \beta_1 Lev_{i,y} + \beta_2 InvOpp_{i,y} + \beta_3 HighLev * InvOpp_{i,y} + \beta_4 Size_{i,y} + + \beta_5 Cfo_{i,y} + \beta_6 Distress_{i,y} + \beta_7 Age_{i,y} + \lambda \eta_i + \alpha \mu_i$$

Dependent variable:	Predicted signs	DA			PDA			REDCA		
		Coefficients		*p-value*	Coefficients		*p-value*	Coefficients		*p-value*
Intercept		-0.007		0.866	-0.060		0.136	-0.057		0.164
Lev	-	-0.093	***	0.000	-0.122	***	0.000	-0.117	***	0.000
InvOpp	+	0.171	***	0.000	0.119	***	0.000	0.102	***	0.000
*HighLev*InvOpp*	+	0.083	***	0.000	0.055	**	0.014	0.047	**	0.037
Size	-	-0.014	***	0.000	-0.004		0.265	-0.003		0.000
Cfo	-	-0.001	***	0.000	-0.001	***	0.000	-0.001	***	0.000
Distress	+	0.043	***	0.003	0.026	*	0.087	0.039	**	0.011
Age	*?*	0.004	***	0.000	0.003	***	0.000	0.003	***	0.000
Year Fixed Effects		Yes			Yes			Yes		
Firm Fixed Effect		Yes			Yes			Yes		
# Observations		16,176			16,001			15,765		
Adj. R2		2.98%			2.29%			1.96%		
F *(p-value)*		30.8 (*0.000*)			23.2 (*0.000*)			19.4 (*0.000*)		

6. Conclusion

This study examines the relationship between firm debt and abnormal accruals and whether expected growth moderates this relationship. The analysis focuses on the European Union, recognizing the importance of the institutional features in determining financial reporting choices. Particularly, the prominence of private debt and the relative power of banks and financial institutions, lead to a higher demand for accounting numbers that represent the "worst-case scenario". Consistently, we find that levered firms are more likely to engage in income-decreasing accounting choices, which demonstrates that banks and lenders play a monitoring role, reducing managers' ability to inflate earnings. However, we find that expected investment opportunities constitute a stronger incentive to use managerial discretion and to boost earnings, weakening the monitoring role of debt. Moreover, we find that growth opportunities represent a strong driver to inflate earnings, for all our sample of European firms. For levered firms the willingness to signal expected growth is strong, because of the higher constraints they face, and the higher fear of under-valuation of their stock, deriving from conservative accounting. With respect to this point, Dichev, I. D., Graham, J. R., Harvey, C. R., and Rajgopal, S. [59] report the words of a CFO, which states: "in the absence of enough disclosure about conservative accounting, investors will undervalue our company as they cannot distinguish poor earnings from conservative earnings". Even though the potential abuses of conservative accounting are recognized in the literature, future studies can examine whether levered firms engage more in voluntary disclosure in order to avoid under-valuation deriving from lenders' claims. Future studies can also examine whether firms engaging in income-increasing accruals are able to raise external funds, or whether and how this affects investment decisions. For instance, other studies show that earnings quality is associated with investment efficiency [60, 61]. Thus, it is possible that high abnormal accruals are related to poor performing mergers and acquisitions or to high-risky investments. Our study is subject to at least two limitations. First, the measure of abnormal accruals is subject to the ability of discretionary accruals models to identify them, and the potential to limit misclassification errors. By using three different models, we expect to minimize the likelihood that our findings are driven by the choice of a particular estimation method. Second, in order to capture the expected growth, we estimate investment opportunities which could lead to measurement error problems.

Appendix

Appendix A. Measures of Abnormal Accruals

In order to quantify abnormal accruals, we use three measures identified by prior studies on accrual-based earnings management. Our first measure, *DA*, is estimated with the modified Jones model [28] as follows:

$$\frac{TACC_{j,y}}{TA_{j,y-1}} = \lambda_1 \frac{1}{TA_{j,y-1}} + \lambda_2 \frac{(\Delta S_{j,y} - \Delta AR_{j,y})}{TA_{j,y-1}} + \lambda_3 \frac{PPE_{j,y}}{TA_{j,y-1}} + \varepsilon_{j,y} \quad (3)$$

where $TACC_{j,y}$ is total accruals of firm *j*, defined as the change in non-cash current assets minus the change in current liabilities, plus the change in debt in current liabilities minus depreciation; $\Delta S_{j,y}$ equals net sales for firm *j* in year *y* minus net sales for year *y-1*; $\Delta AR_{j,y}$ equals accounts receivable for firm *j* in year *y* minus accounts receivable for year *y-1* and so the difference between the change in net sales and the change in accounts receivable represents the portion non-cash of revenues; $PPE_{j,y}$ is the gross value of property, plant, and equipment for year *y*. The regression residuals capture abnormal accruals. All variables are scaled by total assets at the beginning of the year ($TA_{j,y-1}$). We winsorize all scaled variables at the 1st and 99th percentiles to control for outliers.

The second measure, *PDA*, is estimated by adding the lagged value of firm ROA to the Eq. (3), in order to control for firm performance [29].

The third measure, *REDCA*, is computed as the difference between total current accruals (TCA) and expected performance-adjusted total current accruals (EPTCA). TCA is the change in current assets minus the change in current liabilities minus the change in cash plus the change of short term and current long term debt. EPTCA represents the predicted value estimated with the following regression model:

$$\frac{TCA_{j,y}}{TA_{j,y-1}} = \beta_1 \frac{1}{TA_{j,y-1}} + \beta_2 \frac{(\Delta S_{j,y} - \Delta AR_{j,y})}{TA_{j,y-1}} + \beta_3 ROA_{j,y-1} + \beta_4 Inflation_{j,y-1} + \beta_5 GDPgrowth_{j,y-1} + \varepsilon_{j,y} \quad (4)$$

$Inflation_{j,y-1}$ is the rate of inflation harmonized indices of consumer prices for each country. $GDPgrowth_{j,y-1}$ is the real GDP growth rate of each country. These two variables are included in order to control for the business cycle in each country, since, following Ashbaugh, H., LaFond, R., and Mayhew, B. W. [53], data are pooled across countries. Other variables were previously defined.

Appendix B. Variable Definitions

Table A1. *Variables description.*

Variable Name	Description
DA	Discretionary accruals computed with the Modified Jones Model [28]
PDA	Performance-adjusted discretionary accruals computed with the Modified Jones Model, adjusting for firm ROA [29]
REDCA	Performance-adjusted discretionary current accruals, measured as the difference between the total current accruals and the expected performance-adjusted total current accruals [30, 53]
AGE	The number of years from firm incorporation
BANKRUPTCY	The predicted value of Zmijewski bankruptcy statistic (1984), measured as: -4.803 - 3.6 (Net Income/Assets) + 5.4 (Debt/Assets) - 0.1 (Current Assets/Current Liabilities)
CASH	Cash and cash equivalent deflated by total assets
CFO	The sum of income before extraordinary item and depreciation and amortization, deflated by total assets
DISTRESS	Binary variable equals to 1 if Bankruptcy is higher than zero
INVOPP	The predicted value of investment, estimated in Equation (1)
LEV	Firm total debt deflated by total assets
SALESGROWTH	The change in sales deflated by lagged sales
SIZE	Natural logarithm of total assets
TOBINQ	The summation of market equity and total debt deflated by total assets

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