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THE CAPITAL STRUCTURE DYNAMICS OF SMES IN KOSOVO: EVIDENCE USING PANEL DATA

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Abstract

This paper evaluates the applicability of capital structure theories in assessing the financial choices made by SMEs in Kosovo. Additionally, it examines whether previously studied determinants of capital structure, such as firm age and size, liquidity, profitability, firm growth, asset structure, effective tax rate, and non-debt tax shield, can explain the capital structure choices of SMEs in Kosovo. Utilizing annual firm-level data, a panel data methodology is employed to test empirical hypotheses on a sample of 90 SMEs in Kosovo from 2013 to 2018. Dynamic panel model findings reveal that the financial behavior of Kosovo's SMEs is influenced not only by internally generated funds but also by various specific firm characteristics, including liquidity, effective tax rate, non-debt tax shield, size, asset structure and growth. Finding aligns with the pecking order theory, which suggests that more profitable SMEs tend to rely less on debt financing. The study offers implications and recommendations for both firms' managers and policymakers.

Keywords: *Capital structure, trade-off theory, pecking order theory, SMEs*

JEL classification: *G32, E22, M21*

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1. Introduction

An increasing body of literature shows that SMEs play a unique role in the modern economy and are essential for jobs, innovation, and economic growth (Urbano et al. 2020; Audretsch et al. 2023). Despite SMEs' vital role in job creation and production, much of the literature highlights that these firms need help accessing external financing compared to larger corporations. This difficulty in securing funding hampers their ability to grow and develop (Ardic, Mylenko, and Saltane 2011; Krasniqi et al. 2023).

Numerous empirical research studies focus on the drivers of debt in large and publicly listed enterprises,

while the small firm sector receives far less attention, particularly in transition countries (Czerwonka and Jaworski 2021; Qerimi et al. 2023). Since SME growth may be constrained by several factors relating to these countries' unique economic and institutional conditions (Mateev, Poutziouris, and Ivanov 2013; Hashi and Krasniqi 2011), the available funds and access to these funds remain an important issue for discussion.

Much of the existing research on the capital structure of SMEs relies on static regression models. Yet, static models may not encompass the dynamic nature of capital structure decisions or the intertemporal dependencies present in longitudinal data. Despite the importance of considering dynamics and time series in analyzing capital structure decisions, research on SMEs, particularly in economies with shorter market traditions, has been less inclined towards using dynamic panel models. Additionally, evaluating capital structure theories with dynamic panel models is a relatively recent approach in the SME sector.

The article contributes in several ways to the firms' capital structure determinants. The first objective is to broaden the scope of the debate to the limited empirical research regarding capital structure determinants of SMEs in emerging/transition economies.

The study examines empirically two of the most pertinent theories explaining financial policy in SMEs: pecking order and trade-off theories, using a database comprising nonlisted Kosovar SMEs from 2013-2018. Using a dynamic panel data analysis the study determines which capital structure theory better describes the financial decisions of SMEs in Kosova. Additionally, we put effort into identifying whether the choice of capital structure of SMEs in Kosovo can be interpreted through factors that have been studied by previous studies, which are represented by the determinants of the choice of capital structure.

The remainder of the article is organized in the following manner. In Section 2, the theoretical discussions and empirical evidences are presented. Section 3 explains the methodology and the data utilized. Section 4 summarizes the primary outcomes, while Section 5 offers concluding remarks followed by limitations, constraints and future research directions

2. Literature Review

The capital structure significantly impacts business finances' overall success and development (Tripathy, Wu, and Zheng 2021). Earlier study by Evans (1987) shows that small enterprises outperform larger firms in terms of growth rates. Carpenter and Petersen (2002) found that internal finance limits the expansion of small enterprises, which is pertinent to capital structure research. Many theories seek to explain financial constraints, explicitly focusing on capital structure.

Since Modigliani and Miller's (1958, 1963) seminal work on firm capital structure, various ideas have emerged to challenge the assumptions of a perfect market and the lack of insolvency, agency, and transaction costs. Criticism of these paradigms sparked various new ideas. Martinez, Scherger, and Guercio (2019) and Kumar, Sureka, and Colombage (2020) have shown that two are significant to the SME sector. Two primary theoretical frameworks explain the firm-level determinants of capital structure that fit SMEs: the trade-off and pecking order theory that will be used as framwork for analysis in this study.

2.1. Trade-off Theory (TOT): Taxation, Bankruptcy, and Agency Costs

The trade-off theory is the first concept to appear in SME related literature. According to its static version, when shaping their capital structure, companies compare the costs of financial distress and bankruptcy with the expected tax benefits associated with debt financing. This means there is an optimal capital structure when these benefits and costs are equal (Baxter 1967; Kraus and Litzenberger 1973). The dynamic version of the trade-off hypothesis predicts that firms will optimize their capital structure by becoming indebted or repaying debts at a set rate. This level of debt is related to the specified minimum of adjustment costs functioned by a change in the cost of financial distress, on the one hand, and benefits from tax shield, on the other (Huang and Ritter 2005; Kayhan and Titman 2007; Lemmon, Roberts, and Zender 2008).

2.2. Pecking Order Theory (POT) and Asymmetry of Information

The second notion mentioned in the literature is the pecking order theory, based on the theoretical considerations of adverse selection. Myers (1984) and Myers and Majluf (1984) developed the theory that the company's financial demands increase is met according to a specified hierarchy. The model does not suggest a target or ideal capital structure.

Table 1. The direction of influence of individual factors on corporate debt according to TOT and POT.

Factors	Trade-off theory (TOT)	Pecking order theory (POT)
Age	+	–
Size	+	+
Growth	–	+
Profitability	**+**	–
Liquidity	+	–
Asset structure	**+**	**+**
Effective tax rate	**+**	–
Non-debt tax shield	–	–

Source: Frank and Goyal (2009); Rajan and Zingales (1995)

The structure results from aggregated rules about profitability development, dividend distributions, and investment opportunities (Klein, O'Brien, and Peters 2002; Bharath, Pasquariello, and Wu 2009). The lessons of these two theories were applied by finance research to examine the debt behavior of SMEs in the lack of a financial theory tailored to their needs.

2.3. Empirical Studies in the SME Sector

Empirical research on SME capital structure decisions is relatively new, with the initial studies focusing on the differences between small and large enterprises (Daskalakis and Thanou 2010). Frank and Goal (2009) have investigated the issues related to SMEs compared to big firms. Van Der Wijst and Thurik (1993) and Sogorb-Mira (2005), among others, researched the small firm capital structure. They confirm that most of the variables used in capital structure theory to determine firm leverage also apply to small enterprises. The significant conclusion, however, is that the determinants differ between short and long-term debt ratios.

Delcoure (2007) studied capital structure determinants in Central and Eastern European countries to discover whether Western economic theories and determinants interpret the capital structure in these countries. The study stated that companies in Central and Eastern Europe depended heavily on short-term debt rather than long-term in their capital structure against those in developed countries. Summarizing the literature, Table 2 represents the most recent theories that best explain the financial decisions of SMEs based on the dynamic panel data approach.

Table 2. Empirical studies on determinants of SME capital structure

Authors	Research Sample and Period	Positive Determinants of Debt	Negative Determinants of Debt	Indicated Theory
Lopez-Gracia and Sogorb-Mira (2008)	3,569 Spanish SMEs over the Period 1995-2004	Size, CFGO	NDTSH, Growth Opportunities, Cash Flow, Age	Trade-Off
Mateev, Poutziouris, and Ivanov (2013)	3,175 SMEs in Central And Eastern Europe (CEE) over the Period 2001-2005	Asset Structure (Negative in Short-Term Debt), Size, Future Growth Opportunities, Liquidity (Long-Term Debt)	Profitability, Cash Flow for the Medium Firm, Liquidity (Short-Term Debt)	Pecking Order Theory
Jindrichovska, Ugurlu, and Kubickova (2013)	260 Czech SMEs During The Period 2004-2011	Size	ROA, Cash Flow, Age	Mix Evidence (Weaken Results for Pecking Order Theory)

(continued)

Table 2. ***Continued***

Authors	Research Sample and Period	Positive Determinants of Debt	Negative Determinants of Debt	Indicated Theory
Forte, Barros, and Nakamura (2013)	19,000 Brazilian SMEs during 1994-2006	Asset Growth, Size	Profitability, Risk, Age	Pecking Order Theory
Adair and Adaskou (2018)	2,370 French SMEs for the Period 2003-2007 and 2008-2010	Size, Profitability, Growth Opportunity, Trade Credit (After Crisis), Guarantees	Age, Growth Opportunities, Asset Structure, ROA, Cash Flow, Trade Credit (Before Crisis), Low and Medium Risk, High Risk	Mixed Evidence
Kenourgios, Savvakis, and Papageorgiou (2019).	1,120 European SMEs over the Period 2005-2015	Asset Structure, Size, Growth	Profitability, Tax	Mixed Evidence
Pham and Hrdy (2023)	Visegrad Group (Czech Republic, Slovakia, Hungary, Poland) SMEs from 2011-2018		Profitability, Liquidity, Size, Asset Structure, Non-Debt Tax	Pecking Order Theory, Trade Off Theory Only For Non-Debt Tax
Jaworski and Czerwonka (2023)	2820 SMEs in Poland Operating in The 2011-2018 Period	Size, Growth Rate	Tangibility, Liquidity	Pecking Order Theory

Source: Authors' elaboration

3. Data and methodology

The data for this study were collected from the financial statements of private companies reporting to Kosovo Council for Financial Reporting (KCFR) within the Ministry of Finance, covering the period from 2013 to 2018. This period was chosen to ensure data consistency and reliability. Extending the dataset beyond 2018 was not feasible due to significant changes in reporting standards that took effect in January 2019.

To ensure the reliability of the results, companies with missing reporting years within the 2013-2018 period were excluded. This approach was essential for maintaining data integrity and coherence, given the use of both static and dynamic analyses.

The final dataset comprised 90 SMEs that consistently reported across the selected years, providing a stable and accurate basis for examining the impact of financial variables on the capital structure of SMEs.

3.1. Variables and Hypothesis

According to (Michaelas, Chittenden, and Poutziouris 1999; Cassar and Holmes 2003; Sogorb-Mira 2005; Bonfim and Antão 2012; Prenaj, Miftari, and Kransiqi 2023; Jaworski and Czerwonka 2023), the total leverage ratio can serve as a measure of capital structure. However, other authors (Van Der Wijst and Thurik 1993; Barclay and Smith 1999; Mateev, Poutziouris, and Ivanov 2013; Pham and Hrdy 2023) have found that total liabilities alone may not adequately capture the fundamental distinctions between long-term and short-term debt. Consequently, to better understand the capital structure, we considered analyzing the leverage ratio in three ways: long-term, short-term, and total term debt. Independent or explanatory variables identified include cash flow, age, size, asset structure, liquidity, profitability, growth, effective tax rate, and non-debt tax shield.

3.1.1. Age

The age of the business is fundamental in the study of the capital structure of the companies (Baird and Lucey 2010). The literature on age and financing structure posits that younger firms face additional difficulties when accessing external financing, which eases as the firm ages (Berger and Udell 1998). Thus, the following hypothesis is proposed to test the age factor:

H1: A positive relationship exists between the age of firms and their debt ratio in Kosovar SMEs

Variable age is measured by the number of years the SME was in the business by looking at the establishment date until the recent year of observation (Esperança, Gama, and Azzim 2003; Abor and Biekpe 2009).

3.1.2. Size

According to (Warner 1977; Pettit and Singer 1985), from a financial distress standpoint, larger firms are typically more diversified and have a lower likelihood of failure, making size an inverse indicator of bankruptcy probability. Therefore, from the perspective of the trade-off theory, large firms can be pushed towards higher debt (Ang 1991). As SMEs are often family businesses with owners who prefer to maintain control over the company, they are less likely to lose control when issuing debt than when issuing equity. Combined with their small size, these factors impose high information costs under asymmetric information regimes and raise the cost of external financing, making SMEs prime candidates for a pecking-order finance pattern. Hence, we aspect the following hypothesis:

H2: A positive relationship exists between the size of firms and their debt ratio in Kosovar SMEs.

3.1.3. Liquidity

According to the trade-off theory, higher liquidity of assets leads to increased leverage. Conversely, in the pecking order theory, firms with higher liquidity may have more internal funds available, decreasing their need for external financing. Also, liquidity is a question of short-term assets and short-term liabilities. Firms with higher liquidity may have lower financial risk and be more capable of repaying debt obligations. Thus, firms with higher liquidity are expected to have lower debt levels.

H3: A negative relationship exists between firms' liquidity and debt ratio in Kosovar SMEs.

3.1.4. Profitability

In an environment where institutions are insufficiently developed to alleviate information asymmetry between lenders and firms, raising debt can be expensive for firms (Belkhir, Maghyereh, and Awartani 2016). According to the trade-off theory, a profitable firm is expected to have a higher level of debt to offset corporate tax (Fama and French 2002). On the contrary, from the pecking order perspective, profitable firms generate higher internal funds from operations, reducing their need for external financing. Based on the above discussion, we assume that Kosovar SMEs tend to act following the pecking order theory, preferring internal resources over debt and avoiding equity issuance. Hence, we expect the following relationship:

H4: A negative relationship exists between firms' profitability and debt ratio in Kosovar SMEs.

3.1.5. Asset structure

The asset structure of an SME holds significant importance in bridging the financing gap. Mateev, Poutziouris, and Ivanov (2013) suggest that small firms encounter challenges in securing commercial bank financing, particularly long-term loans, due to various factors, including a lack of collateral. Wan Der Wijst and Thurik (1993) state that permanent nature of fixed assets and the preference for tangible assets over intangible ones as collateral makes them more secure than current ones.

The trade-off theory suggests that a higher proportion of tangible assets may lead to reducing costs of financial distress and an easier way to secure debt financing. As a result, the following hypothesis may arise:

H5: A negative relationship exists between firms' asset structure and debt ratio in Kosovar SMEs.

3.1.6. Growth

Firms experiencing significant growth usually need more aggressive funding strategies. According to the

pecking order theory, when these firms exhaust their internal finances, they resort to borrowed financing. As a result, among two firms with comparable profitability levels, it is reasonable to expect that the firm with a higher growth rate will have greater leverage. The trade-off theory, as proposed by Myers (1984), suggests that firms with greater growth prospects tend to carry less leverage. Consequently, there should exist a negative association between growth opportunities and leverage.

H6: A positive relationship exists between the firm's growth and debt ratio in Kosovar SMEs.

3.1.7. Effective Tax Rate

Using debt as a source of financing holds a clear advantage, namely, reducing income tax. While additional debt does not give rise to significant inherent costs of financial distress, companies will decide to increase their leverage ratio (Fama and French 2002). The Pecking Order Theory emphasizes tax considerations less than the Trade-off Theory. Firms in high-tax jurisdictions may be more inclined to use debt financing to benefit from tax shields, leading to higher debt levels. Following above discussion:

H7: A positive relationship exists between Kosovar SMEs' effective tax rate and debt ratio.

3.1.8. Non-Debt Tax Shield

Interest payments are not the only way to reduce income tax. Firms try to reduce their tax burden by using NDTS instead of debt, thus avoiding distress costs or other adjustment costs (Dammon and Senbet 1988). The following hypothesis can be formulated:

H8: A negative relationship exists between the firm's non-debt tax shield and the debt ratio in Kosovar SMEs.

Variables used in the study, defined and chosen as the most frequently by other authors, are presented in the Table 3. Capital structure is measured as a dependent variable, with total-term debt ratio as total debt to total assets; long-term debt ratio as long-term debt to total assets; and the short-term debt ratio, as short-term debt to total assets. The selected explanatory variables are widely used in the empirical literature, such as size, age, cash flow ratio, liquidity, profitability, asset structure, growth, effective tax rate, and non-debt tax shield, characterizing classic firm-specific factors as independent variables.

Table 3. Definition, description, and expected sign of variables for TOT and POT theory

Variable	Definition	Explanation	TOT	POT
			Expected sign	
Dependent variables				
TOTD	Total-term debt	Total debt to total assets		
LOTD	Long-term debt	Long debt to total assets		
SHTD	Short-term debt	Short debt to total assets		
Independent variables				
CFLW	Cash flow ratio	The ratio of net earnings plus depreciation to total assets	/	–
AGE	Age of the firm	Observed year minus year of incorporation	+	–
SIZE	Size of the firm	Natural logarithm of total assets	+	+
LIQU	Liquidity	Current assets divided by current liability	+	–
PROF	Profitability	Earnings before interest and taxes (EBIT) divided by total assets	+	–
ASST	Asset structure	Fix assets divided by total assets	+	+
GROW	Growth	Sales divided by total assets	–	+
EFTR	Effective tax rate	Tax divided by earning before tax (EBT)	+	–
NDTS	Non-debt tax shield	Depreciation to total assets	–	–
YEAR	Year dummies	Dummy that takes the value 1 in year t and 0 otherwise, where t= 2013,…, 2018		

Source: Authors

Two types of analysis are applied for the study: static and dynamic panel models. Using static panel models, we can better control firm heterogeneity and reduce collinearity among the explanatory variables, enhancing econometric estimates' efficiency (Arellano and Bover 1995).

Following Mateev, Poutziouris, and Ivanov (2013), we will test some of the predictions of pecking order theory by using cash flow as an explanatory variable. Based on the above, we formulated the following equation:

$$DTR_{i,t} = \alpha_i + \beta_1 CFLW_{i,t} + \beta_2 AGE_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 LIQU_{i,t} + \beta_5 ASST_{i,t} + \beta_6 GROW_{i,t} + u_i + \omega_{i,t} \quad (1)$$

Where $DTR_{i,t}$ presents one of the three debt ratios: total-term debt to total assets, long-term debt to total assets, and short-term debt to total assets. CFLW is considered the primary variable of interest. Age, size, liquidity, profitability, asset structure, and growth are other control variables as defined in Table 3. The unobserved individual effect is given with u_i, while $\omega_{i,t}$ is denoted for the error term.

In cases where the selected variable is dependent upon its previous realizations, dynamic panel data models are more helpful. To take into account any dynamic effects, we design our model using the Generalized Method of Moments (GMM) developed by Arellano and Bond (1991) and extended by Blundell and Bond (1998). This dynamic estimate technique is based on instrumentation. An instrumental variable is employed to account for endogeneity in the explanatory variable, providing a consistent estimate of its effect on the dependent variable.

According to the trade-off theory, among other variables, we added the effective tax rate and non-debt tax shield as an instrumental variable to test for the target debt ratio.

A model can represent the gradual process of reaching the target (López-Gracia and Sogorb-Mira 2008):

$$DTR_{it} - DTR_{it-1} = \lambda \cdot (DTR_{it}^* - DTR_{it-1}) \quad (2)$$

where:
DTR_{it}^* – Debt target ratio,
λ – speed of adjustment.

Equation (2) indicates that changes in the debt ratio from period to period are induced by a desire to reach the target (DTR_{it}^*) with an adjustment speed equal to λ (López-Gracia and Sogorb-Mira 2008; Shyam- Sunder and Myers 1999).

The target value of debt is unobservable, so it is necessary to introduce a variable based on the determinants of capital structure:

$$DEBTRatio_{i,t} = \alpha_0 + f(DEBTRatio_{it-1} + SIZE_{it} + LIQU_{it} + PROF_{it} + ASST_{it} + GROW_{it} + EFTR_{it} + NDTS_{it}) + n_i + n_t + \varepsilon_{i,t} \quad (3)$$

DEBTRatio represents, TOTD, LOTD, and SHTD that are total, long, and short-term debt of firm i in year t, n_i is the unobserved firm-specific effects, n_t is time-specific effects, and ε_{it} is the error term. Unobservable company characteristics that significantly impact the firm's leverage are reflected in n_i. The macroeconomic effects are captured inside n_t factors such as inflation and interest rates, which vary over time but remain constant for all firms in a given year. Since the dependent variable is correlated with α_0, the OLS estimate is biased and inconsistent. In this case, Arellano and Bond proposed an approach that utilizes all available tools. The generalized method of moments used the moment conditions provided by the dependent variable's lagged levels (Hansen 1982). GMM produces reliable and unbiased estimates when the error terms are serially uncorrelated (Honore and Hu 2004).

To provide a comprehensive understanding of the impact of explanatory variables on debt levels, we also conducted a long-run analysis using GMM. This analysis helps to assess the sustained effects of the variables over time, complementing the short-run findings. The long-run effects were calculated using the following formula:

$$\beta_{LR} = \beta_{SR}/1-\lambda \quad (4)$$

where:
- β_{LR} - denotes the long-run coefficient,
- β_{SR} - is the short-run coefficient of the explanatory variable,
- λ is the coefficient of the lagged dependent variable, reflecting the persistence of the effect.

4. Empirical Results

4.1. Descriptive Statistics

Table 4 summarizes the descriptive statistics of variables based on the financial data of 90 companies that were observed for six years in this research.

The relationship and strength between the measured and explanatory variables are presented in the correlation matrix in the Appendix table. Statistically positive or negative relationships between variables are indicated at 1 percent significance.

4.2. Pecking Order Model

- Estimation results for the parameters testing the model relevant to pecking order theory are presented in Table 5. Multiple regression of pooled OLS, fixed effects (FE), and random effects (RE) are estimated for total, long, and short-term debt.
- Wald test statistics are highly significant, suggesting that the explanatory variables are collectively significant in explaining the variation in each type of debt. The Breusch-Pagan LM, has suggested that heteroskedasticity is present in the models for all types of debt (Table 6). Robust standard errors are performed to correct heteroskedasticity. Using the robust option in fixed and random effects models helps ensure that the coefficient estimates remain unbiased and consistent even in heteroskedasticity. The Hausman Test has been used to choose between the most appropriate models: fixed or random effects model (Table 6).
- Cash flow ratio was our main variable for testing pecking order assumtions. As shown in Table 5 cash flow has shown a statistically negative and significant relationship with all three levels of debt explaining capital structure. These results follow the pecking order theory, in which firms with more internal funds at their disposal typically resort less to external financing compared to similar companies.
- Variable liquidity is significant and negative in determining total and short-term debt. Consistent with prior studies, our research underscores the impact of debt type on the association between leverage and a firm's asset structure. Specifically, we find a positive correlation between long-term debt and asset structure. However, this relationship reverses when firms opt for short-term debt, exhibiting a negative correlation.
- These results are consistent with (Sogorb-Mira 2005; Mateev, Poutziouris, and Ivanov 2013). Additionally, firm size seems important only in explaining long-term debt, as larger firms show much higher leverage with long-term debt than smaller firms. Our findings align with Qerimi et al. (2023), indicating that larger companies tend to employ a greater proportion of long-term leverage.
- Findings regarding the relationship between variables and capital structure, under the pecking order theory (POT) assumptions, are presented in Table 7.

Table 4. Summary statistics of dependent and explanatory variables

	N	Mean	Median	Std. Dev.	Min	Max	Kurtosis	Skewness
TOTD	540	0.51	0.50	0.27	0.01	1.80	4.29	0.65
LOTD	540	0.12	0.07	0.15	0.00	0.81	5.45	1.51
SHTD	540	0.38	0.35	0.24	0.01	1.80	7.00	1.39
CFLW	540	0.09	0.08	0.10	-0.57	0.57	12.77	-0.11
AGE	540	11.48	12.00	3.29	0.00	18.00	3.28	-0.36
SIZE	540	15.49	15.55	0.60	13.52	16.76	2.85	-0.35
LIQU	540	2.93	1.76	3.87	0.30	36.50	31.11	4.69
PROF	540	0.08	0.07	0.10	-0.56	0.63	12.35	0.05
ASST	540	0.36	0.36	0.21	0.00	0.87	2.06	0.14
GROW	540	1.66	1.39	1.23	0.14	11.15	11.19	2.11
EFTR	540	0.09	0.10	0.09	0.00	1.65	198.78	11.54
NDTS	540	0.03	0.02	0.03	0.00	0.31	25.30	3.17

Authors' calculation.

Note: Descriptions of variables are defined in Table 3. The mean and median provide information for the central tendency of the distribution—the standard deviation measures for dispersion (how data is spread out).

Table 5. Estimation results for testing the pecking order theory of capital structure for total, long, and short-term debt

	Total Term Debt			Long Term Debt			Short Term Debt		
	Pooled OLS	Random Effects	Robust Fixed Effects	Pooled OLS	Robust Random Effects	Fixed Effects	Pooled OLS	Random Effects	Robust Fixed Effects
CFLW	-1.056***	-.808***	-.76***	-.217***	-.215*	-.203***	-.835***	-.614***	-.554***
	(.094)	(.071)	(.106)	(.066)	(.11)	(.063)	(.083)	(.074)	(.09)
AGE	-.016***	-.009***	-.008	-.002	-.004	-.005**	-.014***	-.005**	-.003
	(.003)	(.003)	(.005)	(.002)	(.003)	(.002)	(.002)	(.003)	(.005)
SIZE	.033**	.047**	.041	.035***	.037**	.037*	-.002	.012	.004
	(.017)	(.019)	(.041)	(.012)	(.018)	(.019)	(.015)	(.019)	(.032)
LIQU	-.031***	-.017***	-.015***	-.002	.002	.004**	-.029***	-.021***	-.018**
	(.002)	(.002)	(.005)	(.002)	(.003)	(.002)	(.002)	(.002)	(.008)
ASST	.07	-.056	-.088	.233***	.192***	.178***	-.158***	-.231***	-.265***
	(.044)	(.046)	(.059)	(.031)	(.064)	(.044)	(.039)	(.047)	(.089)
GROW	.045***	.015*	.005	.008	-.004	-.01	.038***	.023***	.015
	(.008)	(.009)	(.019)	(.006)	(.007)	(.008)	(.007)	(.009)	(.019)
_cons	.267	.002	.098	-.46**	-.451*	-.426	.717***	.426	.523
	(.259)	(.291)	(.635)	(.183)	(.273)	(.285)	(.229)	(.293)	(.505)
Observations	540	540	540	540	540	540	540	540	540
R-squared	.472	.308	.312	.168	.142	.098	.461	.238	.242

Source: Results are based on own calculations.

Note: CFLW- Cash flow ratio; AGE -Age of a company; SIZE – Size of a company; LIQU- Liquidity; ASST- Assets structure; GROW- growth . The Hausman specification test is employed to test the fixed and random effects model. Robust standard errors are utilized to address heteroskedasticity. Robust standard errors are in parentheses. ***p<.01, **p<.05, *p<.1

Table 6. Diagnostics and selected models for TOTD, LOTD, and SHTD

Diagnostics	Total Term Debt	Long Term Debt	Short Term Debt
Wald Test	36349.31***	4.2e+06***	1.2e+05***
Breusch-Pagan LM Test	708.12***	608***	540.92***
Hausman Test	55.54***	6.65	30.50***
Best fitted model	Fixed Effects	Random Effects	Fixed Effects

Source: Results are based on own calculations.

Note: *** Shows significance at the 0.01 level. Wald Test: tests the joint significance of the explanatory variables in the model; Breusch-Pagan LM Test: tests for heteroskedasticity in the regression model. Hausman Test: compares fixed effects and random effects models to determine if there is significant correlation between the regressors and the individual effects.

Table 7. Summary of the relationship of expected v/s empirical evidence for the Pecking Order Model.

Tested variables for POT	Expected sign	Test results	Indicated theory
V1-CFLW	Negative	TOTD- Supported, Sign. Negative	POT
		LOTD- Supported, Sign. Negative	POT
		SHTD- Supported, Sign. Negative	POT
V2-Age	Negative	TOTD- Rejected, N/S. Negative	POT
		LOTD- Rejected, N/S. Negative	POT
		SHTD- Rejected, N/S. Negative	POT
V3-Size	Positive	TOTD- Rejected, N/S. Negative	POT
		LOTD-Supported, Sign. Positive	POT
		SHTD- Rejected, N/S. Negative	POT
V4-Liquidity	Negative	TOTD- Supported, Sign. Negative	POT
		LOTD- Rejected, N/S. Positive	TOT
		SHTD- Supported, Sign. Negative	POT
V5-Asset structure	Positive	TOTD- Rejected, N/S. Negative	POT/TOT
		LOTD- Supported, Sign. Positive	POT/TOT
		SHTD- Rejected, Sign. Negative	POT/TOT
V6-Growth	Positive	TOTD- Rejected, N/S. Positive	POT
		LOTD- Rejected, N/S. Negative	TOT
		SHTD- Rejected, N/S. Negative	TOT

Source: Authors'calculation.

4.3. Trade-Off Model

The pecking order theory emphasizes tax considerations less than the trade-off theory. Following the literature, we added two new variables to the model: effective tax rate (ETR) and non debt tax shield (NDTS). For the robustness check, instead of the cash flow ratio, we decided to test for profitability (earnings before interest and taxes (EBIT) divided by total assets).

We estimated dynamic panel data methodology with the GMM method proposed by Arellano and Bond (1991). The dynamic model is initially estimated using a fixed effect approach using pooled OLS and LSDV approaches. For the decision of the best-fitted model, the pooled OLS estimate for ϕ is considered an upper-bound estimate. The corresponding fixed effects estimate is considered a lower-bound estimate. The best model relies on these two parameters.

The results of our estimation with a dynamic panel are very similar to the results obtained from the static panel.

Table 8. Estimation results for testing trade-off theory with dynamic panel data for total, long, and short-term debt

	Total Term Debt				Long Term Debt				Short Term Debt			
	OLS	FE	Onestep System GMM	Long Run Effects	OLS	FE	Twostep System GMM	Long Run Effects	OLS	FE	Onestep Difference GMM	Long Run Effects
L.TOTD	859***	.424***	.586***									
(Lagged 1)	(.019)	(.038)	(.096)									
L.LOTD					.79***	.26***	.578***					
(Lagged 1)					(.027)	(.066)	(.118)					
L.SHTD									.744***	.317***	.66***	
(Lagged 1)									(.024)	(.043)	(.129)	
SIZE	-.001	.040	.008	.020	.005	.008	.018	.044	-.004	.037	.093	.275
	(.008)	(.036)	(.017)	(.042)	(.008)	(.027)	(.013)	(.028)	(.009)	(.034)	(.057)	(.201)
LIQU	-.006***	-.008**	-013***	-.031***	.000	.004	.000	-.000	-.008***	-.014**	-.020**	-.059**
	(.001)	(.004)	(.004)	(.007)	(.001)	(.003)	(.001)	(.003)	(.001)	(.007)	(.009)	(.027)
PROF	-.278***	-.603***	-.649***	-.1.57***	-.070	-.179**	-.153***	-.363**	-.312***	-.469***	-.337***	-.991**
	(.051)	(.088)	(.152)	(.406)	(.045)	(.075)	(.056)	(.141)	(.058)	(.101)	(.115)	(.449)
ASST	-.031	-.114*	-.008	-0.020	.039*	.125**	.067*	.158**	-.07**	-.225**	-.335***	-.985**
	(.024)	(.061)	(.047)	(.113)	(.023)	(.062)	(.035)	(.076)	(.027)	(.093)	(.110)	(.413)
GROW	.009**	.012	.028***	.067***	.001	-.026**	.002	.005	.016***	.039*	.023	.069
	(.004)	(.019)	(.009)	(.022)	(.004)	(.010)	(.005)	(.012)	(.005)	(.020)	(.022)	(.065)
EFTR	-.140***	-.107**	-.105*	-0.253	-.029	-.003	-.038*	-.091*	-.104*	-.089	-.091	-.264
	(.047)	(.046)	(.058)	(.158)	(.044)	(.020)	(.020)	(.054)	(.053)	(.058)	(.098)	(.320)
NDTS	-.667***	-.701	-0.309	-0.745	-.408**	-.313	-.345**	-.817*	-.126	-.319	-.869*	-2.56
	(.197)	(.256)	(.332)	(.861)	(.183)	(.235)	(.165)	(.474)	(.221)	(.293)	(.439)	(1.74)
_cons	.158	-.216	.147		-.047	-.034	-.242		.218	-.201		
	(.131)	(.585)	(.279)		(.124)	(.429)	(.202)		(.148)	(.562)		

(continued)

Table 8. ***Continued***

	Total Term Debt			Long Term Debt			Short Term Debt		
	OLS	FE	One Step System GMM	OLS	FE	Two Step System GMM	OLS	FE	One Step Difference GMM
Diagnostics:									
R-squared	0.90	0.47	-	0.709	0.20	-	0.827	0.34	-
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	450	450	450	450	450	450	450	450	360
Instruments/ Groups			22/90			17/90			21/90
Arellano-Bond test for AR (1)-Prob > z			0.000			0.000			0.000
Arellano-Bond test for AR (2)-Prob > z			0.435			0.377			0.464
Sargan Test-Prob >c^2			0.160			0.058			0.110
Hansen Test-Prob >c^2			0.181			0.167			0.170

Source: Results are based on own calculations.

Note: ***, **, and * denote significance at 1%, 5%, and 10%, respectively. P-values are in brackets. The Arellano-Bond test assesses autocorrelation, with the null hypothesis (Ho) being no autocorrelation. Rejection of this null hypothesis at the first order (p-value < 0.05) does not necessarily mean the model is misspecified. However, rejection at higher orders may suggest that the moment conditions are not met. The Sargan test evaluates the validity of overidentifying restrictions, with the null hypothesis (Ho) stating that these restrictions are valid. A p-value greater than 0.05 supports the validity of the restrictions, while rejection of this null hypothesis indicates a need to review the model or instruments. The robust option was used to account for heteroskedasticity. The small option was used to apply the Windmeijer correction. Year dummies were included to account for time-specific effects. Results were generally insignificant, suggesting no significant common time trends. Graphical representations are provided for clarity.

Table 8. represents the results of dynamic panel estimation for testing a trade-off assumption. In our dynamic panel data analysis, the coefficients of the lagged dependent variable indicate the degree to which past debt levels influence current debt ratios. Specifically, for total term debt, the coefficient is 0.586, suggesting that approximately 58.6% of the total term debt ratio from the previous period persists into the current period, resulting in a speed of adjustment of about 41.4%. For long-term debt, the coefficient is 0.578, meaning that 57.8% of the long-term debt ratio is retained from the previous period, with an adjustment speed of 42.2%. In contrast, the coefficient for short-term debt is 0.66, indicating that 66% of the short-term debt ratio is carried over, which translates to a quicker adjustment speed of 34%. These results reveal that SMEs exhibit a gradual adjustment process towards their target debt ratios for total and long-term debts, likely due to financial or operational constraints. Conversely, the faster adjustment observed for short-term debt, possibly due to the more frequent opportunities to manage short-term obligations.

From the presented results in Table 8 we conclude that the firm's debt ratio is negatively related to profitability. A negative relationship between profitability and capital structure is found in empirical findings (Sogorb-Mira 2005; Daskalakis and Psillaki 2008; Kenourgios, Savvakis, and Papageorgiou 2019). This evidence contradicts the trade-off assumption, where more profitable firms use more debt, and is in line with our previous estimated model presented in Table 5. The applicability of POT to SMEs is also confirmed by (Atiyet 2012; Qerimi, Aliu, and Krasniqi 2021). Liquidity has negatively impacted short and total-term debt. These results contradict TOT assumptions and align with Jaworski and Czerwonka (2023) findings. Growth is significant and positive in determining total term debt. Prenaj, Miftari., and Kransiqi (2023) also find a

positive relationship between growth and total term debt. Asset structure has shown the same significance and relationship with debt as stated in static model. Non-debt tax shields showed a statistically negative relationship with long-term, and short-term debt. On the other hand, the coefficient for the effective tax rate is negative and important in determining total and long-term debt.

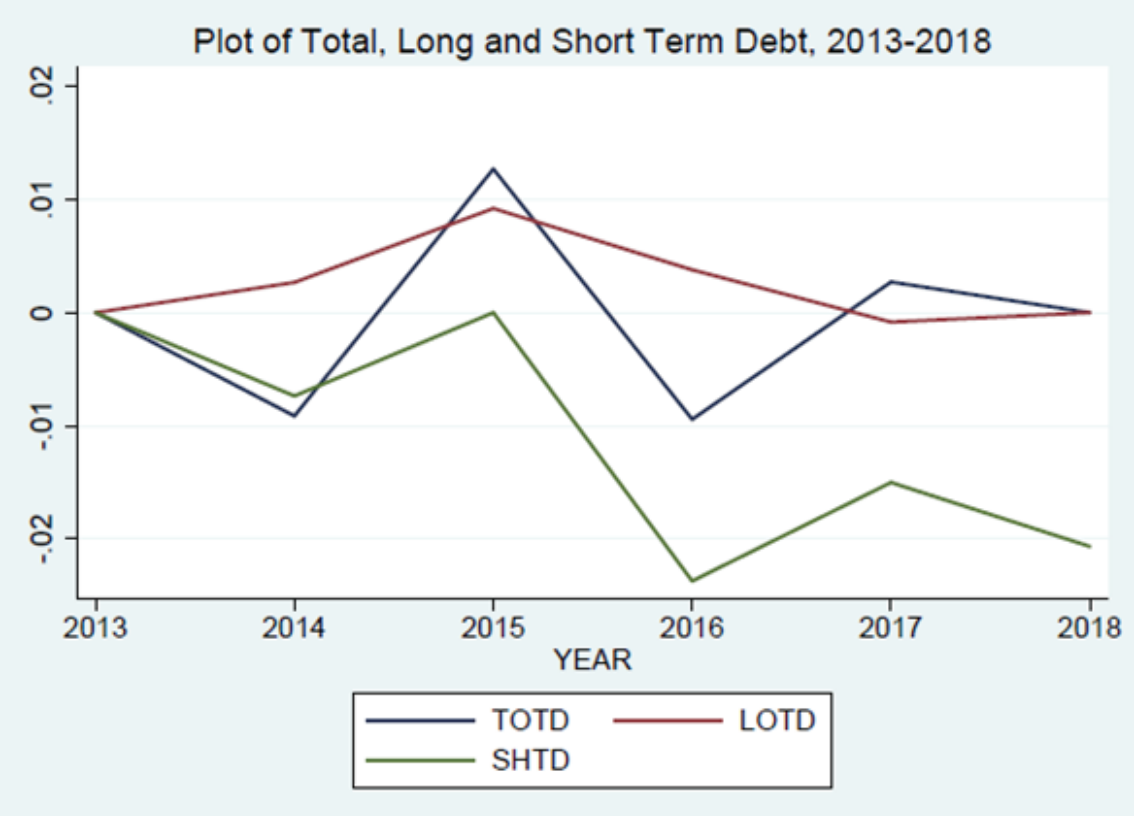
In the long run, SMEs demonstrate a significant responsiveness to financial indicators in their debt management. Specifically, increased liquidity and profitability are consistently associated with lower debt levels, indicating that financially healthier firms prefer less debt. This trend is evident across total term debt, long-term debt, and short-term debt. Additionally, factors like asset structure and effective tax rate also play a role, though their impact varies.

In our analysis, we included year dummies to control for any potential common time effects that could influence the dependent variables across different years. This approach helps account for time-specific factors that might impact the capital structure of SMEs uniformly across the sample period (Baltagi, 2008).

The year dummies were generally insignificant, indicating no substantial common time trends affecting the variables. Figure 1 illustrates the minimal impact of year effects on Total, Long-Term, and Short-Term Debt for 2013-2018.

Findings regarding the relationship between variables and capital structure, under the trade-off theory (TOT) assumptions, are presented in Table 9.

Figure 1. Yearly Effects on Total, Long-Term, and Short-Term Debt (2013-2018)



Source: Results are based on own calculations.

Note:Year dummies were included to control for time-specific effects. Results showed minimal impact on the variables, hence detailed results are omitted.

Table 9. Summary of the relationship of expected v/s empirical evidence for the Trade-off Model

Tested variables for TOT	Expected sign	Test results	Indicated theory
DTR –1	Positive	TOTD- Supported, Sign. Positive	/
		LOTD- Supported, Sign. Positive	/
		SHTD- Supported, Sign. Positive	/
V1-Size	Positive	TOTD- Rejected, N/S, Positive	TOT/POT
		LOTD- Rejected, N/S, Positive	TOT/POT
		SHTD- Rejected, N/S, Positive	TOT/POT
V2-Liquidity	Positive	TOTD- Rejected, Sign. Negative	POT
		LOTD- Rejected, N/S, Positive	TOT
		SHTD- Rejected, Sign. Negative	POT
V3-Profitability	Positive	TOTD- Rejected, Sign. Negative	POT
		LOTD- Rejected, Sign. Negative	POT
		SHTD- Rejected, Sign. Negative	POT
V4-Asset Structure	Positive	TOTD- Rejected, N/S. Negative	POT/TOT
		LOTD- Supported, Sign. Positive	POT/TOT
		SHTD- Rejected, Sign. Negative	POT/TOT
V5-Growth	Negative	TOTD-Rejected, Sign. Positive	POT
		LOTD- Rejected, N/S, Positive	POT
		SHTD- Rejected, N/S, Positive	POT
V6-Effective tax rate	Positive	TOTD- Rejected, Sign. Negative	POT
		LOTD- Rejected, Sign. Negative	POT
		SHTD- Rejected, N/S, Negative	POT
V7-Non-debt tax shield	Negative	TOTD- Supported, Sign. Negative	POT/TOT
		LOTD- Supported, Sign. Negative	POT/TOT
		SHTD- Supported, Sign. Negative	POT/TOT

Source: Authors'calculation.

4.4. Additional Robustness checks

To enhance the robustness of our analysis, we performed several additional checks beyond the primary estimations. Specifically, we conducted a sector-based subsample analysis. This approach allows us to examine whether the observed relationships between the financial variables and capital structure are stable across various sectors of the economy. The results of the subsample analysis, as detailed in Table 10 reveal sector-specific variations in debt determinants. The effects of profitability and liquidity are notably different between manufacturing and trade/services sectors, reflecting sectoral differences in financial dynamics. In manufacturing, factors such as profitability, asset structure and size have significant effects on debt levels, while in trade and services, liquidity, profitability, growth, asset structure and effective tax rate show more impacts.

These differences highlight the need for sector-specific analysis in understanding debt determinants, as sectoral characteristics can substantially influence the relationships between variables.

Table 10. GMM results for total, long and short term debt: sector sample

	Total Term Debt		Long Term Debt		Short Term Debt	
	By sector		By sector		By sector	
	Manufacturing	Trade and Services	Manufacturing	Trade and Services	Manufacturing	Trade and Services
	One Step System GMM	One Step System GMM	One Step System GMM	Two Step System GMM	Two Step System GMM	One Step Difference GMM
L.TOTD	.817***	.544***				
(Lagged 1)	(.179)	(.122)				
L.LOTD			515***	.630***		
(Lagged 1)			(.134)	(.168)		
L.SHTD					319***	.696 ***
(Lagged 1)					(.163)	(.156)
SIZE	.014	(.009)	.042*	.00	-.022	.106
	(.012)	(.028)	(.023)	(.017)	(.023)	(.076)
LIQU	-.007	-.014**	.001	-.001	-.019	-.024**
	(.006)	(.006)	(.002)	(.002)	(.013)	(.011)
PROF	-.364***	.691***	-.249**	-.112*	-.332**	-.418***
	(.128)	(.140)	(.10)	(.066)	(.152)	(.139)
ASST	-.001	.0160	.103*	.055	-.179***	-.375**
	(.410)	(.065)	(.054)	(.048)	(.057)	(.144)
GROW	.005	.029**	.014	-.003	.013	.038
	(.100)	(014)	(.010)	(.007)	(.018)	(.028)
EFTR	.150	-.137***	.327	-.053*	.236	-.099
	(.227)	(.051)	(.228)	(.027)	(.351)	(0.1)
NDTS	-.419	-.174	.468	-.167	.377	-.549
	(.247)	(.745)	(.322)	(.297)	(.436)	(.689)
_cons	-.100	.164	-.616	.049	.735	
	(.180)	(.447)	(.348)	(.269)	(.397)	

(*continued*)

Table 10. ***Continued***

	Total Term Debt		Long Term Debt		Short Term Debt	
	By sector		By sector		By sector	
	Manufacturing	Trade and Services	Manufacturing	Trade and Services	Manufacturing	Trade and Services
	One Step System GMM	One Step System GMM	One Step System GMM	Two Step System GMM	Two Step System GMM	One Step Difference GMM
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
Observations	135	315	135	315	135	252
Instruments/ Groups	17/27	22/63	17/27	17/63	17/27	21/63
Arellano-Bond test for AR (1)-Prob > z	0	0.004	0.013	0.001	0.006	0.001
Arellano-Bond test for AR (2)-Prob > z	147	0.587	0.535	0.138	0.79	0.286
Sargan Test-Prob >c^2	210	0.126	0.172	0.099	0.455	0.227
Hansen Test-Prob >c^2	366	0.291	0.187	0.124	0.494	0.684

Source: Results are based on own calculations.

Note: ***, **, and * denote significance at 1%, 5%, and 10%, respectively. P-values are in brackets. The Arellano-Bond test assesses autocorrelation, with the null hypothesis (Ho) being no autocorrelation. Rejection of this null hypothesis at the first order (p-value < 0.05) does not necessarily mean the model is misspecified. However, rejection at higher orders may suggest that the moment conditions are not met. The Sargan test evaluates the validity of overidentifying restrictions, with the null hypothesis (Ho) stating that these restrictions are valid. A p-value greater than 0.05 supports the validity of the restrictions, while rejection of this null hypothesis indicates a need to review the model or instruments. The robust option was used to account for heteroskedasticity. The small option was used to apply the Windmeijer correction. Year dummies were included to account for time-specific effects.

5. Conclusions

The paper contributed to investigating firm-specific characteristics associated with capital structure and evaluated prominent theories (POT, TOT) explaining the financial policy in SMEs in Kosovo.

Profitability showed consistent negative impact on debt term, indicating that more profitable firms are less dependent on external debt. Finding aligns with the pecking order theory, which suggests that more profitable SMEs tend to rely less on debt financing. Also higher cash flow and liquidity lead to reduced reliance on debt.

Larger firms and those with significant tangible assets tend to utilize more long-term debt. This suggests that size and asset structure play crucial roles in determining the capital structure.

The dynamic panel data analysis highlights the persistence of debt levels, indicating that past debt usage strongly influences current debt levels. This underscores the importance of understanding historical debt patterns in predicting future financing needs. The negative impact of non-debt tax shields and effective tax rates on debt suggests that firms with higher tax shields or more favorable tax conditions prefer less debt.

The analysis reveals sector-specific variations in debt determinants. This suggests that sector-specific characteristics should be considered when analyzing capital structure.

Our results have significant implications for policymakers and firm managers of Kosovar SMEs. They underscore that SMEs in Kosovo predominantly rely on internally generated funds to support their investment activities and growth, facing challenges in obtaining external financing.

The findings aslso suggest a need for targeted financial policies that address the specific challenges faced by SMEs in different sectors. Providing

sector-specific financial support and resources can help improve the capital structure and overall financial health of SMEs in Kosovo.

The study is limited by the availability of data and the specific sample of SMEs in Kosovo. Future research could benefit from larger and more diverse samples to enhance the generalizability of the findings.

Additional research could explore other factors influencing capital structure, such as market conditions, regulatory changes, and macroeconomic variables. Longitudinal studies and comparative analyses with SMEs in other countries could provide deeper insights into the dynamics of capital structure.

Appendix 1. Correlation matrix of dependent and explanatory variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
TOTD	1.000											
LOTD	0.484*	1.000										
SHTD	0.828*	-0.089	1.000									
CFLW	-0.388*	-0.162*	-0.335*	1.000								
AGE	-0.275*	-0.065	-0.271*	0.077	1.000							
SIZE	0.072	0.201*	-0.047	-0.163*	0.217*	1.000						
LIQU	-0.532*	-0.150*	-0.510*	0.077	0.111*	-0.119*	1.000					
PROF	-0.370*	-0.103	-0.354*	0.940*	0.112*	-0.135*	0.106	1.000				
ASST	0.106	0.352*	-0.102	-0.035	-0.067	0.230*	-0.168*	-0.129*	1.000			
GROW	0.137*	-0.113*	0.231*	0.211*	-0.069	-0.407*	-0.098	0.283*	-0.320*	1.000		
EFTR	-0.108	-0.063	-0.083	0.119*	0.026	-0.022	0.035	0.145*	-0.140*	-0.011	1.000	
NDTS	0.109	0.079	0.075	0.278*	-0.155*	-0.098	-0.179*	-0.006	0.375*	-0.067	-0.090	1.000

* Shows significance at the 0.01 level.

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