



## FINANCIAL POLICY AND COMPANIES' SUSTAINABLE GROWTH

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UDC  
336+502.  
131.1

Original  
scientific  
paper

Received:  
30.05.2022  
Accepted:  
20.09.2022

**Abstract:** This paper investigates the intercompany-specific characteristics as a determinant of the sustainable growth rate. We researched a sample of companies listed on the Macedonian stock exchanges. We found that the average actual growth rate for the 2010-2019 period is only 0.38%, while the sustainable growth rate was 1.42%. This is because of the poor operating performance of the companies, moderate leverage, and average retention ratio of 82.5% for the whole sample. The actual growth rate in specific years is drastically higher than the sustainable growth rate, while in certain years it is negative. The sustainable growth rate is positively affected by the profit margin, retention ratio, asset turnover, financial leverage, and ROE, and it is negatively affected by the operating cash flow, company size, growth opportunities, and non-debt tax shield.

**Keywords:** financial policy, sustainable growth rate, retention ratio, dividend payout, North Macedonia

**JEL classification:** G3; G32

### 1. Introduction

Company growth can be viewed from several aspects, such as through the growth of assets, and the growth of employees, but in this paper, we observe the growth through the prism of the company's sales growth. Company growth requires investment in fixed and current assets that will enable an increased production and consequent growth in sales. A prerequisite for a feasible investment is to provide the sources of funding for the capital investments. Retained earnings are the main own internal sources for financing the company's growth, but only to a limited extent. A company can borrow accordingly, and unless the company is not prepared to issue new shares or borrow excessive amounts, this limit sets a ceiling for growth, which can be

achieved without straining its resources. The growth rate that corresponds to the growth of equity from retained earnings is a sustainable growth rate for the company.

The high growth of the company that the managers strive for is not a blessing for the company. Intense growth can bring problems for the company, precisely because of the way it finances growth. In conditions of limited own funds, the rapid growth requires either over-indebtedness or a new shares issue. However, the availability of external sources (new debt and especially new shares issue) is not always feasible, especially for companies operating in case of underdeveloped financial markets. It would also lead to a change in the company's capital structure, the mix between own and debt sources of financing. There are three main theories in corporate finance for the capital structure that explain the financing of investments that are imperative for company's growth (trade-off theory, pecking order, and agency theory). The concept of sustainable growth has most in common with the theory of the hierarchy of financing.

According to the *trade-off theory*, the company tends toward the optimal capital structure, that is, the debt-to-equity ratio, whereby the value of the company is maximized. Companies should reach the level of debt that maximizes the advantages of debt tax-shields and minimizes the possibility of bankruptcy (Bradley, Jarrell & Kim, 1984; Graham & Harvey, 2001; Harris & Raviv, 1991). The trade-off theory has been supported by some research (Almeida & Philippon, 2007; Flannery & Rangan, 2006; Harris & Raviv, 1991; Hovakimian, Opler & Titman, 2001; Leary & Roberts, 2005), while some research finds arguments that do not support it (Lemmon, Roberts & Zender, 2008; Hovakimian, Kayhan & Titman, 2012).

According to Myers (1984) and Myers and Majluf's (1984) *pecking order* hypothesis, there is a hierarchy in financing, where companies prefer to use "internal finance" (initial equity, retained earnings) to finance their investments. If internal finance is an insufficient source of funds and thus external finance is required, firms first issue debt, the safest security, then hybrid securities, such as convertibles, and finally, as a last resort, equity. The underlying idea is that neither internal finance nor default-free debt suffers from the informational asymmetries and the cross-subsidization traditionally associated with external finance. The empirical investigation shows mixed results for the validity of the pecking order theory. Shyam-Sunder and Myers (1999) argue that the basic pecking order model, which predicts external debt financing driven by the internal financial deficit, has much greater explanatory power than a static trade-off model, which predicts that each company adjusts gradually toward an optimal debt ratio. Frank and Goyal (2003) found a contrary argument that net equity issues track the financing deficit more closely than net debt issues do, except for the large companies that follow the pecking order. Small, high-growth companies do not behave at all according to the pecking-order hypothesis, even though these companies are fraught with asymmetric information and therefore would be good candidates for a financing pattern fitting Myers and Majluf's pecking order.

The pecking-order hypothesis has received a substantial empirical support. Tirole (2006) states two stylized facts corroborating the pecking-order hypothesis: *i*) the primary source of financing for mature companies is retentions, and outside finance is mainly debt finance since seasonal equity issues are relatively rare; *ii*) there is an absence of a company share price reaction when debt issuance is announced, in sharp contrast with the decline for a seasonal equity issue. Also, the latest statistics show that this theory has great empirical validity for the USA-developed market. Internal sources (depreciation and retained profits) were the most important sources of corporate capital to U.S. nonfinancial corporations in the 2011–2020 period, accounting for 74.7%. On the other extreme, new equity has not been a source of capital at all, but a use, meaning that American corporations, on average, retired more stock than they issued over this period (new equity issues are negative -15%), and increased liabilities amounts by 40.3 % (Higgins et al., 2022, p. 120). Not only in the case of the developed US market, but the pecking order theory is also implicitly valid for emerging markets, both for large and mature companies and for small and high-growth companies. The emerging countries have undeveloped capital markets, where the new shares issues are rare or do not occur at all. They are bank-centered, whereby banking sector assets participation in the total assets of the financial sector ranges between 75% and 92,4% (Arsov & Naumoski, 2016), while shallow capital markets, the IPOs, and seasonal shares issues are very rare, as well as the use of corporate bonds for financing. Consequently, the predominant source of external financing for corporate investments seems to be bank loans, in correlation with retained earnings as a main internal source of financing. Therefore, the growth of companies in emerging markets depends primarily on internally generated retained earnings funds, which enable additional borrowing.

If a company is willing and able to secure new equity by the sale of shares, its problems with sustainable growth disappear (Higgins et al., 2022). Increased share capital, plus what enables possible lending, becomes a source of money to finance further growth. Companies operating in developing countries and emerging markets do not have such an opportunity. The issuance of shares in underdeveloped financial markets is absent, but empirical data show that even in developed financial markets, it is not an attractive option and is rarely used. Thus, retained earnings and associated borrowing are the most important sources of corporate capital to finance the growth of companies. In the case of emerging post-communist markets, this seems to be the most important source, if not the only one, although this is largely true for developed markets, as well. Increased equity from retained earnings allows the firm to borrow more money without changing its capital structure. Together, the growth of debt and the growth of equity determine the growth rate of assets. This, in turn, limits the growth rate of sales. So, after all, what limits the sales growth rate is the equity growth rate. Therefore, the sustainable growth rate of the company is nothing more than the growth rate of the share capital. More specifically, the growth rate of retained earnings. This is the maximum rate at which company sales can grow without depleting financial resources (Higgins et al., 2022). On the other hand, this

is the maximum rate of a firm's growth without increasing the financial leverage (Brealey et al., 2019). The concept of sustainable growth of the company implies that the following assumptions are satisfied: 1) the firm's assets will grow in proportion to its sales; 2) net income is a constant proportion of its sales; 3) the firm has a given dividend payout policy and a given debt-to-equity ratio; 4) the firm will not change the number of outstanding shares of stock (Ross et al. 2015). Although they may not be suitable for all firms, these assumptions are appropriately applicable to most companies in developed countries and are fully applicable in the case of underdeveloped financial markets where new stock issues are rare or completely absent.

The subject of research in this paper is the internal company determinants of sustainable growth rate. More specifically, we will examine the impact of operating performance, financial policies, and capital structure, according to the Higgins (1977, 1981) concept of a sustainable growth rate. By applying accounting data from the financial statements of listed companies on the Macedonian Stock Exchange, through a panel regression analysis we will explore the impact of the four key variables: profit margin, retention ratio, asset turnover, and financial leverage, on sustainable growth rate. In addition, we will include several control variables.

This paper is organized as follows. After the Introductory part, the second section provides a literature overview of the research and findings from other similar works. In section three, we give an overview of the research data. Here, we will present the variables for further research, as well as their summary statistics and the correlation. Section four shows the regression analysis. Section five concludes and makes recommendations.

## **2. Literature review**

The growth and development of a company require investment in new fixed and current assets, that will increase the production potential and the capacity to generate income. The implementation of new investment opportunities that will provide growth, depends on internally generated sources of retained earnings in the first line. Hence the financial policies in the field of dividend payout have a crucial impact on the growth of the company. The relationship between dividend payout and firm growth has been analyzed at length by Gordon (1962), Lintner (1964), Lerner and Carleton (1966), Miller and Modigliani (1961, 1966), and others. Firms with high earnings distributions tend to have low to-moderate growth, and firms with low earnings distributions run the range between high and low performers (Dempsey et al., 2019). Still, high-growth firms pay dividends to signal, rather than reduce, the problem of free cash flow (Chen et al., 2022).

The research on sustainable growth rate was initiated by Higgins (1977, 1981) who states that growth is not necessarily something to be maximized. Growth is

fruitful up to a certain level, but after that level, it will not be beneficial for business (Higgins, 1977). A sustainable growth rate is consistent with the firm's financial policies and operating performance, and it is the maximum rate at which company sales can increase without depleting financial resources. Assuming that the firm maintains target financing, or capital structure, and a target dividend policy and that management will not make new stock issues to finance growth, then a company's sustainable growth rate is nothing more than its growth rate in equity from retained earnings. In this context, the firm may issue new debt in correlation with the size of retained earnings. These assumptions are almost entirely realistic for emerging market companies, but also most companies in developed countries. Thus, the sustainable growth rate of the firm is the only growth rate in sales that is consistent with stable values of the four ratios (Higgins, 2022), and takes the form:

$$g = \frac{\Delta S}{S} = P \times R \times A \times T \quad (1)$$

where,  $g$  is the sustainable growth rate in sales,  $S$  is the Sales,  $\Delta S$  is the absolute growth in sales,  $P$  is the profit margin,  $R$  is the firm's retention rate = 1 – dividend payout,  $A$  is the asset turnover ratio, and  $T$  is the assets-to-equity ratio (considering the beginning-of-period equity).  $P$  and  $A$  summarize the operating performance of the business, while  $R$  and  $T$  describe the firm's financial policies.  $R$  reflects dividend policy, and the assets-to-equity ratio,  $T$  reflects its policies regarding financial leverage or the capital structure/financing policy.

Van Horne (1987) developed a model to measure a firm's sustainable growth very similar to Higgins (1977, 1981). It can be expressed as:

$$VSGR = ((b \text{ (NPBT/TO)} \times (1 + D/E)) / ((A/S) - (b \text{ (NPBT/TO)} \times (1 + D/E)))) \quad (2)$$

where;  $D/E$  = Debt to Equity;  $A/S$  = Total Assets to Sales;  $b$  = Retention rate; NPBT = Net profit before tax; TO = Turnover (Sales).

Fonseka et al. (2012) study confirms that Higgins and Van Horne's models are qualitatively and approximately the same, in relation to the most common financial characteristics of a firm and are equally preferable from both managers' and researchers' point of view.

Chen et al. (2013) extend Higgins' (1977, 1981, 2022) sustainable growth rate model, and develop a dynamic model, which jointly optimizes the growth rate and payout ratio. Chen et al. (2013) incorporate Higgins (1977) and Lee et al. (2011) frameworks, allowing the company to use both external debt and equity, and derive a generalized sustainable growth rate as:

$$g = \frac{b \times ROE}{1 - b \times ROE} + \frac{\gamma \times \Delta n \times P/E}{1 - b \times ROE} \quad (3)$$

where  $g$  is sustainable growth rate,  $b$  is retention ratio,  $\gamma$  is the degree of market imperfection,  $\Delta n$  is the number of shares of new equity issued,  $P$  is the price per share of new equity issued and  $E$  represents the total equity,  $ROE$  is the return on equity (net profit over total equity).

Higgins (1977, 1981) offered a basis for developing other variants applied for specific circumstances: the sustainable growth rate of firms in financial distress (Platt, 1995), the cashflow sustainable growth model (Hamman, 1996), the sustainable growth rate of non-profit organizations (Jegers, 2003), SGR in agriculture and livestock (Escalante et al. (2009).

The Higgins (1977, 1981) basis was applied in many studies. Jarvis et al. (1992) used to assess macro equivalent of product portfolio analysis; Vasiliou and Karkazis (2002) applied it on data from the National Bank of Greece, and found that its actual growth exceeded the SGR, and consequently discuss four possible financial strategies to deal with it; Hyytinen and Pajarinen (2005) used the SDR to study the relation between firm-level disclosure quality and the availability of external finance to firms in Finland and found that excess growth is associated with the quality of disclosure; Phillips et al. (2010) applied the SDG model to investigate the cross-sectional variations of financial ratios among privately held retail companies measured as different growth cycle stages; Jin and Wu (2008) analyzed the contribution of intellectual capital to the firm's sustainable growth ability in the case of the listed companies in China; Pickett (2008) applied SGR model to identify the subtle relationship between marketing and operation efficiencies; Listiani and Supramono (2020) investigated the effect of fixed asset growth on sustainable growth rate and the role of sustainable growth rate in mediating the impact of fixed asset growth rate on firm value; Mubeen et al. (2021) examined the SDR model in the case of the non-financial firms from seven emerging markets; Mukherjee and Sen (2019) studied the impact of corporate governance on corporate sustainable growth; Farouq et al. (2022) made a SDG on ROA analysis applied in the case of the Saudi Banks; Shao (2018) analyzed the sustainable growth characteristics of China's listed companies in textile and garment industry in the 2008-2011 period, using Wilcoxon signed-rank test in the post-crisis era; Ataunal et al. (2016) investigated the relationship between growth rate and shareholder value creation, using a sample of 243 non-financial Standard and Poor's 500 (S&P500) companies and found that sales growth below sustainable growth rate (SGR) enhances shareholder value at a significantly higher rate compared to growth above sustainable growth rate; Akhtar et al. (2021) investigated the impact of financial leverage on the firm's performance, i.e., sustainable growth (SGR), Tobin's Q, return on assets (ROA), return on equity (ROE), and return on sales (ROS) and found inverted U-shaped relationship between financial leverage and performance; Wahyuni and Dino (2016) studied the determinant factors of the sustainable growth rate in the case of manufacturing companies listed on the Indonesia Stock Exchange; Wijaya and Atahau (2021) in their study aimed to determine the effect of profitability on sustainable growth in

Malaysian and Indonesian manufacturing firms; Rahim (2017) also investigated the association between firm performance and sustainable growth rate in the case of Malaysian companies; Hinaya and Ellili (2021) made a study of the impact of the working capital management on the sustainable growth of the company.

### 3. Data description

The data for the empirical research are taken from the financial statements of publicly traded companies on the Macedonian stock exchange in the 2010-2019 period, obtained from the Thomson Reuters Eikon and Datastream database. We consider the data of listed companies more reliable because of the special requirements they must meet imposed by the stock exchange, especially for the publication of audited financial statements. The sample excludes companies that are required to meet statutory capital requirements or other legal restrictions such as banks and insurance, as well as utilities. All companies with negative capital, negative operating cycle, and other distorted parameters are excluded from the sample. Finally, we excluded the upper and lower 5% as outlier values that fall outside of a normal range of the specific variable. These criteria have provided us with a total of 540 firm-year observations.

#### 3.1 Measure of sustainable growth rate

We define the sustainable growth rate as Higgins (1981).

$$\text{Sustainable Growth Rate} = \frac{P \times (1 - D) \times (1 + L)}{T - (P \times (1 - D)) \times (1 + L)} \quad (4)$$

where:  $L$  = debt-to-equity ratio,  $T$  = total assets to sales ratio,  $P$  = net profit margin on sales ratio,  $D$  = dividend payout ratio.

In comparison, the actual growth is the rate at which sales grow on an annual basis. It is expressed as  $(S_t - S_{t-1}) / S_t$ , where  $S_t$  is the Sales in year  $t$ , and  $S_{t-1}$  is the previous year's Sales.

#### 3.2 Exogenous variables

To choose the most appropriate explanatory variables, we start with the fact that the sustainable growth rate of the company is nothing more than the growth rate of the equity capital from retained earnings. Therefore, the explanatory variables of the sustainable growth rate are all determinants of the internal economy of the company that have an impact on ROE and the retention ratio. Anything that increases ROE will also increase the sustainable growth rate by making the top bigger and the

bottom smaller. Increasing the plowback ratio will have the same effect. ROE can be written as the product of three factors:

$$\text{ROE} = \text{Profit margin} \times \text{Total asset turnover} \times \text{Equity multiplier} \quad (5)$$

We expect a positive relationship between the sustainable growth rate and the four key independent determinants:

*Profit margin:* An increase in profit margin will increase the firm's ability to generate funds internally and, thereby, increase its sustainable growth.

*Dividend policy:* A decrease in the percentage of net profit paid out as dividends will increase the retention ratio. This increases internally generated equity and thus increases sustainable growth.

*Financial policy:* An increase in the debt-equity ratio increases the firm's financial leverage. Because this makes additional debt financing available, it increases the sustainable growth rate.

*Total asset turnover:* An increase in the firm's total asset turnover increases the sales generated for each dollar in assets. This decreases the firm's need for new assets as sales grow and thereby increases the sustainable growth rate. Increasing total asset turnover is the same thing as decreasing capital intensity.

We employ several control variables, which have an impact on the main independent explanatory variables, to help the study establish the true relationships between the independent and dependent variables.

The definitions and measurements of the independent and control variables are as follows:

	<i>Measurement</i>
<b>Independent variables</b>	
Profit margin	$= (\text{Net profit})_t / \text{Sales}_t$
Retention ratio	$= 1 - (\text{Dividend Payout Ratio})_t$
Asset turnover	$= \text{Sales}_t / (\text{Total Assets})_t$
Financial leverage	$= (\text{Total Assets})_t / (\text{Total Equity})_{t-1}$
<b>Control variables</b>	
ROE	$= (\text{Net profit})_t / (\text{Total Equity})_t$
Operating Cash Flow Ratio	$= (\text{Net profit before tax} + \text{Depreciation and amortization})_t / (\text{Total Current Liabilities})_t$
Size	$= \ln (\text{Total Assets})_t$
Growth opportunities	$= \ln (\text{Total Assets})_t / \ln (\text{Total Assets})_{t-1}$
Non-debt tax shield	$= (\text{Depreciation and Amortization})_t / (\text{Total Assets})_t$



Tangibility	= (Tangible fix assets) <sub>t</sub> / (Total Assets) <sub>t</sub>
Interest tax shield	= (Net profit before tax – Net profit after tax) <sub>t</sub> / (Net profit before tax) <sub>t</sub>
Cash conversion cycle	= Account receivables period + Inventory period – Account payables period

### 3.3 Summary statistics and correlation analysis

A sustainable growth rate is the only growth rate that is consistent with stable values of the four variables: profit margin, payout ratio, asset turnover ratio, and assets-to-equity ratio if the firm does not issue new equity. In the analyzed ten-year period, no company in North Macedonia issued shares, and their growth was based exclusively on internally generated funds from retained earnings and associated borrowing. Macedonian companies in ten years between 2010 and 2019, achieved anemic real growth of only 0.38% in sales, which is almost four times lower than the average ten-year sustainable growth rate of 1.42%. Unfortunately, not only the real growth but also the sustainable growth rate is very low, which indicates the weak growth potential of Macedonian companies. Slow-growing companies - those whose sustainable growth rate exceeds real growth - have growth management problems. This means that managers fail to manage the company's resources and ensure growth that is at the level of the company's potential, effectively and efficiently. Although we do not prejudge that it should be strictly, the desired real growth of the company should be equal to or close to sustainable growth, that is, balanced growth.

The low real growth rate is mostly the outcome of the poor operational performance of the companies that achieve them continuously in the analyzed period, and to some extent, of the inadequate financial policies. The companies, on average, have poor operating performance with an average net profit margin of only 2.86% and low efficiency of total assets with an average turnover of only 0.63 times. Together they give an annual return on total assets of only 1.8% for ten years. Also, to some extent, companies' financial policies are not adequately designed to produce greater growth. The equity multiplier, also known as the financial leverage ratio, averages 1.92 times for the entire sample. This means that slightly more than half the total assets are financed by liabilities, which indicates moderate indebtedness. Macedonian companies do make small dividend payments and, on average, retained as much as 82.5% of profits.

**Table 1. Descriptive statistics**

	Mean	25 <sup>th</sup> percentile	Median	75 <sup>th</sup> percentile	Standard Deviation
Sustainable growth rate	0.0142	0.0000	0.0087	0.0382	0.0615
Actual growth rate	0.0038	-0.1130	-0.0036	0.1253	0.2396
Profit margin	0.0286	0.0001	0.0193	0.0764	0.2054
Retention ratio	0.8252	0.7631	1.0000	1.0000	0.2991
Asset turnover	0.6294	0.2816	0.5117	0.8739	0.5064
Financial leverage	1.9215	1.2462	1.5748	2.1761	1.0695
ROE	0.0290	0.0001	0.0185	0.0756	0.0919
Cash Flow	0.4897	0.0558	0.1729	0.5432	0.9921
Firm size	20.90	19.69	21.04	21.86	1.46
Growth opportunities	1.0009	0.9983	1.0001	1.0025	0.0067
Non-debt tax shield	0.0338	0.0194	0.0287	0.0399	0.0255
Tangibility	0.5941	0.4631	0.6019	0.7491	0.1882
Interest tax shield	0.1265	0.0000	0.0812	0.1558	0.2722
Cash conversion cycle	184.4	3.4	77.8	212.1	662.5

*Source:* Author's own presentation

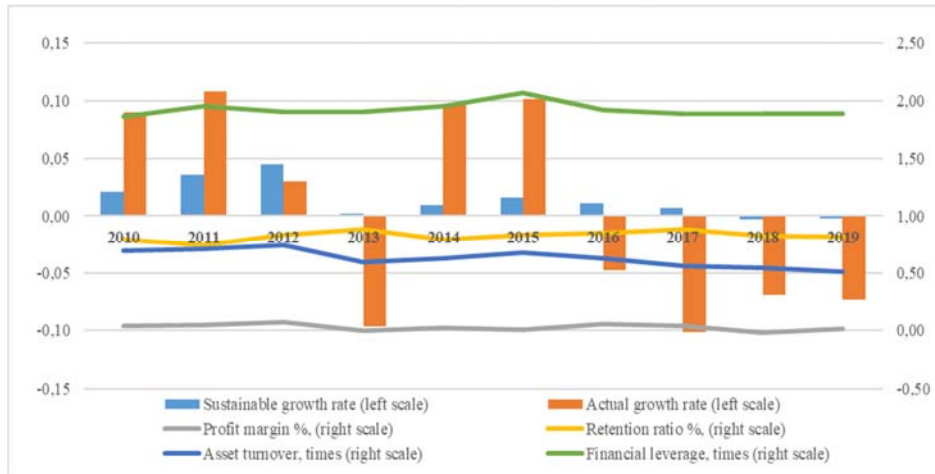
The analysis of the ten-year trend of achieved and sustainable growth rate shows that the average ten-year rates of achieved and sustainable growth do not offer a real expression. Figure 1 depicts the trend of the two growth rates, as well as the four main determinants of the sustainable growth rate. The actual growth rate in specific four years is drastically higher than the sustainable growth rate, while in certain years it is negative. We do not suggest that the actual growth rate of a company should always be equal to the sustainable growth rate, or even close to it. Instead, management must anticipate any disparities between the actual rate and the sustainable growth rate and have a plan to manage that disparity. The challenge is, firstly, to recognize the disparity and, secondly, to create a feasible strategy for its management.

The actual growth rate higher than the sustainable rate in some years is the outcome of improved operating performance because of profit margin growth, reduced retained earnings, and increased leverage. The negative actual growth rate is especially noticeable in the last four analyzed years. This is because of the deteriorating operating performance where there is i) a drastic reduction in the net profit margin that in some years is even negative, and ii) a significant reduction in the efficiency of total assets. There is an especially noticeable increase in the average collection period of receivables from 100 to more than 200 days. In the same period, there is an increase in retained earnings and a decrease in leverage.

The correlation analysis is shown in Table 3. The sustainable growth rate shows a correlation approximately equal to 0 with most of the variables. There is a higher

positive correlation with profitability indicators (net profit margin and ROE) and operating cash flow that is closely related to profitability, although there is a negative correlation with retained earnings.

**Figure 1. Sustainable growth analysis of Macedonian companies, 2010 – 2019**



Source: author's own presentation

**Table 2. Summary statistics by year (annual averages of the variables)**

	Sustainable growth rate	Actual growth rate	Profit margin	Retention ratio	Asset turnover	Financial leverage	ROE	Cash Flow	Firm size	Growth opportunities	Non-debt tax shield	Tangibility	Interest tax shield	Cash conversion cycle
2010	0.0214	0.0898	0.0368	0.7938	0.6967	1.8624	0.0348	0.4388	20.8	1.0021	0.0368	0.5863	0.0766	-101.7
2011	0.0355	0.1082	0.0479	0.7449	0.7101	1.9528	0.0554	0.5154	20.9	1.0036	0.0359	0.5693	0.2086	218.4
2012	0.0452	0.0302	0.0756	0.8314	0.7397	1.8994	0.0628	0.6266	20.9	1.0000	0.0352	0.5857	0.1585	153.6
2013	0.0020	-0.0962	-0.0051	0.8838	0.5973	1.8988	0.0153	0.3017	20.9	1.0001	0.0326	0.6074	0.0934	173.4
2014	0.0091	0.0960	0.0261	0.7942	0.6293	1.9551	0.0338	0.4426	20.9	1.0015	0.0316	0.5907	0.0926	225.5
2015	0.0160	0.1013	0.0100	0.8330	0.6798	2.0696	0.0231	0.5603	20.9	1.0024	0.0341	0.6003	0.1643	174.1
2016	0.0112	-0.0476	0.0580	0.8463	0.6276	1.9153	0.0271	0.5508	21.0	1.0004	0.0331	0.5846	0.1094	209.6
2017	0.0070	-0.1015	0.0416	0.8830	0.5572	1.8863	0.0168	0.6147	20.9	0.9992	0.0322	0.5873	0.0849	248.3
2018	-0.0033	-0.0693	-0.0226	0.8225	0.5446	1.8886	0.0144	0.3655	20.9	1.0000	0.0329	0.6112	0.1167	273.6
2019	-0.0021	-0.0731	0.0172	0.8192	0.5114	1.8870	0.0067	0.4804	20.9	0.9999	0.0333	0.6178	0.1598	269.3

*Source: Author's own calculations*

**Table 3. Correlation analysis**

	Sustainable growth rate	Actual growth rate	Profit margin	Retention ratio	Asset turnover	Financial leverage	ROE	Cash Flow	Firm size	Growth opportunities	Non-debt tax shield	Tangibility	Interest tax shield	Cash conversion cycle
Sustainable growth rate	1													
Actual growth rate	0.280	1												
Profit margin	0.592	0.161	1											
Retention ratio	-0.073	-0.076	-0.285	1										
Asset turnover	0.152	0.210	0.028	-0.062	1									
Financial leverage	0.057	0.096	-0.050	0.214	0.272	1								
ROE	0.819	0.266	0.671	-0.383	0.133	-0.002	1							
Cash Flow	0.378	0.095	0.641	-0.339	-0.142	-0.273	0.487	1						
Firm size	0.097	0.039	0.232	-0.167	0.228	0.071	0.185	0.134	1					
Growth opportunities	0.044	0.363	-0.054	0.017	0.022	0.192	0.117	-0.047	0.054	1				
Non-debt tax shield	0.013	0.014	0.123	-0.238	0.132	-0.080	0.198	0.207	0.149	-0.162	1			
Tangibility	-0.238	-0.112	-0.322	0.192	-0.298	-0.164	-0.285	-0.071	-0.113	-0.028	-0.061	1		
Interest tax shield	0.055	0.055	0.059	0.086	0.062	0.307	0.043	-0.043	0.067	0.080	-0.081	-0.148	1	
Cash conversion cycle	0.023	0.014	0.114	0.051	-0.178	-0.116	-0.016	-0.016	-0.079	-0.003	-0.166	-0.070	-0.102	1

*Source: Author's own calculations*

#### 4. Regression analysis

We employed a panel regression model to investigate the determinants of sustainable growth of the companies. We regressed the *Sustainable Growth Rate* against the exogenous variables that are firm-specific determinants as described above. Specifically, we estimate the following equation:

$$SGR_t = \alpha + \beta_1 P_t + \beta_2 R_t + \beta_3 A_t + \beta_4 T_t + \beta_5 ROE_t + \beta_6 CF_t + \beta_7 SIZE_t + \beta_8 OPORT_t + \beta_9 NDTS_t + \beta_{10} TANG_t + \beta_{11} ITS_t + \beta_{12} CCC_t \quad (6)$$

where: *SGR* is Sustainable growth Rate; *P* is Profit margin; *R* is Retention ratio; *A* is Asset turnover; *T* = Financial leverage; *ROE<sub>t</sub>*; *CF* is Operating Cash Flow Ration; *SIZE* is Firm size; *OPORT* is Growth opportunities; *NDTS* is Non-debt tax shield; *TANG* is Tangibility; *ITS* is Interest tax shield; *CCC* is Cash conversion cycle.

Using the Hausman test, we examined which regression model was the most appropriate, the fixed or random effect OLS model. The results showed that the fixed effects model is best for the given data sample. According to Deloof (2003), fixed effects estimation assumes firm-specific intercepts, which capture the effects of those variables that are particular for each firm and that are constant over time. A disadvantage of fixed effects estimation is that it eliminates anything that is time-invariant from the model.

The results of the regression analysis are shown in Table 4. Most of the variables are statistically significant, most at the level of 1%, especially the four main determinants. The adjusted coefficient of determination is at a highly satisfactory level, indicating that the variables included in the regression largely explain the sustainable growth rate.

The sustainable growth rate has a positive relationship with the *net profit margin*. For each increase in the net profit margin by 1%, the sustainable growth rate increases by 7.06%. The net profit margin allows the generation of own funds for investment. It increases if prices increase at the same cost, or if efficiency increases and costs are reduced. This ultimately means creating a higher net profit, which is the basis for generating equity. The positive relationship between ROE and the sustainable growth rate is in that context, whereby, with each increase in ROE by 1%, the sustainable growth rate increases by as much as 47.5%.

The sustainable growth rate is positively affected by the *retention ratio*. The more the company retains from the current profit, the more it will accumulate its own internal funds for investment in fixed and working capital, which will subsequently enable sales growth.

*Asset turnover* has a positive and significant relationship with the sustainable growth rate. The higher the asset turnover ratio, the more efficient a company is at generating revenue from its assets. Conversely, if a company has a low asset turnover ratio, it indicates it is not efficiently using its assets to generate sales. Higher asset utilization means higher profitability and growth of the equity, and more own funds from retained earnings, by which the company will finance the new capital investments and the growth of the company.

**Table 4. Regression analysis**

<i>Dependent variable:</i> <i>Sustainable growth rate</i>		
<b>Exogenous variables</b>	<b>Coefficient</b>	<b>Standard Error</b>
Intercept	1.8311***	0.3896
Profit margin	0.0706***	0.0193
Retention ratio	0.0303***	0.0094
Asset turnover	0.0641***	0.0115
Financial leverage	0.0110*	0.0062
ROE	0.4749***	0.0348
Cash Flow	-0.0062*	0.0043
Firm size	-0.0183*	0.0114
Growth opportunities	-1.5301***	0.3428
Non-debt tax shield	-0.5342***	0.1413
Tangibility	0.0243	0.0261
Interest tax shield	0.0044	0.0084
Cash conversion cycle	0.000003	0.000009
R <sup>2</sup>	0.8302	
Adjusted R <sup>2</sup>	0.7997	

\*\*\* means significant at 1%, \*\* means significant at 5%, \* means significant at 10%

*Source:* Author's own calculations

Financial leverage has a positive impact on the sustainable growth rate. Here, as a proxy for financial leverage, is taken the *equity multiplier*, which is a financial ratio, which measures how much of a company's assets are financed through stockholders' equity and how much the company had borrowed to finance the purchase of assets. A low equity multiplier indicates a company is using more equity and less debt to finance the purchase of assets. A high equity multiplier indicates that a company is using a large amount of debt to finance assets. Assuming an unchanged capital structure, as the ratio between debt and equity, the company's sustainable growth depends not only on internal sources of retained earnings that increase equity but also on the accompanying

additional borrowing. Therefore, we expect a positive relationship between leverage and sustainable growth rate.

The *operating cash flow ratio* is a liquidity ratio that measures how well a company can pay off its current liabilities with the cash flow generated from its core business operations. This financial metric shows how much a company earns from its operating activities, per dollar of current liabilities. It has a negative and statistically significant relationship with the sustainable growth rate. This can be explained by the low liquidity of Macedonian companies, since OCF ratio average value is 0.48. An operating cash flow ratio of less than one indicates the firm has not generated enough cash to cover its current liabilities and could also mean that the firm needs more capital. This indicates that the analyzed companies have poor working capital management, which hurts profitability, and consequently the ability to generate equity from internal sources. More specifically, Macedonian companies have an average of 145 days of account receivables period, 286 days of inventory period, and 247 days of account payables period. The long account payables period means that less profitable firms wait longer to pay their bills. The weak WCM contributed to the companies having a very long operating cycle, which averages 431 days. The longer the operating cycle is, the lower the total assets turnover ratio of the company is, which means lower profitability and consequently less opportunity to generate retained earnings that will provide equity capital for investment. *The cash conversion cycle* as a synthetic measure for WCM has a negligible value of the coefficient and has a statistically insignificant relation with the sustainable growth rate.

The sustainable growth rate is an indicator of what stage a company is in during its life cycle. Large companies are usually mature companies. Hence, if the negative relationship between *company size* and the sustainable growth rate is detected, it indicates that mature companies dominate the analyzed sample. This is true given that the sample for analysis is composed only of the companies listed on the stock exchange that are mature and large companies.

*Non-debt tax shield* has a negative and statistically significant relationship with the sustainable growth rate. This is quite logical given that amortization and depreciation are recognized as an expense in the income statement. The higher this expenditure is, the lower the net profit will be, and consequently, the lower the sustainable growth rate will be. Although the same is true for *interest tax shield*, this variable is statistically insignificant.

The positive relationship between *tangibility* and sustainable growth rate can be explained in two ways. Namely, the more the company invests intangible fixed assets, the more it increases its production capacities, and the increased production and sales

increase the profitability. On the other hand, tangible fixed assets can serve as collateral for additional borrowing, which leads to an increase in leverage and consequently to a sustainable growth rate. However, this variable is not statistically significant.

## 5. Conclusion

In this paper, we explored the intercompany determinants of the sustainable growth rate in the case of Macedonian companies according to the PRAT model of Higgins (1977, 1981, 2022). The *growth* of companies means the *growth of sales revenues* on an annual basis. This concept of sustainable growth rate is based on the assumptions that: i) companies have a targeted capital structure as a debt-equity ratio; ii) companies do not make new shares issue for capital raising, whereby new investments are financed by internally generated funds, retained earnings, and associated new borrowing. However, the model allows external sources of financing from debt issuance, without disturbing the established capital structure. Hence, the growth rate of the company's assets is limited to the growth rate of equity from retained earnings. It is the rate of sustainable growth that companies should strive for without causing depletion of financial resources. In conditions when new stock issues are impossible, as in the case of underdeveloped capital markets, or not desired by managers, the rapid growth of the company can be achieved only using extreme borrowing. Consequently, too much leverage can plunge the company into financial distress and even bankruptcy. Also, a highly leveraged company prefers not to undertake new investment projects with a positive NPV, known as the *debt overhang* problem, or problem of *underinvestment* (Myers, 1977). Thus, managers must understand that growth is not necessarily something to be maximized, it may be necessary to limit growth to conserve financial strength (Higgins, 2022, p. 111).

Although the above assumptions seem rigid, they are still quite adequate to reality, especially in the case of emerging markets from the countries of Southeast Europe. The financial markets in the post-communist countries of Southeast Europe are new and underdeveloped. New stock issues occur very rarely or not at all. Thus, in Northern Macedonia, since the establishment of the stock market, only one initial public offering has been made, as there has been no case of seasonal issue of shares. Issuance of shares, as a way of raising capital to finance the growth of companies, is completely absent. The situation is similar in other post-communist SEE countries. Markets in these countries are bank-centered, and banks are the main provider of corporate debt issuance, i.e., there are no corporate bond issues. Hence, the growth of companies in these countries depends on internally generated retained earnings funds and associated borrowing. Higgins (2022) also shows that these assumptions are quite adequate for the



developed USA market, where although companies have great opportunities to issue shares, still internally generated funds and appropriate borrowing are the dominant sources of financing the growth of companies.

From our research, we have found that the Higgins model of sustainable growth rate (1977, 1981, 2022) is quite valid. Macedonian companies left an anemic revenue growth rate, the average for ten years, of only 0.43%. This is a result of the poor operational performance that companies continuously achieve in this period. The sustainable growth rate of the companies is 1.42%. It is also very low and indicates weak internal growth capacity. It is positively related to the company's operating performance expressed through profit margin and asset turnover indicators, as well as to the company's financial policies expressed through retention ratio and financial leverage (equity multiplier). The relationship is statistically significant with these four *PRAT* variables. Also, the sustainable growth rate has a positive and statistically significant relationship with the profitability expressed through ROE. The sustainable growth rate has a negative and statistically significant relationship with cash flow, firm size, growth opportunities, and non-debt tax shield. The relationship with tangibility, interest tax shield, and cash conversion cycle is positive, but the coefficients have negligible values, and the relationship is not statistically significant. Finally, we can conclude that the internal economy of the companies has a significant impact on their growth. Macedonian companies need to significantly improve operational performance and strengthen their financial policies to deliver greater growth, preferably at the level of sustainable growth, to their shareholders.

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## FINANSIJSKA POLITIKA I ODRŽIVI RAST PREDUZEĆA

**Apstrakt:** Ovaj rad istražuje specifične karakteristike unutar preduzeća, kao determinante stope održivog rasta. Ispitali smo uzorak preduzeća koja se nalaze na makedonskoj berzi. Otkrili smo da je prosečna stvarna stopa rasta u periodu 2010-2019. iznosila samo 0.38 %, dok je stopa održivog rasta iznosila 1.42%. Ovakav rezultat je posledica slabih performansi preduzeća, zanemarljivog leveridža i prosečne stope retencije od 82.5% za ceo uzorak. Stvarna stopa rasta, u određenom periodu, drastično je viša od stope održivog rasta, dok je u nekom drugom periodu negativna. Na stopu održivog rasta pozitivno utiču: profitna marža, stopa retencije, promet imovine, finansijska poluga, i stope povraćaja, a negativno: operativni novčani tok, veličina preduzeća, mogućnosti za rast, poreska oslobođenja.

**Ključne reči:** finansijska politika, održiva stopa rasta, stopa zadržavanja, isplata dividende, Severna Makedonija.

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