Does R&D Always Support Sustainable Growth? Evidence from an Emerging Economy

Thuy Van Vu Thi[1(✉)], Thuy Do Thi Thu[1], and Le Dao Thi Nhat[2]

[1] School of of Banking and Finance, National Economics University, Hanoi, Vietnam
thuyvan@neu.edu.vn
[2] Audience Serv Co. Ltd., Hanoi, Vietnam

Abstract. This paper aims to investigate the relationship between sustainable growth rate (SGR) and research and development activities (RD) in an emerging economy. Along with the development of information technology and the explosion of creativity, we want to evaluate the impact of RD on the development of the business. We use panel regression techniques to examine a sample of 767 Vietnam-listed companies from 2008–2020. The empirical results show a negative impact of RD on SGR, meaning that investment in the RD of the existing business does not provide the benefit of value growth. Existing RD strategies may represent only firms' innovation efforts. This confirms that managers need to consider and evaluate more clearly the contribution of research and development to different categories. Besides, the control variables in the model, including SIZE (the natural logarithm of total assets), ROA (returns on assets ratio), STATE (the percentage of ownership in the firm held by state), LV (Financial leverage ratio that equals total debt borrowings scaled by lagged total assets), DUALCFO (Dual CFO-COO in firm management), and CF (the ratio of total cash flow to total assets), are statistically significant. This finding has practical implications for enterprises investing in technology and policymakers to improve production and business activities' scientific and technological capacity .

Keywords: Emerging economy · Sustainable growth · R&D

1 Introduction

Companies worldwide have been facing an unpredicted economic crisis caused by the COVID-19 pandemic. It has negatively impacted various industries, such as tourism, retail, aviation, construction, and travel. Accordingly, in this situation, there are circumstances in which certain companies face much debt with little or no revenue generated, therefore causing the suffering of losses, defaults in debt obligations, and significantly increasing the risk of insolvency. In light of the COVID-19 pandemic, all organizations and industries may face either positive or negative financial performance. Companies may gain higher profits or be in financial distress caused of the COVID-19 pandemic. Fazzari et al. (1988) stated that financial distress arises when a firm has difficulty in paying principal debt and interest obligations, whereas in an extreme case, a firm can

P. Tra Lam and P. Quang Huy (Eds.): ICECH 2022, AEBMR 238, pp. 360–373, 2023.
https://doi.org/10.2991/978-94-6463-150-0_24

become bankrupt. Debt usage is limited, as companies may face financial distress or bankruptcy. An excessive level of debt could lead to unsustainable growth, financial distress, and insolvency.

One of the financial indicators which can be used to guide the growth strategies of financially distressed firms and firms trying to reduce their leverage is the sustainable growth rate (SGR). Higgins (1977) proposed using a sustainable growth rate as a maximal growth rate in sales that a firm can achieve while maintaining a given set of financial policies. According to Frier (1995), the sustainable growth rate is the maximum growth rate a company can have while all its financial parameters are constant. Therefore, it can be implied that SGR is the maximum pace of growth in sales or profit a firm can sustain without issuing any additional (i.e. new) equity or changing its financial policy. SGR depends on the earnings retention rate (R) and the return on equity (ROE) (SGR = R × ROE). Thus, the results of SGR can be served as a crucial tool for the growth strategies of firms facing a financial crisis, particularly in the COVID-19 pandemic. SGR must be evaluated with specific measurements of firm-specific characteristics and performance indicators. Determining the factors that affect the firm's SGR is to help stakeholders (either internal or external management or customers) make the right decisions. SGR is considered a precious and comprehensive mechanism to assess a firm's strength, potentiality, and long-run sustainability as it considers firms' operating (i.e. profit margin and asset efficiency) and financial (i.e. capital structure and retention rate) parameters. SGR can be can assessed not only by the operating characteristics and financial policy but also size, age, and ownership of a firm, since these firm-specific characteristics affect each other and affect SGR. Therefore, this study's core objective is to empirically analyze the effect of R& D on the sustainable growth rate of the selected companies in Vietnam.

2 Literature Review and Hypothesis Development

Before moving forward with the empirical result, it is desirable to have a quick look through the previous studies carried out on the issues associated with SGR and its determinants. Different researchers have made a few attempts on the same.

Considering firms' performance and sustainable growth rate, the research of Amouzesh et al. (2011) found a relationship between SGR and liquidity and firm performance. The study used linear regression to examine 54 firm-listed companies in the Iranian financial market during 2006–2009. The study concluded that the deviation of actual growth rate from sustainable growth rate had a relationship with ROA and P/B ratios. Huang and Zhang (2015) tried to determine the sustainable financial growth of the companies listed on the Growth Enterprises Market (GEM). They identified various factors like profitability, cash-generating ability, debt-paying ability, operational capacity, and growth ability that could influence the enterprise's sustainable growth. Their research findings revealed that profitability was the most influential factor of the abovementioned factors, followed by cash-generating ability, which impacted sustainable growth. Another study conducted by Bivona (2000) focused on profitable and sustainable growth policy in a changing market. In this study, a company is represented by combining three main elements: structure in terms of resources, management, and operational activities. The study revealed that in order to evaluate business growth strategies, a feedback approach could be handy for small business entrepreneurs.

Further, Rahim and Saad (2014) studied the relationship between sustainable growth, capital structure, and firm performance of 229 Public Listed Companies in ASEAN countries during 2001–2012. They used a linear regression model to examine the association between sustainable growth with debt equity ratio (DTER), total equity (TE), total debt (TD), ROA, EPS, and ROC. The study findings indicated that firm profitability is positively associated with a firm sustainable growth rate.

The study by Utami and Gunawan (2015) found that the stock price positively impacted sustainable growth regarding the firm's stock price, financial policy, and sustainable growth rate. On the contrary, the dividend payout ratio negatively impacted the sustainable growth rate. Considering the working capital management of the firms and sustainable growth rate, Johnson and Soenen (2003) reported that large profitable firms with efficient working capital management and a certain degree of uniqueness regarding their business were the most successful companies with a degree of sustainable growth rate high.

Previous studies have shown that the income reported by a company can be influenced using different policies for the recognition of intangible assets (Alam et al., 2013; Cañibano et al., 2000; Chiang and Mensah, 2004; Han and Chuang, 2011; Gelb and Siegel, 2000; Gu and Lev, 2011; Lev and Zarowin, 1999; Oliveira et al., 2010; Siegel and Borgia, 2007; Skinner, 2008). Cañibano et al. (2000) revealed that current investments in intangibles, especially R&D, are tied to higher future performance. There seems to be a general agreement that enterprises rely more on investments in intangibles to achieve business development in the current digital economy. Corrado and Hulten (2010) stated that a company's expenditures on intangibles could directly affect innovation and growth. Ocak and Findik (2019) proved the existence of a positive relationship between intangible assets, sustainable growth, and firm value in Turkish listed companies by employing SGR algorithms. In a study that examines the impact of intangibles on firms' current and future financial and market performance, Tahat et al. (2017) use a sample of UK FTSE 150 non-financial firms, provide evidence about the role of intangible assets in enhancing firms' future financial performance and market performance. The paper shows positive associations between a firm's goodwill (brand) and R&D and future financial and market performance, indicating that goodwill and R&D can contribute positively to earnings enhancement, and they are of interest when making an investment decision.

Some scholars such as Midavaine et al. (2016), He and Wang (2009) have focused on the relationship between firm governance structures and intangible assets and the sub-components of intangible assets (particularly R&D). The research outcomes by Villalonga (2004) show that firms now invest more in intangible assets than tangible ones because intangible assets play an influential role in sustaining a firm's competitive advantage. As Mukherjee and Sen (2018), the sustainable growth of a firm can be considered a comprehensive mechanism to evaluate the long-run sustainability of a firm. On the other hand, investing in intangible assets is essential for the knowledge economy because intangible assets containing information elements such as R&D, patents, or software rather than tangible assets play an essential role in the sustainable growth of firms and firm value. In this regard, intangible assets of firms may affect the sustainable growth of firms. Recently, from the narrow perspective of intangible assets, Xu and Wang (2018) have done research on the effect of intellectual capital (including R&D), which is a

common form of intangible investment, on firms' sustainable growth rate and found that intellectual capital has a positive impact on the sustainable growth of firms in Korea. They also found that advertising stimulates R&D activities by increasing the reputation of the firm's current products and services.

Some authors use R&D expenditure to proxy intangible assets and found that R&D activities positively affect firm growth (Demir and Tolga, 2014; Mudambi and Swift, 2011).

Firm structure-specific variables are also controlled in this study because recent studies documented that large firms, firms with low leveraging, profitable firms, and older firms have more opportunities for sustainable growth (Arora et al., 2018; Amouzesh et al., 2011; Feng et al., 2018; Fonseka et al., 2012; Hemalin, Hamelin, 2012; Xu and Wang, 2018) and these structural features of firms can be decisive for investing in intangible assets (Artz et al., 2010; Ocak and Findik, 2019), the governance structures of firms (Linck et al., 2008). The structural features of firms may affect firm value (Klein et al., 2005).

Therefore, there is an expectation that a similar positive relationship, as emphasized by the literature, should apply to listed Romanian companies. That is why the following hypotheses are being proposed:

Hypothesis 1 (H1). *Firms with more significant investments in R&D tend to have better sustainable growth rate;*

Hypothesis 2 (H2). *Firms with greater size tend to have better sustainable growth rate;*

Hypothesis 3 (H3). *Firms with more significant return on assets tend to have better sustainable growth rate;*

Hypothesis 4 (H4). *Firms with state ownership tend to have better sustainable growth rate;*

Hypothesis 5 (H5). *Firms with more significant financial leverage tend to have lower sustainable growth rate;*

Hypothesis 6 (H6). *Firms with dual CFO tend to have better sustainable growth rate;*

Hypothesis 7 (H7). *Firms with greater cash flow tend to have better sustainable growth rate;*

3 Methodology

3.1 Empirical Model Specifications

To investigate the relationship between SGR and RD, we use a multivariate regression of the baseline Model (1). The robust standard errors are clustered at the firm level to control for potential heteroskedasticity. The formulation of the baseline model is as follows:

$$SGR_{i,t} = \alpha + \beta RD_{i.} + \gamma Control\_variables_{i,t} + \theta_i + \lambda_{t+}\varepsilon_{i,t} \quad (1)$$

where the dependent variable SGR presents the sustainable growth. SGR depends on the earnings retention rate (R) and the return on equity (ROE) (SGR = R × ROE).

Table 1. Variables description

Variables	Definition
SGR	Sustainable growth rate, is defined as the maximum growth rate that a firm can sustain without having to increase financial leverage
RD	Research & development, calculated as the total value of R&D expenses
SIZE	Firm size, calculated as the natural logarithm of total assets
ROA	Profitability ratio that equals net income scaled by lagged total assets
STATE	State ownership, measured as the percentage of ownership in the firm held by state
LV	Financial leverage ratio that equals total debt borrowings scaled by lagged total assets
DUALCFO	Dual CFO-COO in firm management
CF	Cash flow, measured as the ratio of total cash flow to total assets

RD presents the Research & Development, calculated as the total value of R&D expenses. The RD ratio provided by Fiingroup - a leading integrated service provider of financial data, and business information in Vietnam.

We regress SGR on RD using the Fixed Effect and Random Effect regression methods to estimate the relationship between EQ and debt maturity. We used F-Test and Hausman tests to look into which would bring in better results, the Fixed Effect or Random Effect methods, thereby checking the defects of the selected model and finding the solution to the model.

The control variables include the commonly used control variables for firm characteristics in the literature to control for the potential confounding effects. We use SIZE (the natural logarithm of total assets), ROA (returns on assets ratio), STATE (the percentage of ownership in the firm held by state), LV (Financial leverage ratio that equals total debt borrowings scaled by lagged total assets), DUALCFO (Dual CFO-COO in firm management), and CF (the ratio of total cash flow to total assets). θi and λt are the industry fixed effect and the year fixed effect of controlling for the industry- and time-specific heterogeneity of observations in our sample Table 1.

3.2 Data Sample

The study uses data of 767 listed companies in the Vietnamese stock market from 2008 to 2020. All the firms have been listed on Hanoi Stock Exchange and Ho Chi Minh Stock Exchange during the study period. We winsorize the financial data by the 1st and 99th percentile to alleviate outliers' impact on our analysis outcomes.

Table 2. Descriptive statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
	[1]	[2]	[3]	[4]	[5]
SGR	7903	0.02	0.051	-3.438	0.188
RD	6987	23.272	1.982	14.651	30.568
SIZE	8081	27.045	1.564	20.72	33.677
ROA	9145	0.058	0.082	-0.99	0.81
STATE	7002	0.237	0.249	0	0.97
LV	8081	0.494	0.227	0	2.031
DUALCFO	8904	0.223	0.416	0	1
CF	7330	0.089	0.128	-1.748	5.085

Notes: This table reports descriptive statistics. Column [1] presents the number of observations for each variable. Column [2] reports mean of individual variables, followed by standard deviations in parentheses (column [3]), minimum (column [4]), and maximum values (column [5])

4 Results and Discussion

4.1 Descriptive Statistics

Table 2 displays basic features for each variable in the dataset in the study by presenting simple descriptive summaries of the sample and the measurements. The mean value of SGR is 0.02. The range of values of SGR varied from -3.438 to 0.188. It can be indicated that the listed companies in the study have a low average growth capacity. The mean value of SGR is slightly lower than the value for a sustainable growth rate of Korean manufacturing companies (0.0221), calculated by Xu and Wang (2018), and much lower than the value of the sustainable growth rate of Chinese energy companies (0.0639), calculated by Feng et al. (2018). The average research and development value (RD) is 23.272, with a minimum of 14.651 and a maximum of 30.568. Compared to that (1.537e+8) of companies listed on Bucharest Stock Exchange from the study of Ionita and Dinu (2021), the value of Vietnamese listed companies is much lower.

The average values of firm size (SIZE) and ROA representing a firm's financial performance are respectively 27.045 and 0.058; both are higher than the numbers calculated by Xu and Wang (2018) and Feng et al. (2018). The mean value of firm leverage (LV) is 0.494, implying that companies in the study use much debt financing to reduce capital costs but face higher financial risks. The cash flow (CF) presents a mean value of 0.089, ranging from -1.748 to 5.085, indicating more outflows than inflows from companies with negative CF. Of the observations, 23.7% are owned by the state (STATE), and 22.3% of the companies have their CFOs taking other essential responsibilities.

Table 3. Matrix of correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) SGR	1.000							
(2) RD	0.056 ***	1.000						
(3) SIZE	0.033 ***	0.598 ***	1.000					
(4) ROA	0.456 ***	0.151 ***	-0.071 ***	1.000				
(5) STATE	0.046 ***	0.231 ***	-0.009 *	0.082 ***	1.000			
(6) LV	-0.108 ***	-0.003 **	0.309 ***	-0.426 ***	0.065 ***	1.000		
(7) DUALCFO	0.012	-0.095 ***	-0.012 ***	-0.047 ***	-0.237 ***	0.037 ***	1.000	
(8) CF	0.342 ***	0.103 ***	-0.083 ***	0.611 ***	0.105 ***	-0.296 ***	-0.048 ***	1.000

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
We compute the variance inflation factors (VIFs) and find the values of the VIFs to be less than 3, implying that multi-collinearity is not a significant issue in our study.

4.2 Correlation Analysis

Table 3 presents a correlation analysis for the dependent and independent variables. The correlation analysis shows that except for financial leverage (LV), the other eight variables are positively correlated with sustainable growth rate (SGR). Regarding correlation magnitude, ROA and cash flow (CF) is the most correlated to SGR among all variables.

RD positively correlates with SGR and all other variables, except for LV and DUALCFO. The relationship between R&D and firm size is significant. Besides, LV and DUALCFO are most likely negatively correlated with others. The correlations between some variables are not significant such as the correlation between financial leverage (LV) and research and Development (RD) or the correlation between state ownership (STATE) and firm size (SIZE).

4.3 Regression Analysis

This sub-heading presents the estimation results of FEM and REM methods. Table 4 presents the effects of R&D (RD) and other firm-specific indicators on sustainable growth rate (SGR).

To estimate model parameters, the Hausman test is used to choose whether to use FEM or REM; the results are shown in Table 5.

Table 4. Regression results

Variables	FEM	REM
RD	-0.0044 ***	-0.0024 ***
SIZE	0.0144 ***	0.0037 ***
ROA	0.3913 ***	0.3055 ***
STATE	0.0137 **	0.0046
LV	-0.0534 ***	0.0202 ***
DUALCFO	0.0121 **	0.0047 ***
CF	0.0458 ***	0.0470 ***

Notes: This table reports the regression results for SGR using FEM and REM.
, **, and * denote the levels of significance at 10%, 5%, and 1%, respectively.*

Table 5. Hausman test result

H_0	Chi-square Statistic	Sig. Level
Using REM	372.07	0.0000

Table 6. FEM regression results

Variables	FEM
RD	-0.0051 ***
SIZE	0.0074 ***
ROA	0.4548 ***
STATE	0.0122
LV	-0.0808 ***
DUALCFO	0.0062
CF	0.0370 ***

Notes: This table reports the regression results for SGR using FEM and REM.
, **, and * denote the levels of significance at 10%, 5%, and 1%, respectively.*

A significance level of the Hausman test is less than 0.05; thus, FEM must be used for testing the hypotheses, with AR(1) disturbances to get rid of autocorrelation; research hypothesis test results by using FEM are provided in Table 6.

With the noted levels of significance, Table 6 shows that R&D negatively affects the sustainable growth rate of firms with a coefficient of -0.0051. The magnitude of the

coefficient indicates an insignificant effect on the sustainable growth rate. Therefore, there is not enough evidence to confirm Hypothesis 1, at the statistical significance of 1%.

The same table shows that other than R&D, financial leverage (LV) is the only factor that negatively affects sustainable growth (-0.0808). This result can support Hypothesis 6, indicating that the sustainable growth rate will increase when financial leverage decreases at the 1% significance level. Other variables, including firm size (SIZE), ROA, and cash flow (CF), show a positive relation to sustainable growth rate by these coefficients: 0.0074, 0.4548, 0.0370. These results support Hypothesis 2, Hypothesis 3, and Hypothesis 7. Among these variables, the return on assets of a firm is more likely to affect its sustainable growth than the other two variables. It is safe to say that the sustainable growth rate strengthens when ROA increases at the level of significance of 1%. Moreover, there is a high chance that the four control variables above influence sustainable growth rate more than R&D.

Meanwhile, state ownership (STATE) and the percentage of dual CFOs (DUALCFO) do not affect the sustainable growth rate.

4.4 Robustness Check

Alternative Measures

In this study, we consider a different formula of sustainable growth rate (SGR2) as alternative for sustainable growth rate in the abovementioned models.

The second formula of sustainable growth rate was also used by many researchers (Arora et al., 2018; Moeinfar and Mousavi, 2011). In their studies, some researchers refer to this rate as the internal growth rate. This maximum growth rate can be achieved without external debt or equity financing (Amouzesh et al., 2011). The formulation of the second rate is as follows:

$$SGR2 = ROE \times Retention\ Ratio / 1 - ROE \times Retention\ Ratio \quad (2)$$

where ROE is the return on equity which is calculated as net income divided by shareholders' equity. The retention ratio is calculated as retained earnings divided by net income.

We re-estimate using FGLS model only, with firm characteristics. Table 7 presents the results of a robustness check when the dependent variable is the alternative sustainable growth rate, while Table 8 presents the results for enterprise value as the dependent variable. With stated levels of significance, the regression result for the effect of R&D on SGR is consistent with the preliminary results using the FEM model, even though the coefficient magnitude in the robustness check model (-0.0154) is negatively lower than the basic one, indicating a more significant effect. Besides, based on the second robustness check (Table 7), R&D negatively affects ev (-121.5956).

Driscoll-Kraay estimator

Using fixed effects with Driscoll and Kraay standard errors, the effect of RD on sustainable growth is found negative. This result is similar to the above baseline tests .

Table 7. Regression results of SGR2

Variables	With firm characteristics
	FGLS
RD	-0.0154 * (0.0079)
SIZE	0.0270 ** (0.0108)
ROA	2.5307 *** (0.1887)
STATE	0.0089 (0.05)
LV	0.2359 *** (0.0619)
DUALCFO	-0.0071 (0.028)
CF	-0.0317 (0.1047)
Year effects	Yes
Industry effects	Yes

Notes: *This table reports the first robustness check results for SGR using FGLS estimation. Values of parameters are reported, followed by robust standard errors in parentheses. *, **, and *** denote the levels of significance at 10%, 5%, and 1%, respectively. All regressions include a constant term.*

5 Conclusion

Companies worldwide have been facing an unpredicted economic crisis caused by the COVID-19 pandemic. One of the financial indicators which can be used to guide the growth strategies of financially distressed firms and firms trying to reduce their leverage is the sustainable growth rate (SGR). SGR can be an imperative tool for the growth strategies of firms facing financial crises, particularly during the COVID-19 pandemic. Determining the factors that affect the firm's SGR is to help stakeholders (either internal or external management or customers) make the right decisions. Many previous studies have been carried out on the issues associated with SGR and its determinants. Some studies use R&D expenditure to proxy intangible assets and found that R&D activities positively affect Sustainable growth. Therefore, this study's core objective is to empirically analyze the effect of R& D on the sustainable growth rate of the selected companies in Vietnam.

While a majority of studies in the literature show a positive association between SGR and RD, a growing strand of research indicates otherwise (Ionita and Dinu, 2021). This paper investigates the relationship between sustainable growth rate (SGR) and research

Table 8. Regression with Driscoll-Kraay standard errors

Variables	With firm characterisitcs
	Pooled OLS
RD	-0.0022 * (0.0011)
SIZE	0.0049 ** (0.0021)
ROA	0.3084 *** (0.0787)
STATE	0.0067 (0.0044)
LV	0.0138 (0.0124)
DUALCFO	0.0044 ** (0.0015)
CF	0.0498 (0.0353)
Year effects	Yes
Industry effects	Yes

Notes: *This table reports the results for SGR using Driscoll-Kraay estimator. Values of parameters are reported, followed by robust standard errors in parentheses. *, **, and *** denote the levels of significance at 10%, 5%, and 1%, respectively. All regressions include a constant term.*

and development activities (RD). We use panel regression techniques to examine a sample of 767 Vietnam-listed companies from 2008–2020. In an emerging economy, the lack of roadmap direction and capital support can cause the inverse relationship between SGR and RD. This result implies some recommendations: Firstly, RD should be associated with production to increase enterprise value; Second, managers need to develop a mechanism to apply and share the benefits of research results; Third, RD needs long-term evaluation instead of focusing on initial research findings.

References

Alam, P., Liu, M., & Peng, X. (2014). R&D expenditures and implied equity risk premiums. Rev Quant Finan Acc 43, 441–462. https://doi.org/10.1007/s11156-013-0381-9.

Amouzesh, N., Moeinfar, Z., & Mousavi, Z. (2011). Sustainable Growth Rate and Firm Performance : Evidence From Iran Stock Exchange. International Journal of Business and Social Science, 2(23).

Arora, L., Kumar, S., & Verma, P. (2018). The Anatomy of Sustainable Growth Rate of Indian Manufacturing Firms. Global Business Review, 19(4), 1050–1071. https://doi.org/10.1177/0972150918773002.

Artz, K. W., Norman, P. M., Hatfield, D. E., & Cardinal, L. B. (2010). A Longitudinal Study of the Impact of R&D, Patents, and Product Innovation on Firm Performance. Journal of Product Innovation Management, 27, 725-740. https://doi.org/10.1111/j.1540-5885.2010.00747.x.

Bivona, E. (2000). How To Define A Profitable And Sustainable Growth Policy In A Changing Market? A Case Study: A Small Publishing Company. Proceedings of the 18th International Conference of the System Dynamics Society.

Cañibano, L., Garcia-Ayuso, M., & Sánchez, P. (2000). Accounting for Intangibles: A Literature Review. Journal of Accounting Literature, 19, 102–130. https://ssrn.com/abstract=479701.

Chiang, C.C., & Mensah, Y.M. (2004). The Determinants of Investor Valuation of R&D Expenditure in the Software Industry. Review of Quantitative Finance and Accounting 22, 293–313. https://doi.org/10.1023/B:REQU.0000032600.07130.fc.

Corrado, C. A., & Hulten, C. R. (2010). How Do You Measure a "Technological Revolution"? The American Economic Review, 100(2), 99–104. http://www.jstor.org/stable/27804971.

Demir, K. A., & Tolga, İ. B. (2014). A Sustainable Growth Rate Metric Based on R&D Experience for Government R&D Organizations. J. Glob. Strateg. Manag. 8, 27–37. https://doi.org/10.20460/JGSM.2014815639.

Ionita, C., & Dinu, E. (2021). The effect of intangible assets on sustainable growth and firm value – Evidence on intellectual capital investment in companies listed on Bucharest Stock Exchange. Kybernetes, 50(10), 2823-2849. https://doi.org/10.1108/K-05-2020-0325.

Fazzari, S. M., Hubbard, R. G., Petersen, B. C., Blinder, A. S., & Poterba, J. M. (1988). Financing Constraints and Corporate Investment. Brookings Papers on Economic Activity, 1988(1), 141–206. https://doi.org/10.2307/2534426.

Feng, Y., Chen, H.H., & Tang, J. (2018). The Impacts of Social Responsibility and Ownership Structure on Sustainable Financial Development of China's Energy Industry. Sustainability 10(2), 301. https://doi.org/10.3390/su10020301.

Fonseka, M. M., García Ramos, C., & Tian, G.- liang. (2012). The Most Appropriate Sustainable Growth Rate Model For Managers And Researchers. Journal of Applied Business Research (JABR), 28(3), 481–500. https://doi.org/10.19030/jabr.v28i3.6963.

Frier, C. (1995). Investment Basics: XXXI. Sustainable Growth Models. Investment Analysts Journal, 24(41), 57-58. https://doi.org/10.1080/10293523.1995.11082349.

Gelb, D.S., & Siegel, P. (2000). Intangible Assets and Corporate Signaling. Review of Quantitative Finance and Accounting 15, 307–323. https://doi.org/10.1023/A:1012046823636.

Gu, F., & Lev, B. (2011). Intangible Assets: Measurement, Drivers, and Usefulness. In G. Schiuma (Ed.), Managing Knowledge Assets and Business Value Creation in Organizations: Measures and Dynamics, 110–124. IGI Global. https://doi.org/10.4018/978-1-60960-071-6.ch007.

Han I., & Chuang C. (2011). The Impacts of R&D Investment on Company Performance: US vs. Taiwanese Technology-Intensive Industry. Review of Pacific Basin Financial Markets and Policies (RPBFMP), World Scientific Publishing Co. Pte. Ltd., 14(01), 171–194. https://doi.org/10.1142/S0219091511002184.

He, J., & Wang, H. C. (2009). Innovative Knowledge Assets and Economic Performance: The Asymmetric Roles of Incentives and Monitoring. The Academy of Management Journal, 52(5), 919–938. http://www.jstor.org/stable/40390324.

Hemalin, A. (2013). Influence of family ownership on small business growth. Evidence from French SMEs. Small Bus Econ 41, 563–579. https://doi.org/10.1007/s11187-012-9452-x.

Higgins, R. C. (1977). How Much Growth Can a Firm Afford? Financial Management, 6(3), 7–16. https://doi.org/10.2307/3665251.

Huang, X. y., & Zhang, J. g. (2015), Research on the Financial Sustainable Growth of the Listed Companies on GEM. International Business and Management, 10 (2), 32-37. https://doi.org/10.3968/%25x.

Johnson, R., & Soenen, L. (2003). Indicators of Successful Companies. European Management Journal, 21(3), 364–369. https://doi.org/10.1016/S0263-2373(03)00050-1.

Klein, P., Shapiro, D., & Young, J. (2005). Corporate Governance, Family Ownership and Firm Value: the Canadian evidence. Corporate Governance: An International Review, 13, 769-784. https://doi.org/10.1111/j.1467-8683.2005.00469.x.

Lev, B., & Zarowin, P. (1999). The Boundaries of Financial Reporting and How to Extend Them. Journal of Accounting Research, 37(2), 353–385. https://doi.org/10.2307/2491413.

Linck, J.S., Netter, J.M., & Yang, T. (2008). The determinants of board structure. Journal of Financial Economics, 87 (2), 308–328. https://doi.org/10.1016/j.jfineco.2007.03.004.

Midavaine, J., Dolfsma, W., & Aalbers, R. (2016). Board diversity and R&D investment. Management Decision, 54(3), 558-569. https://doi.org/10.1108/MD-09-2014-0574.

Mudambi, R., & Swift, T. (2011). Proactive R&D management and firm growth: A punctuated equilibrium model. Research Policy, 40(3), 429–440. https://doi.org/10.1016/j.respol.2010.10.014.

Mukherjee, T., & Sen, S.S. (2018). Corporate Social Responsibility and Sustainable Growth: An Evidence from India. International Journal of Business Insights & Transformation, 11(2), 70-79.

Ocak, M. & Findik, D. (2019). The Impact of Intangible Assets and Sub-Components of Intangible Assets on Sustainable Growth and Firm Value: Evidence from Turkish Listed Firms. Sustainability 11(19), 5359. https://doi.org/10.3390/su11195359.

Oliveira, L., Rodrigues, L. L., & Craig, R. (2010). Intangible Assets and Value Relevance: Evidence from the Portuguese Stock Exchange. The British Accounting Review 42(4), 241–252. https://doi.org/10.1016/j.bar.2010.08.001.

Rahim, N., & Saad, N.B. (2014). Sustainable Growth of Public Listed Companies (PLC) Using Capital Structure Choices and Firm Performance in an Asean Market. Proceeding of the Global Summit on Education GSE 2014, 4-5 March 2014, Kuala Lumpur, Malaysia, 433-444.

Siegel, P., & Borgia, C. (2007). The Measurement and Recognition of Intangible Assets. Journal of Business and Public Affairs, 1(1), 1-5.

Skinner, D. J. (2008). Accounting for Intangibles: A Critical Review of Policy Recommendations. Accounting and Business Research, 38(3), 191- 204. https://doi.org/10.1080/00014788.2008.9663332.

Tahat, Y.A., Ahmed, A.H. & Alhadab, M.M. (2018). The impact of intangibles on firms'financial and market performance: UK evidence. Review of Quantitative Finance and Accounting, 50(4), 1147-1168. https://doi.org/10.1007/s11156-017-0657-6.

Utami, S.R., & Gunawan, R. (2015). Analyzing Sustainable Growth Rate of the Firms in Kehati Sustainable and Responsible Investment Index in Indonesia. Case Studies Journal, 4(6), 84-93.

Villalonga, B. (2004). Intangible resources, Tobin's q, and sustainability of performance differences. Journal of Economic Behavior & Organization, 54(2), 205-230. https://doi.org/10.1016/j.jebo.2003.07.001.

Xu, J., & Wang, B. (2018). Intellectual Capital, Financial Performance and Companies' Sustainable Growth: Evidence from the Korean Manufacturing Industry. Sustainability, 10(12), 4651. https://doi.org/10.3390/su10124651.