



Utrecht University

**School of Economics**

**FINANCING EFFECT ON FIRM GROWTH:  
EVIDENCE FROM EUROPEAN LISTED FIRMS**

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Name: Jannatul Ferdous  
Student number: 4951794  
Supervisors: Stefano Lugo & Catalina Papari  
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## *Abstract*

In times of economic uncertainty, the estimation of firm growth is becoming more important to market participants. This paper examines empirically how firm growth is influenced by different types of financing of European listed companies. Investigating a sample of 1099 companies (around 17584 firm-year observations) from 12 countries during 2005-2020, this paper reports that the cash flow and leverage have a negative influence on firm growth. However, trade credit shows a positive effect on firm growth. The findings are robust using different measures of firm growth (i.e., asset growth and sales growth).

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**Keywords:** Firm growth, Free cash flow, Leverage, Trade credit, Sales growth, Assets growth, Size

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# 1 Introduction

Growth is one of the most important traits of any successful company, regardless of the size of the firm, and it plays a crucial role in both management and investment decisions. Due to the high level of uncertainty, growth estimation is particularly crucial. This paper examines the stake of firms' growth in the presence of different financing namely free cash flow, leverage, and trade credit.

Acquiring a sufficient amount of finance is fundamental for any business's daily operation and investment. Thus, access to adequate finance significantly influences the growth of the business. The best way to utilize investment opportunities for companies is to select the most appropriate financing resources (Kumar and Ranjani, 2018). Companies that are not financially constrained (i.e., they get the financing whenever they need it) can fuel the growth as expected by taking various investment projects. Since, there is a significant relationship between the availability of finance and firm growth (Rahman, 2011) it is crucial to understand how different types of finance influence firm growth.

The availability of finance, the cost of acquiring it, and investment decisions determine the financing structure of the firms. Firms can obtain finance through either internal sources (e.g., cash flow) or external sources (e.g., equity, debt, trade credit, etc.) or by combining both. It is essential for the firms to evaluate and choose the most appropriate source of finance, as different sources have their benefits and costs (Siedschlag, O'Toole, Murphy., and O'Connell, 2014). Nevertheless, deciding on the optimum financing structure of a firm is a persistent puzzle in finance.

Modigliani and Miller (1958) examined the impact of different financing structures on the value of firms in a perfectly competitive market (i.e., assuming a market with perfect information availability, no taxes, and no transaction costs). They showed that, in the presence of a perfect capital market, internal and external finance are perfect substitutes. Therefore, any fluctuation in the financing from different sources would not impact firm growth since the firms can replace lost finance with alternative

ones. Unfortunately, there is no perfect market. Due to the market imperfections, financing decisions become very crucial for investment and, thus, growth.

According to the pecking order theory, a firm's financing structure is influenced by the firm's preference to finance. The theory argues that firms tend to use internal finance over external finance because of the costs caused by information asymmetry, agency problems, transaction costs, and control restrictions between owners and managers. If external finance is required, debt is preferred over equity (Farooq and Noor, 2020).

It can be argued that firms can miss out on investment opportunities if they do not have access to adequate finance. In their seminal research, Fazzari et al., (1988) showed that inadequate access to external finance leads firms to be more dependent on the internal cash flow. Carpenter and Petersen (2002) examined the expansion of 1,600 small US firms and found that the availability of internal finance influence asset growth. Firms have more significant growth rates (compared to the group average) and expand fast if they can raise a large amount of external finance. Furthermore, Kaplan (1997) and Cleary (1999) mentioned that easy access to external finance provides convenience to the managers for making the best decision while financing their investments.

This paper investigates the effects/influences of different types of financing (cash flow, leverage, and trade Credit<sup>1</sup>) on the growth of European listed firms. This study makes significant contributions to the literature on the dynamics of firm growth. First, it investigates the effect of different types of financing on the growth of European listed firms. Second, the goal is to see whether the types of financing have a differential impact on the growth of European listed firms. This differs from the large body of literature focused on small and medium-sized firms (Wagenvoort, 2003; Rahaman, 2011; and Khan, 2015). Thirdly, the objective is to see whether the same effects of financing on the firm growth remain robust in various sub sample firms based on different

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<sup>1</sup> There are other sources of finance (e.g., private equity, leasing, government grants etc.,) but these three are the most used and important financing sources for firms.

characteristics (high versus low cash flow, levered, trade credit firms, bigger and smaller firms). Forth, recent empirical evidence remains scarce for European listed firms.

The remainder of the paper is organized as follows. Section 2 presents the related theories and hypotheses, followed by the research methodology and data description in sections 3 and 4. Section 5 shows the empirical results of the study. The final section summarizes the findings and concludes the paper.

## 2 Related Literature and Hypothesis

The determinants of firm growth can be explained in various aspects. Some of the effective ways to determine this are assessing the revenue generation, volume enlargement of the business, and added values. On the other hand, growth can also be specified based on qualitative features directly involved with quality, position in the market, and goodwill of the customer (Kruger, 2004).

According to (Mateev and Anastasov, 2010), financial structure and productivity play a vital role in the growth of a firm. They also indicated a direct relationship between the total assets of the firm and the sales revenue. To specify the size of an enterprise, there are also different methods. For example, turnover is used in some countries as a measure to determine the growth of an enterprise. Some other popular measures are total assets, sales, the number of employees, fixed investment, etc. (Lokhande, 2011; Rahman, 2011)

Guariglia, Liu, and Song, (2011) have depicted a positive relationship between cash flow and investment. However, this also acts as a financial constraint for a company. Companies are primarily dependent on their internal funds in difficult situations, like when it is challenging to arrange external finance. If the internal funds are not sufficient, companies have to make hard decisions like reducing investment. Thus, it would negatively affect the firm growth.

Free cash flow is an excess of a firm's cash flow. The more free cash flow a company has, the more ability and more money it has available for dividends, growth, and debt repayment (Yasa, Wirakusuma, and Suaryana, 2020). Free-Cash Flow (FCF) as a measure of internal finance can create problems within the company if not correctly utilized for investments. In addition, large companies tend to have high operating and investment activities. As a result, they have large cash flows and this will lead to a more free cash flow produced by the firm. However, sometimes it creates more conflict between shareholders and managers (Wahyudin, 2019). According to agency theory (Jensen, 1986), managers are less open-minded to investing in FCF if there are differences in business interests among them and the shareholders, which causes lower growth. According to some empirical research, companies with low growth opportunities face intense agency problems because of FCF (Jensen, 1986). In such companies, managers tend to increase their benefits by investing in marginal or negative net present value projects in the absence of proper surveillance. To eliminate this problem, active monitoring and disciplinary actions from the shareholders are required. If these actions are not appropriately taken on time, consequences like lower stock prices may occur. In addition, this type of incident may provoke the shareholders to bring changes at the management level (Jensen, 1986).

Free cash flows have the greatest impact on the relative market price of a company's securities. Since it accurately depicts a company's ability to exist, is free of various measurement concerns, and enables the estimation of future dividends, credit, and loan payments. A higher free cash flow indicates a strong performance, which might reassure investors about the company's economic future. (Al-Zararee and Al-Azzawi, 2014; Ghodrati and Hashemi, 2014; Dewi, Sari, Budiasih, and Suprasto, 2019).

On the other hand, Bates (2005) found that firms would invest more if they hold cash than their firms in the same industry, according to a study of 400 subsidiary sales. Moreover, over-investment is focused on firms with the highest amounts of FCF (Richardson, 2006). The stock market values FCF positively for firms with attractive growth potential, meaning that the market expects these cash flows to be invested in positive NPV projects (Penman and Yehuda, 2009). Thus, following the reasons

mentioned above, it is expected that firms with higher FCF would have high growth and the following hypothesis is formulated:

*Hypothesis 1: Free-cash flow has a positive effect on firm growth.*

Previous studies have shown that the correlation between leverage and firms' future growth is not simple but complex. Good investment project always brings funds to the companies; hence, companies with good investment opportunities tend to grow regardless of their capital structure. Therefore, Miller, (1977) suggested not being concerned about financial leverage

However, according to Myers, (1977), leverage has negative impacts on the growth of firms. The agency conflicts between shareholders and bondholders can cause such adverse effects. Firms that receive high leverage should be comfortable passing on some investment opportunities since this type of investment leads to the transfer of wealth from shareholders to bondholders. However, to avoid consequences like debt burden and to preserve shareholders' wealth, management may choose not to invest.

There were some studies conducted to prove a negative association between leverage and investment and employment growth measures (McConnell, and Servaes, 1995; Lang et al., 1996, Hurme, 2010).

On the contrary, Lang et al., (1996) pointed out that this negative relation between leverage and growth is company-specific and depends on Tobin's q (investment opportunities) ratio. Firms with a high-q ratio do not suffer from this adverse effect, whereas this affects firms with a low-q ratio. Hence, companies with good investment opportunities can bring out the best of leverage and play a vital role in real growth.

Firms whose growth opportunities are not well recognized and possess risks of debt overhang problems, which will experience a negative relationship between leverage and growth. Therefore, for the management, it is vital to understand how to determine



the level of leverage to get rid of the negativity implied by the correlation between leverage and growth (Wu, 2013).

The above scenarios tell us that leverage might have a mixed role in determining the growth relationship. According to (Brigham and Houston 2019; Wahyudin, 2019) the advantage of leverage is that it can lower taxes paid by the business by lowering profit on interest expense from leverage. Likewise, optimal use of leverage can increase the value of the company and thus growth. Firms prefer leverage to issue new shares because it's more cost-effective (Natasia and Wahidawati 2015; Wahyudin, 2019) However, it is logical to argue that when a firm has good investment opportunities at hand and does not have sufficient internal finance; firms would tend to leverage to fuel their growth. This leads to the second hypothesis:

*Hypothesis 2: Leverage has a positive effect on firm growth.*

Trade credit is another valuable source of finance for firms, especially when obtaining external funding through credit institutions is challenging. Trade credit is offered when there is a time delay between the supply of products and services and their payment. While early trade credit theories linked trade credit usage to information asymmetries and suppliers' monitoring advantage over banks, more recent studies have focused on trade credit's importance as a cash management instrument (mainly in the form of accounts receivable (Ferrando, and Mulier, 2013).

A company's use of trade credit has two purposes, both of which are tied to the need to finance the manufacturing. First, because corporations are often viewed as suppliers, their assets (trade Receivables) could be a proxy for how much money it lends to customers. On the opposite hand, a company could be a client, and its accounts payable (trade payables) are its liabilities. Moreover, firms that receive trade credit from their suppliers are often shown to be more likely to increase trade credit to their customers (Ferrando, and Mulier, 2013).

Bougheas, Mateut, and Mizen, (2009) showed that, a rise in production would necessitate an increase in trade credit for a given level of liquidity. Greater production means higher costs, which suggests the firm will have to tackle more trade credit for a given (insufficient) amount of liquidity. As a result, trade credit can be used to finance production as an alternative. Cuñat, (2007) also claimed that when conventional financing styles are insufficient, fast-growing businesses can finance themselves through trade credit. Fisman and Love (2003) extended the research to incorporate the trade-credit effect for institutional financing as an element within the financial sector's overall development. They discovered evidence that in nations with underdeveloped financial markets, industries that use more trade credit grow quicker. More evidence for a link between trade credit and company performance comes from (Boissay and Gropp, 2007). They showed that when a firm faces a liquidity shortfall (shock), it tries to alleviate the distress by bypassing one-fourth of the shock onto its suppliers by obtaining more trade credit.

(Bougheas et al., 2009) suggested that accounts receivable are critical to inventory management performance. In their model, increased output raises inventories for given aggregate demand, and minimizing (inventory) costs implies that firms will increase accounts receivables offered to sell more and maintain fewer inventories. Furthermore, accounts receivable are a beneficial tool when potential clients are unsure about the standard of a company's product. Allowing delayed payments allows the corporate to boost sales by allowing customers to work out the standard before paying (Ng, Smith, and Smith, 1999; Deloof et al., 1996).

Finally, businesses extend more trade credit to clients who are experiencing temporary difficulties. This boosts their sales even further. Given the significance of trade credit for the operation of the business and higher sales, the following hypothesis is identified:

*Hypothesis 3: Trade credit has a positive effect on firm growth*

### 3 Methodology and Data

This paper will use a dynamic regression specification to empirically test the hypothesis that includes cash flows, leverage, and trade credit and other control variable. By following (Rahaman, 2011) the regression equation mentioned below is identified:

$$\text{Growth}_{it} = \alpha_1 + \beta_1 \text{Cashflows}_{it-1} + \beta_2 \text{leverage}_{it-1} + \beta_3 \text{Trade credit}_{it-1} + \beta_4 X_{it-1} + \sum \text{Firm}_i + \mu_{it}$$

Where the subscript  $I$  denotes individual firms and  $t$  denotes different years.  $X$  is a set of control variables that explain firm growth other than the financing variables. A detailed list of variables used in the above-mentioned specification is presented in Table 3-1.

This paper uses the financial data of Non-financial European listed companies. The decision to identify solely non-financial companies is based on numerous factors. Suppose the expected correlation is discovered exclusively in listed companies. In that case, the results can be said to be more reliable than if the same correlation is found in both listed and unlisted firms. Second, finding significant outcomes among listed enterprises is far more valuable and has a larger aggregated economic impact than finding important findings among unlisted firms. Third, as discovered throughout the data collecting process, the availability of relevant data is substantially higher for listed companies. The data utilized in the econometric analysis are annual observations spanning the years 2005 to 2020. The data is taken from the Fact.Set database. Since the firm's balance sheet and income statement information are the highest frequency data available at the firm level, data suits the study's purpose very well.

#### 3.1 Main Variables

##### 3.1.1 Firm growth

Firm growth is used as a dependent variable and measured using two different proxies: assets growth and sales growth. The sales growth of a firm is defined as follows:

$$\text{Sales Growth}_{it} = (\text{Total Sales}_{it} - \text{Total Sales}_{it-1}) / \text{Total Sales}_{it-1}$$

Where  $Sales\ Growth_{it}$  is the sales growth between period t and t-1. As an alternative dependent variable assets growth is used in the same way.

$$Assets\ Growth_{it} = (Total\ Assets_{it} - Total\ Assets_{it-1}) / Total\ Assets_{it-1}$$

Free Cash Flow (i.e., dividends are not subtracted) is calculated as net cash from operating activities minus capital expenditure minus fixed assets. The variable financial leverage, which measures the usage of debt financing by the firm is calculated by total debt/total assets. Where debt is all the interest-bearing obligations of the company, regardless of when these obligations are due for payments. These obligations are used to provide liquidity to bridge short-term obligations and finance long-term capital expenditures and operations. This is calculated as the sum of short-term debt and the current portion of long-term debt. To see the total impact of trade credit on business growth, the sum of accounts receivable and payable, scaled by total assets is used (Ferrando, and Mulier, 2013).

### 3.1.2 Control variable

To investigate the relationship between free cash flow, leverage and trade credit with growth, it is necessary to control for various factors that could influence the growth measures. Thus, this paper includes employees as an influential control variable and defines it as the logarithm of the level of employees. The explanatory variables lagged one period to reduce possible endogeneity problems.

Panel data sets used for this paper for economic research possess several major advantages over conventional cross-sectional or time-series data sets (e.g., Hsiao, 1985a, 1995, 2000, 2014). Panel data usually gives the researcher a large number of data points, increasing the degree of freedom and reducing the collinearity among explanatory variables, hence improving the efficiency of econometric estimates. More importantly, longitudinal data allow a researcher to analyze several important economic questions that cannot be addressed using cross-sectional or time-series data sets (Hsiao, C.2014).

*Table 3-1 Variable Definition*

Variable category	Variables	Definitions	Sources
Dependent	Growth 1	Asset Growth , the growth rate in capital expenditures	Xing, (2008)
		$\text{Assets Growth}_{it} = (\text{Total Assets}_{it} - \text{Total Assets}_{it-1}) / \text{Total Assets}_{it-1}$	
Independent	Growth 2	$\text{Sales Growth}_{it} = (\text{Total Sales}_{it} - \text{Total Sales}_{it-1}) / \text{Total Sales}_{it-1}$	Rahaman, (2011)
	Free cash flow	Cash that is not required for operations or investments is referred to as excess cash. Excess cash is defined as money held above a predetermined "normal" (or "ideal") level. Total cash is regressed on variables that serve as proxies for legitimate reasons to hold cash, such as hedging needs, growth choices, or financing constraints, to calculate the normal level.	Fresard and Salva (2010)
Independent	Leverage	Book Leverage is a continuous percentage variable indicating the ratio between book value of both long-term and short-term debt and total assets at end of each base year.	Wu, (2013)
		$\text{Leverage} = \text{BV}_{\text{Debt}} / \text{BV}_{\text{Total Assets}}$	
	Trade credit	Trade credit in the form of accounts payable and receivable	Ferrando, and Mulier, (2013)
Control	Employee	Logarithm of the level of employment	Rahaman, (2011)

This paper analyzed a 16-year long period and the use of panel data in this paper offers the advantage of being able to take control of all time-invariant company-specific characteristics, both observed and unobserved, by utilizing firm fixed effects (Bastos and Pindado, 2013; Zubair, Kabir and Huang, 2020). First, the paper run the Breusch and Pagan test statistic to compare random effects with standard ordinary least squares regression in STATA, followed by the Hausman test to compare the random effects with

the fixed effects model, to identify the best panel estimator. The fixed effects panel estimation turns out to be the best fit for the analysis.

## 4 Data

The data sample used is extracted from fact set, a financial data and software solutions provider for the sample period of 2005 to 2020. Firm-level data is collected from Eurozone index which Constituents 1348 firms and contains data for 12 euro area countries (Austria, Belgium, Germany, Spain, Finland, France, Italy, Netherlands, Portugal, Ireland, Luxembourg, and Greece). All variables measured U.S. Dollar and market value in millions.

Then firms operating in the financial sector (major Banks, leasing, insurance, real estate, and financial conglomerate) are removed from the analysis so that they cannot influence the result. For the sample firms, data on employee levels, assets, liabilities, account payable and various financial statement data is collected.

*Table 4-1 Frequency of firm and country*

Country	Frequency	Percent
Austria	432	2.46
Belgium	912	5.19
Finland	1,504	8.56
France	4,304	24.5
Germany	4,224	24.04
Greece	480	2.73
Ireland	208	1.18
Italy	2,800	15.94
Luxembourg	32	0.18
Netherlands	1,040	5.92
Portugal	288	1.64
Spain	1,344	7.65
Total	17,568	100

Table 4-1 lists the number of countries and the proportion of firms in each country. It shows that the countries with the highest number of sample firms are from

France and Germany, while the countries with the fewest firms are Luxembourg and Portugal in this sample of the Eurozone.

#### 4.1 Summary statistics

Table 4-2, reports the summary statistics of the variables used in the econometric analysis for the whole sample. The analysis used includes the minimum, maximum, average, and standard deviation values. All the variables measures have positive mean and median values. The average firm has a sales growth (between period t and t-1) level of 6 percent, where asset growth is more than the sales growth accounting for 8.3 %. On the other hand, the standard deviation of assets growth of the Eurozone index firm is 21%, which is three times the mean figure. There is wide variation in the free cash flow measures with mean, median, and with standard deviation. Following leverage and trade credit has mean values of 20 % and 24%. Both have a lower standard deviation value than the mean value.

*Table 4-2 Summary statistics*

Means, median, standard deviations								
Variable	Observations	Mean	S.D	Min	p25	Median	p75	Max
Sales Growth	12882	0.06	0.239	-0.87	-0.02	0.052	0.133	1.104
Cash flow	13849	0.004	0.097	-0.501	-0.019	0.017	0.05	0.211
Leverage	14091	0.246	0.173	0	0.112	0.231	0.351	0.808
Size	14104	6.734	2.186	1.64	5.217	6.681	8.245	11.76
Trade Credit	9012	0.203	0.14	-0.016	0.101	0.179	0.274	0.653
Assets Growth	12974	0.083	0.213	-0.429	-0.018	0.048	0.132	1.118

#### 4.2 Correlation

Table 4-3 presents the correlation coefficients between the variables. A correlation analysis is used to examine the initial relationship between the firm growth and other independent variables. As this paper used a proxy to measure firm growth, from Table 4-3 it can be seen that the correlation between sales growth and assets growth is significantly positive. Assets growth shows a significantly negative correlation

with free cash flow, and leverage, and also with control variable employees (correlation 0.1 for cash flow and 0.06 for leverage). It shows that the correlation between the variables is weak in magnitude over time, given the observation collated across the sampled firms over the study period. About sales growth, it's also showing a negative correlation with all the variables. Free cash flow shows a positive correlation with trade credit and with employees, with the majority of correlations between the independent variables being negative. This shows that the trade credit is associated with an increase in firms' free cash flow.

There are no high values between the independent variables that could cause issues with multicollinearity. In the most empirical analysis, increasing the number of variables in a single regression increases the likelihood of multicollinearity, which could lead to inaccurate results (Francis, Hasan, and Wu, 2012). The estimated Variance Inflation Factor (VIF) is a frequently employed metric to assess the degree of multicollinearity. A VIF value greater than 10 is expected to imply multicollinearity, as per (Gujarati, 2012).

*Table 4-3 Correlation matrix*

	(1)	(2)	(3)	(4)	(5)	(6)
(1) Sales Growth	1					
(2) Asset Growth	0.4435*	1				
(3) Free cash flow	0.008	-0.0272*	1			
(4) Leverage	-0.0551*	-0.0282*	-0.1212*	1		
(5) Trade credit	-0.0317*	-0.1188*	0.0893*	-0.2332*	1	
(6) Employees	-0.1720*	-0.1448*	0.2651*	0.1056*	0.0826*	1

The table shows the Pearson correlation coefficients for the full sample of firms. All variables are defined in Table 3-1. \* indicates statistical significance at the 5 percent level.

A VIF of less than 5 is considered to indicate the absence of multicollinearity (Almeida and Eid, 2014; Zubair et al., 2020). Each independent variable's VIF assessed in this study is less than 1.5. Multicollinearity is therefore not a problem in the analysis. VIF results can be found in Appendix.



## 5 Empirical result and discussion

To find the answers whether there is any effect on growth as a result of financing on European listed firms. Multiple empirical tests are performed using the statistical tool Stata. All the tables in this chapter represent the empirical results.

### 5.1 Heteroskedasticity

It is preferred to avoid heteroskedasticity in the model. When there is heteroskedasticity in the model, it leads to parameter estimates being inconsistent. To test for heteroskedasticity in Stata, the command `xttest3` is used. This command shows whether there is heteroskedasticity in the model by giving the `Prob > chi2` of the model. When the `Prob > chi2` exceeds the significance level of 5%, there is no heteroskedasticity in the model. When it is below the significance level of 5% there is heteroskedasticity. After running the model, the result shows heteroskedasticity problem. So, to fix the standard errors fixed effect model with `robust` is used.

From Table 5-1 and Table 5-2, the results show that FCF exerts a significant negative impact on the growth rate. Model (1) is the baseline regression incorporating the cash flow effect on sales and assets growth. As well as firm fixed effect where Model (4) is the extended regression showing all three independent variables (cash flow, leverage, trade credit). Overall, the result shows a statistically significant decline in growth in regards to the cash flow and for the leverage. Model (5) shows that annual growth as a percentage of total sales and total assets for the average firm declined by .073 and .058 percentage points. From all the regression results presented in Table 5-1 and Table 5-2, it can be concluded that, free cash flow has a negative impact on firm growth. So because of the findings, hypothesis 1 is rejected. This finding is consistent with the results of previous studies conducted by (Akinleye, Olarewaju, and Fajuyagbe, 2018), which stated increasing free cash flow has the potential to harm companies listed on the Nigerian stock exchange's future growth. The most logical justification is that the Precautionary motive of holding cash which is a tendency of a firm to hold cash to meet future uncertainty can be the cause behind this paper's negative effect.

To examine Hypothesis 2, whether leverage has a positive effect on firm growth or not, Model 2 includes leverage to see the leverage effect on sales and assets growth. It is evident negative and statistically significant interaction coefficients of leverage. The result of leverage shows that when leverage for the average firm is doubled (change from .29 to .58) then, due to the negative estimate for leverage, sales growth will decrease by 3.6 percentage points. Likewise and for the same change in leverage, a decrease of 7.3% point for assets growth is obtained. Thus, hypothesis 2 is rejected. This finding is consistent with previous research conducted by (Rajan and Zingales 1995; Johnson, 2003; Wu, 2013) who shows leverage has a negative effect on growth. The negative influence can be caused because maybe the firm is using debt to manage their working capital not for investing purposes. It can also be the cause that average firm not using their leverage optimally which is leading to a negative effect on growth. Another reason is why it might occur because of reverse causality, like other factors may have more impact on the growth dynamics of a firm.

*Table 5-1 Effect of financing on assets growth*

	(1)	(2)	(3)	(4)	(5)
Free cash flow	-0.0953** (-2.29)			-0.100* (-1.88)	-0.145** (-2.31)
Leverage		-0.232*** (-7.84)		-0.268*** (-7.57)	-0.298*** (-7.04)
Trade credit			0.169*** (-4.93)	0.158*** (-4.5)	0.0975** (-2.48)
Employees					-0.0372*** (-4.46)
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
N	12737	12961	8205	8191	6266
R-sq	0.186	0.199	0.226	0.241	0.253
adj. R-sq	0.112	0.127	0.133	0.149	0.147
F	5.236	61.5	24.34	30.44	25.06

The table reports the estimates of firm fixed effects regressions of assets growth. All variables are defined in Table 3-1. t-statistics are reported in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively

The final analysis is conducted for our hypothesis 3, whether trade credit has a positive effect on growth or not. Model 3 result shows that the effect of trade credit on sales growth and assets growth is significantly positive (at 5% significance).so hypothesis 3 is accepted. This finding is in line with that of (Ferrando, and Mulier, 2013; Fisman and Love, 2003) who also show that trade credit has a positive effect on growth.

In Model 4, the entire explanatory variable is included. As a control variable, different variables like size, and log of total sales, log of total assets is also analyzed but that was creating a multicollinearity problem. So in the model (5), the control variable employees are added with all the explanatory variables and with a fixed effect. The result shows a significantly negative relation between free cash flow, leverage, and also with employees on growth. However, trade credit again shows a positive effect on growth respectively. The F-statistics across all models are statistically significant, indicating that the estimated models explain well the variation in firm investment. The adjusted R2 for the regression that includes all the variables model (5) is 14 percent and 8.9 percent.

*Table 5-2 Effect of financing on sales growth*

	(1)	(2)	(3)	(4)	(5)
Free cash flow	-0.202*** (-3.83)			-0.177*** (-2.61)	-0.183** (-2.31)
Leverage		-0.109*** (-3.41)		-0.146*** (-3.73)	-0.154*** (-3.21)
Trade credit			0.0801** (-2.06)	0.0851** (-2.17)	0.0359 (-0.89)
Employees					-0.0563*** (-5.66)
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
N	12641	12844	8157	8144	6242
R-sq	0.157	0.159	0.178	0.185	0.202
adj. R-sq	0.08	0.083	0.078	0.086	0.089
F	14.69	11.62	4.242	8.082	14.61

The table reports the estimates of firm fixed effects regressions of assets growth. All variables are defined in Table 3-1. t-statistics are reported in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

This paper now aims to estimate an alternative way of examining free cash flow, leverage and trade credit where the year 2020 is excluded from the sample period. Because of COVID-19, the world global market suffered, I wanted to explore if excluding this year would prevent variable values from affecting the outcomes or result is still robust or not. I perform separate regressions to see the exact impact on firm growth. Additionally, I was interested in determining whether variables have any influential effect on firm growth when internal finance can become more important in a period where the market faces an unpredictable and highest level of uncertainty due to the covid-19 pandemic. A longer sample period is needed to see the exact impact. However, the data for this analysis is up to 2020. Thus, excluding the observations from the year 2020 from the data set, the following regression results are estimated (Table 5-3 and Table 5-4).

*Table 5-3 Effect of financing on assets growth (excluding the Covid-19 year 2020)*

	(1)	(2)	(3)	(4)	(5)
Free cash flow	0.0902** (-2.08)			-0.111** (-1.97)	-0.130* (-1.95)
Leverage		-0.232*** (-7.35)		-0.308*** (-8.09)	-0.344*** (-7.52)
Trade credit			0.129*** (-3.17)	0.130*** (-3.13)	0.0522 (-1.14)
Employees					-0.0416*** (-4.62)
Firm fixed effects	yes	yes	yes	yes	yes
N	11692	11899	7432	7421	5631
R-sq	0.18	0.192	0.22	0.239	0.262
adj. R-sq	0.1	0.113	0.119	0.14	0.151
F	4.332	54.09	10.06	27.38	22.11

The table reports the estimates of firm fixed effects regressions of assets growth. All variables are defined in Table 3-1. t-statistics are reported in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

*Table 5-4 Effect of financing on sales growth (excluding the covid-19 year 2020)*

	(1)	(2)	(3)	(4)	(5)
Free cash flow	-0.175*** (-3.26)			-0.0822 (-1.20)	-0.0559 (-0.74)
Leverage		-0.0591* (-1.73)		-0.135*** (-3.29)	-0.129** (-2.53)
Trade credit			-0.110*** (-2.60)	-0.101** (-2.36)	-0.167*** (-3.92)
Employees					-0.0492*** (-4.77)
Firm Fixed effects	yes	yes	yes	yes	yes
N	11607	11794	7388	7378	5608
R-sq	0.175	0.176	0.203	0.209	0.225
adj. R-sq	0.095	0.096	0.101	0.107	0.109
F	10.64	3.006	6.764	5.818	9.647

The table reports the estimates of firm fixed effects regressions of assets growth. All variables are defined in Table 3-1. t-statistics are reported in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Overall, the result shows a statistically significant decline in growth in regards to the free cash flow and for leverage. Taken together, these findings are consistent with those reported in Table 5-1 and Table 5-2, the only difference is trade credit shows a negative effect on growth in terms of sales. Although this finding is not in line with the hypothesis, except for trade credit the result remains robust. That's mean our main result are not influence by the covid -19 observation.

## 5.2 Additional analysis

I conduct separate regressions differentiating firms in terms of their financing status (i.e, high verses low cash flow firm, high versus low levered firm)and firm size(bigger verses smaller firm) . Table 5-5 displays these outcomes. As predicted by the hypothesis, the result in the model (1) demonstrates a favorable link between growth and free cash flow. Compared to companies with little free cash flow, companies with more free cash flow have a beneficial effect on growth. A possible explanation for this is that companies with a high Tobin's Q ratio, which is in my case high cash flow firm should have a high Tobin's Q ratio expected to invest their excess cash to positive NPV projects, and also they will involve the acquisition of other companies, repay their loan,

invest in capital expenditure that will ultimately lead them towards growth. Additionally share market also value free cash flow.

According to model 2, a poor cash flow firm has a negative effect on growth. The most plausible explanation is that as model two includes low cash flow firms they are accepted to be low Tobin's Q ratio and they may not have access to cash for projects with a positive NPV or acquire new firms if their cash flow is poor.

On the other hand, the outcome is unchanged for models (3) and (4), which represent high and low-leverage firms, respectively, and consistent with our primarily regression analysis in table 5. It has a significantly negative effect on growth. The reason behind this can be when a firm reaches the highest level of debt in its account then it can act as a constraint. So ultimately, it will hinder growth. They cannot invest more because instead of investing their resources will use to repay the debt.

*Table 5-5 Financing effect on firm assets growth (sub-sample analysis)*

	High free cash flow firm	Low free cash flow firm	High leverage firm	Low leverage firm	High trade-credit firm	Low trade-credit firm	Bigger firm	Smaller firm
	1	2	3	4	5	6	7	8
Free cash flow	0.311* (-1.81)	-0.653*** (-4.19)	-0.195** (-2.14)	-0.070 (-0.81)	-0.294** (-2.51)	-0.014 (-0.18)	-0.199** (-2.32)	0.181*** -2.62
Leverage	0.335*** (-5.88)	-0.153 (-1.55)	-0.310*** (-4.44)	-0.358*** (-4.49)	-0.273*** (-3.85)	-0.395*** (-6.51)	-0.290*** (-3.92)	-0.237*** (-6.04)
Trade credit	0.004 (-0.07)	0.282*** (-2.75)	0.115 (-1.44)	0.075 (-1.62)	0.321*** (-2.67)	0.150* (-1.85)	0.076 (-1.14)	0.100** (-2.36)
Employees	-0.034* (-1.77)	-0.043*** (-2.81)	-0.019 (-1.57)	-0.061*** (-3.87)	-0.005 (-0.49)	-0.079*** (-4.80)	-0.103*** (-6.09)	-0.011 (-1.50)
Firm fixed effects	yes	yes	yes	yes	yes	yes	yes	yes
N	2209	2038	2676	2900	2564	2828	2694	3412
R-sq	0.385	0.383	0.352	0.322	0.387	0.318	0.284	0.228
adj. R-sq	0.186	0.163	0.2	0.182	0.202	0.18	0.146	0.117
F	11.24	8.074	8.181	10.94	7.604	22.35	16.92	13.53

The table reports the estimates of firm fixed effects regressions of assets growth. All variables are defined in Table 3-1. t-statistics are reported in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

In terms of low levered firms, it is possible that they are using debt only to manage their operation, not for growth purposes or they are facing problems collecting

debt because of regulation or difficult financing constraints. Although in our sample firm, this is unlikely that they will face difficulty because of the banking system or regulation problems. However, when I analyze both cases results remain robust.

However, both types of firms exhibit a favorable trade credit impact on growth in the model (5) and (6). This supports Hypothesis 3. A firm with efficient trade-credit channels will have a positive effect on growth no matter whether their firms are maintaining high or low trade credit. Trade credit helps the firm to boost their business and create a good customer relationship. To assess the impact of the variables on growth, I finally divided our sample firms into small and big firms in models (7) and (8). This outcome is once more consistent with our primary regression analysis in table 5, which indicates a free cash flow has a negative effect on growth. Nevertheless, here it is only true for bigger firms. However, in terms of leverage, the outcome is in line with my hypothesis 2; where I assume that leverage has a positive effect on firm growth. From models 7 and 8 it can be concluded that leverage has a positive effect on growth, no matter the firm characteristics. This should be the case as my sample firms are a part of the organized financial and economic regions. For trade credit, it's again showing positive results, no matter the firm characteristic.

## 6 Conclusion

The main goal of this paper is to analyze the different financing effects on firm growth of European listed firms. Also as an addition, this paper analyzed what effect it has because of free cash flow, leverage, and trade credit towards growth if I categories our firms in terms of high and low, bigger and smaller firms.

The empirical results analyzed in the paper do not support the first hypothesis. In the first hypothesis, the variable free cash flow has a negative effect on firm growth. Consequently the second hypothesis, the variable leverage has a negative effect on the firm growth, which is a finding that contradicts my expectations, thus with the hypothesis.

A possible explanation for this is the Precautionary motive of holding cash which is a tendency of a firm to hold cash to meet future uncertainty. Also sometimes excess cash creates conflict between shareholders and managers if there is a difference between two parties' interests then it can also lead to a negative effect on growth.

The most plausible explanation is that, because of the actions involved in repaying the debt, when leverage reaches its peak level, it can function as a barrier to firm growth. Also not using leverage optimally and using leverage to manage their working capital, not for investment purposes. Furthermore, reverse causality may be the reason for the assumptions used in this research about free cash flow and leverage for growth, like other factors that may have more impact on the growth dynamics of a firm and also which can vary among countries or because of economic or legal conditions.

However, the estimation result of the most consistent and efficient estimator (fixed effect) revealed that trade credit exerts a significant positive impact on growth. This means the trade credit channel as a result of account receivables and account payables helps the firm to boost its growth. The results remain robust to several sensitivity tests.

The research has some limitations on findings associated with growth. One limitation is data. I wanted to see the covid-19 effect but because of not have enough sample years. Analyzing the covid-19 effect will not shade a true result.

Future researchers are expected to employ samples from various industry sectors to determine whether their findings differ or are similar to those of this study. Alternatively, a new research model might be created and compared to the findings of the current study utilizing the same variables or a different explanatory variable to determine growth.

Another intriguing area for further research is the discovered relationship between trade credit with supplier and customer and also the corporate governance with trade credit.



## 7 Appendix

*Table 7-1 Variance inflation factor (VIF) test for multicollinearity*

<b>Variable</b>	<b>VIF</b>	<b>1/VIF</b>
leverage	1.12	0.889390
employees	1.01	0.988236
cash flow	1.08	0.928821
trade credit	1.07	0.936534
Mean VIF	1.04	

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