Does the economic cycle of the economy affect the speed of adjustment?

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Dissertation submitted in partial fulfilment of requirements for the MSc in Finance, at the Universidade Católica Portuguesa, May 31st, 2023.

Abstract.

Macroeconomic conditions influence the financing choices of companies, affecting their capital structure. Although the concept of target leverage has been and is still widely discussed in the empirical literature, several results show the tendency of companies to target a certain capital structure following deviations from it. The objective of this analysis is to observe how variations in the business cycle, from 1993 to 2023, influenced the tendency of companies to limit deviations from the target. The analysis conducted showed that the speed of adjustment tends to be higher in positive stages of the economy, regardless of whether the companies have a bond rating or not, and that the deviation from target leverage tends to expand in periods of crisis. Besides this, other factors are crucial in influencing this behaviour of companies. In particular, smaller companies in the sample approach the target more quickly. Following shocks, the greater the distance to the target, the greater the adjustment effort of the companies in the sample. Overall, the results show that although macroeconomic variables influence the ability of companies to approach the target, firm-specific characteristics also play an important role in the analysis of the speed of adjustment.

Keywords: adjustment speed, target leverage, macroeconomic stages, capital structure.

Title: How the economic cycle influences firms’ adjustment speed.

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Resumo.

As condições macroeconómicas influenciam as escolhas de financiamento das empresas, afectando a sua estrutura de capital. Apesar de o conceito de *target leverage* ter sido e continuar a ser amplamente discutido na literatura empírica, vários resultados mostram a tendência das empresas para atingir um determinado *target* de estrutura de capital, acompanhando os desvios face ao mesmo. O objetivo desta análise é observar de que forma as variações do ciclo económico, no período de 1993 a 2023, influenciaram a tendência das empresas para limitar os desvios face ao *target*. A análise efectuada mostrou que a velocidade de ajustamento tende a ser maior em fases positivas da economia, independentemente de as empresas terem ou não *rating* de obrigações, e que o desvio da alavancagem face ao *target* tende a expandir-se em períodos de crise. Para além disto, outros factores são determinantes para influenciar este comportamento das empresas. Em particular, as empresas mais pequenas da amostra aproximam-se mais rapidamente do objetivo. Após os choques, quanto maior for a distância em relação ao objetivo, maior será o esforço de ajustamento das empresas da amostra. Em geral, os resultados mostram que, embora as variáveis macroeconómicas influenciem a capacidade das empresas para se aproximarem do objetivo, as características específicas das empresas também desempenham um papel importante na análise da velocidade de ajustamento.

Palavras-chave: velocidade de ajustamento, alavancagem alvo, fases macroeconómicas, estrutura de capital.

Título: Como o ciclo económico influencia a velocidade de ajustamento das empresas.

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1. Introduction.

Many empirical analyses show that companies have a target leverage ratio, which is the optimal level that allows them to best balance the costs and benefits of debt. Too much debt is risky for a company, but at the same time too little debt may not allow a company to make investments that might allow it to grow, if it cannot, for example, self-finance a project. Although this is the premise, companies often deviate from this target during their life cycle for various reasons. Fama and French (2002) showed that leverage reverts to equilibrium after deviations. Before that, many studies analysed the dynamics of the capital structure of companies, analysing in particular how the firm characteristics influence it (Titman and Wessels (1988), Rajan and Zingales (1995), Graham (1996), Fama and French (2002)).

Not many studies analyse how macroeconomic conditions impact on the capital structure of firms, although there is evidence that directly or indirectly these have a fundamental influence on a firm's financing choices, for instance how the cost of debt varies, or the risk of default when economic conditions dim. First Drobetz and Wanzenried (2006) and then Cook and Tang (2010) focused on this dynamic, studying how the ability of firms to limit deviations from their capital structure varies as the business cycle changes. The results show that with a positive economic environment, companies can adjust their capital structure more agilely. More recently, the same conclusions were reached by Daskalakis et al. (2017), analysing small and medium-sized companies, and Alter and Elekdag (2020), analysing companies operating in emerging markets.

The purpose of this analysis is to observe how the adjustment speed varies for US public companies from 1993 to 2023, thus including major crises that are very different in terms of scale, duration, and characteristics, analysing their influence on companies in the sample. Even though the results obtained are quite consistent with those of previous analyses, showing a higher AS in good economic times, further analyses bring to light how the size of the companies also has a decisive influence on the definition of it. The results show that, although macroeconomic conditions are fundamental for analysing the behaviour of companies regarding their capital structure, financing decisions depend on several factors at the same time, which, linked together, can lead a company to deviate from its target leverage.

The structure of the research is as follows. In section 2., there is an analysis of previous empirical results. Sections 3. and 4. present the methodology and data, respectively. In section 5. there are the results and in section 6. the robustness tests.

2. Literature Review.

According to one of the main theories of capital structure, the simplest formulation of Modigliani and Miller's theorem (1958), in a perfect market financing choices do not impact the firm's value. In an imperfect market, however, companies' choices of capital structure are not irrelevant. Considering market imperfections several theories have developed. The most analysed ones seem to be two: the pecking order theory and the trade-off theory.

Several studies have analysed the empirical relevance of the different theories of capital structure, trying to identify what impacts it. These studies, however, do not give a unanimous answer on which theory best explains corporate financing decisions. Testing the pecking order theory and the trade-off theory, Fama and French (2002) obtained results in favour (or against) both. Results of leverage tests show that companies with high non-debt tax shields have a lower level of debt (in accordance with the trade-off theory), at the same time, the results indicate a negative relationship between profitability and market and book leverage (in favour of pecking order theory). Also, Gungoraydinoglu and Öztekin (2011) analysing whether country-level determinants have an impact on leverage, found results in favour of both theories (higher tax rates, agency costs of equity, adverse selection and lower bankruptcy costs, taxes, costs of debt are associated with higher level of leverage).

However, a common result tends to emerge from empirical research, the capital structure of companies tends to be oriented around target range leverage ratios. Already Fischer et al. (1989) used as an empirical measure of the capital structure of companies a target range around which the debt ratio of companies varies, stating that companies approach it only if the benefits more than offset the costs. Graham and Harvey's (2001) survey shows that only 19% of the surveyed CFOs state that they do not have a target debt ratio, while 81% state that they have a target range. Harford et al. (2009) observe more than a thousand acquisitions, events that can change the capital structure of the company, the results show that managers operate in such a way that firms do not deviate too much from a target capital structure. Thus, the most recent empirical studies seem to agree on the existence of targets.

Clearly, the capital structure of companies is not static, it varies over the life of a company because of exogenous or endogenous events. Fama and French (2002) argue that leverage is mean-reverting. Deviations are, however, persistent and the reversal slow. Thus, it is possible for deviations from the target capital structure to be persistent. In fact, as several empirical studies explain, the AS is influenced by several factors. Titman and Wessel (1988) argue that transition costs can have a significant influence on capital structure preferences. So, depending on the level of adjustment costs, it may be less expensive for firms to temporarily deviate from the optimal capital structure. The dynamic nature of a firm's capital structure is analysed by the empirical model implemented by Flannery and Rangan (2006), which shows that non-financial firms have a target ratio in the long run and, if they deviate from it, they converge to it at an annual rate of about 30%. Moreover, firms with high absolute leverage approach their target more quickly. This result is consistent with Leary and Roberts (2005) who show that firms adjust their capital structure infrequently when they face adjustment costs, but the likelihood of decreasing debt increases if the level is high relative the target leverage.

Most empirical work focuses mainly on firm-specific characteristics, ignoring the fact that changes at the macroeconomic level impact both costs and benefits of firms' financing choices. For example, Faulkender et al. (2012) argue that the adjustment speed increases in relation to a firm's cash flows, and that adjustments are more likely to be realised if they are in line with the level of cash flows generated. However, a company's cash flows are also influenced by economic trends, as are default risk and the cost of debt. In this regard, Korajczyk and Levy's (2003) study of unconstrained and constrained firms shows that when firms must make decisions about capital structure, they consider both the distance from their leverage target and the costs associated with issuing one security rather than the other. Unconstrained firms, however, are better able to alter their capital structure according to macroeconomic changes (opting for the most advantageous financing). Thus, the ability to access capital markets affects the financing strategy of companies. Furthermore, Hackbarth et al. (2006) created a partial equilibrium model in which firm's cash flows are a function of an idiosyncratic shock and an aggregate shock that describes the condition of the economy. The model predicts that, on average, firms are able to borrow more funds in an economic boom, thus market leverage is cyclical. Moreover, if a firm can freely change its capital structure, it will reach its target with smaller and more frequent changes during economic booms. The greater adaptability of unconstrained firms in changing their capital structure is also confirmed by Levy and Hennessy (2007). They show through a general equilibrium model that economic contractions impact less on unconstrained firms. Unconstrained firms have the capacity to replace equity and debt in a more agile manner, better managing any shocks (specifically, they find a negative relationship between leverage and business cycle for unconstrained firms).

In summary, in a world with friction, companies take different time intervals to approach their TL, which may also vary over time (Hovakimian et al. (2001) and De Miguel and Pindado (2001)). Indeed, as shown by Daskalakis et al. (2017), the impact of a change in economic conditions has a greater magnitude on the level of debt in the long run.

As pointed out by Drobetz and Wanzenried (2006) and then by Cook and Tang (2010), there is a lack of empirical analysis focusing on the role that macroeconomic changes play in influencing the adjustment speed of firms. Analysing 90 Swiss companies between 1991 and 2001, Drobetz and Wanzenried (2006) investigated the impact of both firm-specific characteristics and macroeconomic factors on the adjustment to the target. They found a relationship between certain economic cycle variables and the speed (e.g., when economic growth is expected and the term spread is higher, the adjustment speed is higher), while with regard to firm-specific characteristics the firms that approach the target more quickly are those that grow more or are further away from their target (a result consistent with Flannery and Rangan (2006) and Leary and Roberts (2005)).

Since limitations to access the capital market may also result from macroeconomic conditions, Drobetz and Wanzenried replicate the approach of Korajczyk and Levy (2003) by dividing their sample between unconstrained and constrained firms. Due to the small sample, however, the authors themselves admit that their results have strong limitations, as they are unable to identify differences in the speed between the two groups.

Cook and Tang (2010) conduct an empirical analysis on this topic using a larger sample (observations of US companies from 1977 to 2006). To analyse whether the adjustment speed is higher in good economic states, as shown by Hackbarth et al. (2006), the authors subdivided the sample between good and bad stages using macroeconomic factors common in the literature (Term Spread, Default Spread, GDP growth rate and Market Dividend Yield). Regardless of the variable used to divide the sample into stages of the economy, the speed is greater in good than in bad stages.

As already discussed by Korajczyk and Levy, a financially constrained company is not completely free to choose how to finance itself. Cook and Tang analysed the adjustment speed of unconstrained and constrained firms under favourable and unfavourable economic conditions. The results show that unconstrained firms adjust their capital structure faster than constrained ones. This result is consistent with that obtained without dividing the firms into the two groups: both constrained and unconstrained firms adjust their capital structure faster under good economic times. In conclusion, the approach to the target is mainly influenced by economic conditions.

As mentioned by Drobetz and Wanzenried (2006) and Cook and Tang (2010) most empirical studies used a non-dynamic approach, using observed debt levels as a proxy for target leverage (e.g. Titman and Wessels (1988) and Zingales (1995)). In both studies, the two-stage dynamic partial adjustment capital structure model is applied (following previous studies on capital structure theories e.g. Fama and French (2002) and Kayhan and Titman (2007)). Hovakimian et al. (2001) implemented this two-step estimation procedure to empirically analyse the financial decisions of companies. A target that varies over time and a proxy for deviation between the firm's current and target debt ratio are estimated consistent with changes in the firm and the economy. Flannery and Rangan (2006), however, found a result that contradicts a concept underlying this two-step estimation procedure (that observed debt ratio and target in the long run should converge): the long-run elasticity of the observed debt ratio with respect to the target is 0.56, thus it is less than one at a high confidence level. Following this result, Cook and Tang (2010) also use an integrated capital structure model in their study, which includes the AS and is controlled for firm fixed effects. The findings obtained by applying both models coincide. These results were supported by a more recent study by Gan et. al (2021), who found that companies adjust their capital structure more slowly in bad macroeconomic states and when macroeconomic risk increases. Also Alter and Elekdag (2020), analysing companies operating in emerging markets, find that in correspondence with favourable global financial landscapes companies can increase their leverage more rapidly.

In conclusion, despite the influence that macroeconomic conditions have on firms' financing choices, few empirical studies have focused on examining the link between macroeconomic changes and the adjustment speed towards the target leverage. The economy, companies and capital markets are constantly changing, and in recent years the macroeconomic landscape has been characterised by atypical economic phases. The last 30 years have seen several crises (e.g. the dot-com bubble, subprime mortgage crisis and covid crisis), in a context of evolving capital markets. The objective of this analysis is to observe how these events affected the financing choices of US companies, and whether the impact on the speed of adjustment towards a dynamic leverage target is consistent with that resulting from Cook and Tang's study.

3. Methodology.

In the empirical research one conclusion emerges: companies have an optimal leverage level, a target to which they converge in the long run. It is common that the leverage level is not aligned with the target. This is because companies face various frictions that do not make it economically feasible to immediately absorb any deviation from the target. Adjustment costs, firm characteristics and macroeconomic changes make it less costly for a company to deviate from its target than to modify its capital structure to get closer to it. The purpose of this study is to observe how the adjustments speed varies according to these aspects. Particular attention is paid to how macroeconomic conditions influence the speed of adjustment, since it is from these that adjustment costs and characteristics of a company are largely influenced. To this purpose, the methodology of Cook and Tang (2010) is applied. Following previous empirical studies (e.g. Hovakimian et al. (2001); Drobetz and Wanzenried (2006)), Cook and Tang (2010) applied a two-stage model. In consideration of the results obtained from the empirical research of Flannery and Rangan (2006), the results obtained with the two-stage model are compared with those from the application of an integrated model.

3.1 Two-stage dynamic partial adjustment capital structure model.

Many empirical studies show that companies deviate from their target leverage due to several effects (Titman and Wessel (1988), Fama and French (2002), Leary and Roberts (2005)). Furthermore, target leverage itself varies during the life of a company (Hovakimian et al. (2001), De Miguel and Pindado (2001)). Therefore, a model that captures this dynamic and the frictions that force companies to deviate from the target is implemented: the two-stage model. Applying this model, the aim is to analyse whether and how much the adjustment speed varies at different stages of the economy. This model consists of two equations, with the first one defining the target leverage and the second one measuring how quickly the company moves back towards it.

Equation (1) defines the target leverage of company *i* at time *t*:

$$D^*_{i,t} = \gamma Macro_{t-1} + \beta X_{i,t-1} \quad (1)$$

Eq. (1) estimates the target leverage ($D^*_{i,t}$) based on one-period lagged macroeconomic ($Macro_{t-1}$) and firm i's characteristic variables ($X_{i,t-1}$). This is because economic conditions, performance of a company (e.g. level of cash flows, Faulkender et al. (2012)) and accounting characteristics of a firm influence the optimal capital structure. Firm characteristics and macroeconomic variables affecting the target are defined in sections 4.2.1 and 4.2.2 respectively.

In a frictional world, it may be less costly for companies to deviate from their target than to face the expense of approaching it. In the presence of adjustment costs then, companies take different time intervals to approach their optimal leverage. Therefore, in accordance with the literature, a partial adjustment model is applied in Equation (2):

$$D_{i,t} - D_{i,t-1} = \delta\left(D^{*}_{i,t} - D_{i,t-1}\right) + \varepsilon_{i,t} \quad (2)$$

Eq. (2) explains that the change between the leverage of company i in *t* and *t-1* is equal to a portion of the deviation from the leverage of the previous period to the current target. How the level of leverage was defined for companies is explained in the section 4.1. The adjustment speed and the size of the portion are given by the δ term. This term represents in what proportion the company adjusts its capital structure, if there were no frictions then δ=1 as the leverage in *t* would be equal to the target. Since there are adjustment costs in empirical reality, and deviation are not immediately compensated, the value of δ should be less than 1.

3.2 Integrated dynamic partial adjustment capital structure model.

An important underlying assumption of the two-step estimation procedure is that in the long run the leverage level of a company should converge to its target. In statistical terms the long run elasticity of the observed leverage ratio with respect to the target should be 1. The study conducted by Flannery and Rangan (2006) shows an elasticity of 0.56 at a high confidence level. Furthermore, the empirical results of this study show a rate of adjustment to the target of more than 30% per year. This value is well above the estimates obtained, with a two-stage model, from previous empirical analyses.

Following this result, it is meaningful to analyse whether the results obtained with the two-step model are consistent with the integrated model. In accordance with Cook and Tang (2010), the dynamic model was constructed by combining and rearranging the terms of Eq. (1) and (2):

$$D_{i,t} = (1-\delta)D_{i,t-1} + \delta\beta X_{i,t-1} + \delta\gamma Macro_{t-1} + \varepsilon_{i,t} \quad (3)$$

To analyse how the adjustment speed defined by the models varies depending on macroeconomic conditions, three stages of the economy were defined: good, moderate, and bad. The economic indicators used to define the three conditions of the economy are outlined in section 4.3.

4. Data

The sample covers a period of about 30 years, from 1993 to 2023. This time span was chosen with the aim of capturing different stages, of growth and crisis, of the macroeconomic environment. The sample includes all US companies from Compustat – Capital IQ excluding, in accordance with D.O. Cook and T. Tang (2010) and previous studies, financial firms (SIC code 6000-6999) and utilities (SIC code 4900-4999).

The data for the macroeconomic variables used were obtained from the Federal Reserve website. The market data used, to define value-weighted market return and dividend yield, were obtained from the CRSP database.

4.1 Leverage of firms.

To analyse the adjustment speed towards the target, it is necessary to have variables representing the effective leverage of companies at a given point in time in the time frame considered. As pointed out by Cook and Tang (2010), book and market values are used in the empirical literature, and there seems to be no predominant consensus as to which is more consistent in representing the effective capital structure of a firm. Therefore, to define the leverage of firm *i* at time *t* two ratios were used: book and market leverage ratios.

The book leverage ratio was calculated as the sum of the book value of interest-bearing short-term and long-term debt at time *t* divided by the total value of assets at *t* [1]:

$$BD_{i,t} = \frac{SD_{i,t} + LD_{i,t}}{TA_{i,t}} \tag{4}$$

The market leverage ratio is the sum of the book value of short-term and long-term debt at time *t* divided by the sum of the market value of equity, short-term and long-term debt [2]:

$$MD_{i,t} = \frac{SD_{i,t} + LD_{i,t}}{SD_{i,t} + LD_{i,t} + S_{i,t}P_{i,t}} \tag{5}$$

In the sample also inactive companies (as defined by Compustat) were included. Since the level of debt and the market value of equity are strongly influenced by the life cycle of a company, ratios that fall outside the outliers of [0,1] were excluded. This was done with the main objective

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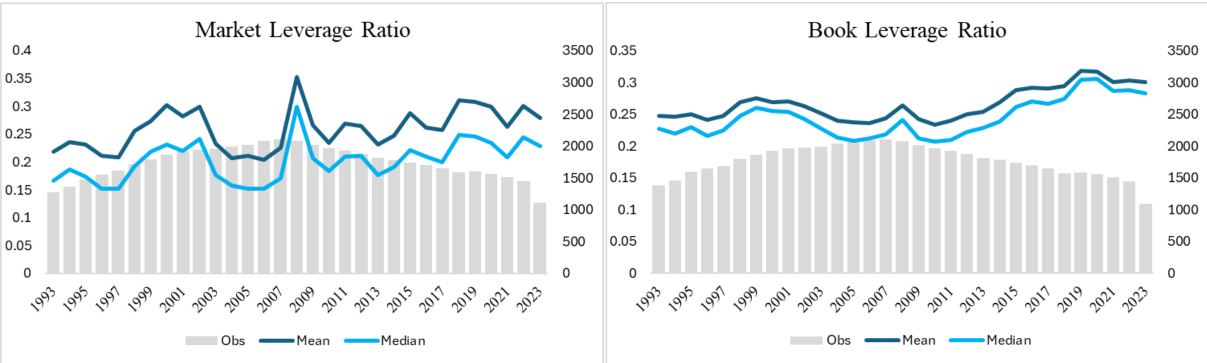
[1] Sum of Compustat items 9 and 34 divided by item 6

[2] Sum of Compustat items 9 and 34 divided by the product of items 25 and 24 added to items 9 and 34. Items 25 and 24 are respectively the number of ordinary shares outstanding and the share price at time t.

of excluding particularly high or extreme values (typical of companies close to bankruptcy) that could distort the results of the estimates.

With the aim of having a consistent number of observations for each company, firms for which complete data was not available for at least half of the time span (15 years) were excluded; this ensured that complete data was available for at least two adjacent years and that lagged variables could be used.

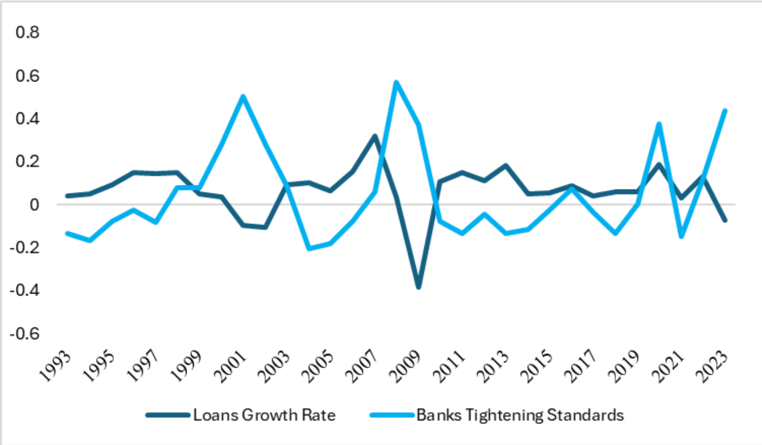
Graph 1. Summary statistics of Leverage Ratios.



Data retrieved from Compustat – Capital IQ excluding financial firms (SIC code 6000-6999) and utilities (SIC code 4900-4999). For market ratio, the sample consists of 2,236 companies and 54,113 firm-year observations. For book ratio, the sample consists of 2,236 companies and 54,883 firm-year observations.

In line with Cook and Tang (2010) results, the book ratio (whose overall standard deviation is 0.1856) fluctuates less overall than the market ratio (whose overall standard deviation is 0.2242). More specifically, as plotted in the Graph 1, the market ratio appears to be more reactive to changes in the economic cycle. In this regard, Graph 2 shows two macroeconomic variables used by Becker and Ivashina (2014), the loans growth rate and the change in banks tightening standards.

Graph 2. Credit Growth.



Loans Growth Rate. Computed as the annual growth rate of Bank and other loans and Other Loans and Advances and Bank Loans Not Elsewhere Classified. Banks Tightening Standards. Net percentage of domestic banks tightening standards for C&I loans to large and middle-market firms. The data were obtained from the Federal Reserve Board's webpage.

Graph 1 shows that the average level of leverage ratios increased up to the late 1990s-early 2000s, a critical period in the US economy due to the dot-com bubble. The pre-crisis debt growth can be explained by the general enthusiasm for the new internet era and by a small decrease in the Federal Funds Effective Rate in the late 1990s. After the bursting of the bubble, the average level of leverage tends to decrease. This behaviour is consistent with what is plotted in Graph 2, in fact in these years there was an increasing loan growth rate and an expansion of credit supply, the rate of banks tightening standards being negative. With and after the outbreak of the crisis, there is a contraction of credit supply, consistent whit a decrease in leverage ratios. The credit supply then tends to expand, until 2007-2008 with the subprime mortgage crisis that led to a severe credit crunch. The positive loan growth rate is linked to the low interest rate charged by banks for overnight federal funds loans, allowing them to issue credit at low rates. This, combined with an excessive propensity for risk contributed to the outbreak of the crisis and the immediate subsequent tightening of credit conditions.

With the arrival of the pandemic, an initial tightening of banking standards and a decrease in average market and book ratios can be observed, followed by an expansion and another contraction. This variation is also due to Central Bank action (the Federal Funds Effective Rate fluctuated around 0 until mid-2022 and then increased).

This trend in leverage is consistent with previous empirical evidence. Consistent with Cook and Tang (2010), debt levels, and leverage ratios, tend to increase around periods of crisis but, as shown by Becker and Ivashina (2014), tend to contract during periods of crisis and economic recovery.

4.2 Target leverage.

The models applied to estimate target leverage include both macroeconomic lagged variables ($Macro_{t-1}$) and lagged variables for firm characteristics ($X_{i,t-1}$).

4.2.1 Firm characteristics.

To represent company specific characteristics ($X_{i,t-1}$), ratios were constructed with accounting data affecting the target capital structure. The selected set of variables has already been examined in the empirical literature and seems to be the most effective in representing company characteristics affecting the TL (Rajan and Zingales (1995), Hovakimian (2003), Hovakimian et al. (2001), Fama and French (2002), Flannery and Rangan (2006)).

MB is market-to-book ratio. Hovakimian (2003) finds that the difference between the market-to-book of the average issuer of equity and the average issuer of debt is significant and positive. This prevailing negative relationship between market-to-book and leverage can be explained in several ways: Fama and French (1992) explain that companies with higher levels of debt are those that are more at risk of financial strain, more risk is discounted by the market with a higher rate, thus the market-to-book will be lower. At the same time, it is cheaper for companies to finance themselves with equity when the share price is high compared to the book value. Flannery and Rangan (2006) also explain this negative relationship, a market-to-book may also depend on a positive market view of the company's future growth. This growth opportunity can be protected by companies trying to reduce their leverage.

TANG is a measure of tangible assets. Rajan and Zingales (1995) analysing the determinants of capital structure choice in developed countries find that the ratio of fixed capital to total assets is significant and positively correlated with book and market leverage for the US. Companies with more tangible assets are likely to have lower bankruptcy and borrowing costs due to the possibility of using physical assets as collateral, which implies a higher borrowing capacity.

EBIT is a proxy of firms' profitability. Regarding profitability, Rajan and Zingales (1995) find a negative relationship with leverage; in the long run, firms may replace debt with retained earnings to finance themselves if their profitability increases, reducing the need for external sources of finance.

DEP is a measure of the depreciation expenses**.** Cook and Tang (2010) explain that due to the already high tax deduction from depreciation, companies with a relatively high depreciation expense will be less inclined to go into debt to benefit from the debt tax shield.

LNTA is a proxy for firms' size**.** Rajan and Zingales (1995) explain that the relationship between the size of a company and its TL is ambiguous. A larger size may mean lower distress costs and thus higher leverage, but at the same time for a larger company there may be more information available to investors and, thus, it may be easier to finance with equity.

SE and **RD** are measure of selling and research and development expenses, respectively. Titman (1984) and Hovakimian et al. (2004) show that companies with high expenditures in these items tend to have more growth opportunities, more intangible assets and tend to develop a unique product. They are more exposed to the risk of insolvency, given the possible higher volatility of cash flows, and thus have low leverage targets. **RDD** was used in the analysis, it is a dummy variable realised as not all companies in the sample reported such expenses.

Following Cook and Tang (2010) the data used were obtained from Compustat Industrial Annual - Capital IQ. Using the entire database, financial firms (SIC code 6000-6999) and utilities (SIC code 4900-4999) were excluded. These are, in fact, subject to special regulation that limits their flexibility in determining their capital structure.

Given that the time span of 30 years is quite vast and there is data on Compustat for companies that are no longer active, only observations for firms operating at least half of the sample years were maintained in the sample. This permitted more robust and less volatile data to be included in the sample. Furthermore, to make the results more plausible, observations with blank cells (excluding the research and development expenses) or with values equal to zero were considered as unavailable, and then excluded from the sample.

Always for this purpose, a winsorization of the ratios at the 1^{st} and 99^{th} percentile was necessary, this with the aim of excluding too extreme values (e.g. low assets and high liabilities that could be due to the imminent bankruptcy of a company).

Table 1. Firm characteristics' ratios

Panel A. **Ratios for firm characteristics.**

Ratio	Computation
MB	(Book liabilities + Market Value of equity)/Total Assets (Compustat items 181+(24*25) and 6)
TANG	Gross PPE Gross /Total assets (Compustat items 7 and 6)
EBIT	EBIT/Total Assets (Compustat items (15+16+18) and 6)
DEP	Depreciation/Total Assets (Compustat items 14 and 6)
LNTA	Ln(Total Assets) (Compustat item 6)
SE	Selling Expenses/Total Sales (Compustat items 41 and 12)
RD	RD Expense/Total Assets (Compustat items 46 and 6)
RDD	Dummy variable = 1 if a firm reports RD expenses, 0 otherwise

Panel B. **Summary statistics of ratios - Market sample.**

Ratio	Mean	Median	Std. Dev	Min	Max	Obs
MB	1.828	1.432	1.291	0.566	8.700	54,113
TANG	0.608	0.513	0.435	0.032	2.220	54,113
EBIT	0.059	0.076	0.129	-0.611	0.316	54,113
DEP	0.046	0.040	0.029	0.004	0.165	54,113
LNTA	6.678	6.774	2.344	1.308	11.832	54,113
SE	0.245	0.185	0.226	0	1.220	54,113
RD	0.045	0.020	0.064	0	0.362	31,295

Panel C. **Summary statistics of ratios - Book sample.**

Ratio	Mean	Median	Std. Dev	Min	Max	Obs
MB	1.783	1.409	1.243	0.477	8.294	54,883
TANG	0.605	0.511	0.430	0.031	2.163	54,883
EBIT	0.061	0.076	0.125	-0.574	0.317	54,883
DEP	0.046	0.040	0.029	0.004	0.161	54,883
LNTA	6.661	6.757	2.350	1.317	11.826	54,883
SE	0.244	0.184	0.222	0	1.177	54,883
RD	0.045	0.020	0.064	0	0.358	31,680

Panel A summarises computation of the implemented ratios highlighting the Compustat items used. Panel B shows the descriptive statistics of firm characteristics' ratios for the market sample and Panel C instead for the book sample.

4.2.2 Macroeconomic variables.

As with the firm determinants of leverage, the variables used for macroeconomic conditions are in line with Cook and Tang (2010) and a large part of empirical research. Changes at the macroeconomic level have an impact on firms' financing choices: cash flows, cost of debt, bankruptcy costs and tax shields are closely influenced by the economic environment in which a firm operates. In various empirical models, the channel through which macroeconomic changes influence firms' capital structure choices is the distribution of wealth between manager and external stakeholders (e.g. according to Levy and Hennessy (2007) during economic expansions, increased managerial wealth allows companies to replace debt with internal capital). Managers' remuneration depends on company profits, as profit defines the level of bonuses, and on equity performance. For this reason, three proxies for aggregate distribution effect are used as macroeconomic variables in the model (Korajczyk and Levy (2003)).

Another variable that is strongly influenced by the economic cycle and which in turn impacts firms' financing choices is the supply of credit, a firm's demand for debt can only be satisfied when there is sufficient supply at the macroeconomic level. Becker and Ivashina (2014) find that credit supply is pro-cyclical, a proxy for bank credit supply is therefore used to analyse how contractions and expansions of it impact on the preferred capital structure of firms.

CPG is the two-year non-financial corporate profit growth. This proxy was calculated as the two-year growth in net income after taxes of nonfinancial corporate business. The data were downloaded from Financial Accounts - Z.1 from the Federal Reserve Board's web page[3].

VRMR is the two-years value-weighted market return of NYSE/AMEX/NASDAQ. The data were extracted from CRSP Stock File Indexes. Starting from the level of the NYSE/AMEX/NASDAQ including dividends (Index Level Associated with VWRETD) the logarithmic return over two years was calculated.

CPSPREAD is the commercial paper spread, which is the difference between the annualized rate of three-month commercial paper and the three-month Treasury bill. For the CP rate, the data were obtained from the Federal Reserve Board's web page from 1997 onwards. The series retrieved is the 90-Day AA Nonfinancial Commercial Paper Interest Rate [4]. Since rates prior to 1997 were not available, the missing data were obtained from the Federal Reserve Bank of St. Louis' web page [5]. Finally, three-month treasury bill rates were also obtained from the Federal Reserve Board's webpage [6].

BTS is the net percentage of domestic banks tightening standards for C&I loans to large and middle-market firms[7]. The value of the tightening of banking standards comes from the result of the Senior Loan Officer Opinion Survey on Bank Lending Practices. When the value increases, there is an effective tightening of standards, and it is therefore more complicated for companies to obtain bank loans. This means that greater tightening corresponds to a contraction in the supply of loans by banks.

[3] UI: Z1/Z1/FA106110305.A
[4] UI: H15/H15/RIFSGFSM03_N.A
[5] Series CP3M
[6] UI: H15/H15/RIFSGFSM03_N.A
[7] UI: SLOOS/SLOOS/SUBLPDCILS_N.Q

4.3 Macroeconomic conditions affecting adjustment speed.

As previously stated, the purpose of this analysis is to understand whether macroeconomic conditions can be considered a relevant variable in explaining the speed of adjustments towards a leverage target and how these impact on it. Four macroeconomic factors widely employed in empirical studies were applied to define whether a given year is a good or bad stage in the economy.

Term Spread (TS). According to Cook and Tang (2010), TS was defined as the difference between twenty-year government bond yield and the three-month Treasury-bill rate series[8]. Clearly, when the yields of the twenty-year government bond are high, there is a strong possibility that the subsequent period will be characterised by a growing, or at least positive, economic situation. For this reason, this variable is delayed by one year to define a given period *t* as good or bad.

Default Spread (DS). It is defined as the difference in the yield of bonds rated Baa and Aaa by Moody's, both with a maturity of 20 years. Both series were obtained from the Federal Reserve Bank of St. Louis database. Fama and French (1989), explain that this spread is a variable representing general business conditions. It tends to be elevated during negative economic periods, while when business is persistently positive it decreases markedly.

GDP growth (GDP). The series was obtained from the Federal Reserve Bank of St. Louis [9]. This indicator is useful because a common empirical rule explains that at least two consecutive quarters of negative GDP growth means recession.

Market Dividend Yield (MDY). Following D.O. Cook, T. Tang (2010) is calculated as the dividend payment on the value-weighted NYSE/AMEX/NASDAQ portfolio in *t-1*, divided by the portfolio level in *t*. The data were extracted from the CRSP Stock File indices. A high dividend yield indicates a lower index level, thus lower stock prices. This is usually the case when economic conditions are not positive.

To analyse how the adjustment speed varies with macroeconomic conditions, it is necessary to identify which of the observed years correspond to adverse and favourable phases of the economy. This classification is made based on the four macroeconomic variables outlined.

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[8] Retrieved from DataStream (series USGBOND. and USGBILL3)

[9] Series GDPC1

Following Cook and Tang (2010) the years for each variable were divided into quintiles, each quintile consisting of six periods each. Depending on the quintile, each year will be defined as bad, moderate, or good macroeconomic conditions.

Specifically, lagged TS and GDP are two variables that when high indicate an expanding economic situation. Therefore, the highest quintile will correspond to good, while the mid-three and lowest will correspond to moderate and bad macroeconomic states, respectively. In contrast, for states defined by market dividend yield and default spread, years belonging to the lowest quintile represent good macroeconomic states, while those belonging to the highest quintile represent bad states.

The results expected are that, regardless of the macro variable used to define the quintiles, for positive states of the economy the adjustment speed is faster.

Table 2. Mean and median of ratios across stages.

Panel A. **Market Leverage Ratios**

	Market Dividend Yield		**Default Spread**		**Term Spread**		**GDP Growth Rate**	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Good	0.2440	0.1836	0.2367	0.1797	0.2294	0.1734	0.2333	0.1838
Bad	0.2571	0.1997	0.2956	0.2335	0.2862	0.2250	0.2641	0.2298
G vs. B	-0.0131	-0.0161	-0.0590	-0.0538	-0.0568	-0.0515	-0.0308	-0.0460
P-value	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Panel B. **Book Leverage ratios**

	Market Dividend Yield		**Default Spread**		**Term Spread**		**GDP Growth Rate**	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Good	0.2546	0.2322	0.2605	0.2376	0.2412	0.2145	0.2659	0.2455
Bad	0.2756	0.2545	0.2686	0.2439	0.2811	0.2613	0.2668	0.2426
G vs. B	-0.0210	-0.0222	-0.0081	-0.0063	-0.0399	-0.0467	-0.0009	0.0029
P-value	<0.0001	<0.0001	0.001	0.0073	<0.0001	<0.0001	0.7065	0.8445

Mean and median values of leverage ratio between good and bad stages of the economy are compared.
Panel A reports mean, median, the difference across good and bad stages, and the p-values to test the difference.

Since the difference between stages for mean and median is predominantly negative in both panels A and B, leverage tends to be larger in bad stages of the economy. Although Graph 1 shows a lower reactivity of book ratios to economic variations, the negative differences between mean and median are observable regardless of whether the level of leverage is measured in book or market values and regardless of the macroeconomic variable used to define the stages of the economy. This is consistent with the findings of Cook and Tang (2010).

For market values, all p-values are highly significant, indicating a statistically significant difference in means and medians at the 5% level. Regarding panel B, the difference is not significant when the stages are defined by the variable GDP. For this variable, the median is higher in the bad stage than in the good stage. For DS, the difference in the median is also not significant even if negative.

5. Results.

In the following section, the target leverage ratio for both market and book valued leverage ratios is first predicted. The adjustment speed is then estimated, using both the second equation of the two-stage and the integrated models. The estimation at different economic stages was based on the macroeconomic variables TS, DS, GDP growth and MDY. The adjustment speed was then estimated by dividing the sample into two sub-samples: constrained and unconstrained firms.

5.1 Target Leverage Ratio.

To analyse the adjustment speed, the target leverage for book and market values was predicted applying Eq. (1), for all firms in the sample. $D^*_{i,t}$ is the predicted value of the fixed-effect regression of the leverage ratio of firm i on firm characteristics and macroeconomic variables (exposed at sections 4.2.1 and 4.2.2 respectively) at time t. An analysis of the correlation matrix (Table 11 in the Appendix) between the set of lagged variables used for estimation and the target is given in the Appendix.

Table 3. Summary statistics of Target Leverage Ratio.

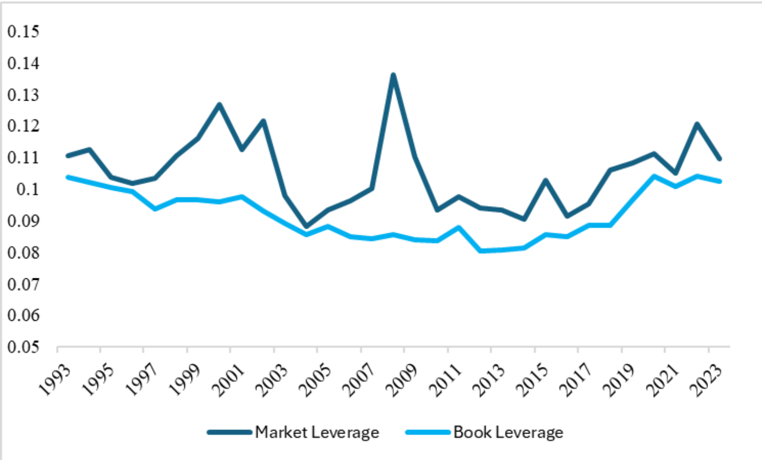
Panel A.			**Market Leverage Ratios**			
	Mean	Median	St. Dev	Min	Max	Obs
Target Leverage (D*i,t)	0.2630	0.2359	0.1717	-0.2713	0.9810	52085
Observed Leverage (Di,t)	0.2630	0.2038	0.2242	7.8E-07	1.0E+00	52085
Panel B.			**Book Leverage ratios**			
	Mean	Median	St. Dev	Min	Max	Obs
Target Leverage (D*i,t)	0.2647	0.2477	0.1340	-0.1280	0.9018	52854
Observed Leverage (Di,t)	0.2647	0.2426	0.1828	1.8E-06	0.9995	52854

Table 4 Panel A reports the summary statistics for target leverage and observed leverage in market values, Panel B for target leverage and observed leverage in book values. Only firm-year observations that have both target and observed ratios are compared.

Consistent with the model assumptions and the data used for prediction, the target leverage is less volatile overall than the observed ratios in both Panel A and Panel B in Table 3.

Looking at Graph 3 the absolute leverage deviation $\left(|D_{i,t}^{*} - D_{i,t}|\right)$ is more pronounced for the ratio measured in market values for almost the entire time span. The deviation measured in market values is more consistent in the late 1990s-early 2000s, in the proximity of the Subprime mortgage crisis and with the outbreak of the pandemic. These peaks confirm what can be observed in Graph 1, an intense reactivity of the leverage ratio when measured in market values. For the series measured in book values, the deviation is more constant over time and less volatile. However, on average in the late 90s the absolute deviation is higher and goes to decrease slowly from 2001 onward, then remains fairly-constant and then increases more markedly from 2020. What is observed in Graph 3 seems consistent with Cook and Tang (2010), particularly for the relationships measured with market values, that the adjustment speed is slower (and thus the deviation greater) in bad economic stages as the outbreak of a crisis.

Graph 3. Leverage Deviation.



Average of absolute differences between target market leverage and observed market leverage, and target book leverage and observed book leverage.

5.2 Adjustment Speed.

After estimating the target for each firm by applying Eq. (1), the adjustment speed across bad and good stages was obtained by dividing the sample into sub-samples according to the four macroeconomic variables exposed in section 4.3.

To test the equality of coefficients generated by the regressions on the sub-samples, an interaction term was generated between two variables: GoodDummy and the coefficient used to define the speed (TargDev for the two-stage model and LagLev for the integrated model). GoodDummy is essentially a dummy equal to 1 anytime the observation belongs to a good stage of the economy, 0 when the observation belongs to a bad stage. Specifically, a year is defined as a good stage if it belongs to the highest quintile and a bad one to the lowest quintile when the variables GDP growth and TS are used. In contrast, for states defined by MDY and DS, years belonging to the lowest quintile represent good macroeconomic states, while those belonging to the highest quintile represent bad states. TargDev is the coefficient of the difference between a firm's target in t and its leverage in t-1, which is $(D^*_{i,t} - D_{i,t-1})$. LagLev represents the coefficient of the leverage ratio of company i in t-1.

5.2.1. Two-stage dynamic partial adjustment capital structure model.

In Table 4 it is reported the estimated adjustment speed across stages of the economy applying Eq. (2), i.e., the second step when the two-equation model is implemented. Estimation was done employing standard OLS with robust standard errors and controlling for firm fixed effects. Panel A reports regression results when ratios are measured in market values, Panel B when measured in accounting values.

Table 4. Regression results derived from a two-stage partial adjustment model.

Panel A. **Market Leverage Ratios**

	Market Dividend Yield			**Default Spread**			**Term Spread**			**GDP Growth Rate**		
	Good	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**
Adj. Speed	46.40%	30.50%	30.70%	37.60%	44.50%	36.20%	42.10%	36.60%	34.30%	50.10%	45.70%	39.80%
TargDev	0.464***	0.305***	0.307***	0.376***	0.445***	0.362***	0.421***	0.366***	0.343***	0.501***	0.457***	0.398***
	(0.016)	(0.012)	(0.010)	(0.015)	(0.014)	(0.010)	(0.014)	(0.012)	(0.010)	(0.020)	(0.013)	(0.011)
Good*TargDev			0.010			-0.001			0.073***			-0.013
			(0.012)			(0.011)			(0.009)			(0.012)
GoodDummy			0.019***			-0.018***			-0.034***			-0.016***
			(0.002)			(0.002)			(0.002)			(0.002)
Constant	0.015***	-0.007***	-0.006***	0.001***	0.019***	0.019***	-0.013***	0.018***	0.020***	-0.003***	0.014***	0.015***
	(<0.001)	(<0.001)	(0.001)	(<0.001)	(<0.001)	(0.001)	(<0.001)	(<0.001)	(0.001)	(<0.001)	(<0.001)	(0.001)
Fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9000	9871	18871	10385	10972	21357	10685	12168	22853	7750	12573	20323
R^2	0.203	0.162	0.149	0.169	0.199	0.161	0.247	0.147	0.209	0.223	0.215	0.179

Panel B. **Book Leverage Ratios**

	Market Dividend Yield			**Default Spread**			**Term Spread**			**GDP Growth Rate**		
	Good	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**
Adj. Speed	56.30%	24.10%	25.70%	38.70%	27.50%	27.30%	35.50%	29.10%	29.00%	47.40%	24.50%	25.90%
TargDev	0.563***	0.241***	0.257***	0.387***	0.275***	0.273***	0.355***	0.291***	0.290***	0.474***	0.245***	0.259***
	(0.017)	(0.011)	(0.010)	(0.014)	(0.013)	(0.010)	(0.013)	(0.012)	(0.009)	(0.018)	(0.012)	(0.010)
Good*TargDev			0.106***			0.049***			0.032***			0.060***
			(0.012)			(0.010)			(0.009)			(0.012)
GoodDummy			0.001			0.0005			-0.019***			0.002
			(0.002)			(0.001)			(0.001)			(0.001)
Constant	0.007***	0.001***	0.002*	0.004***	0.003***	0.003***	-0.010***	0.009***	0.009***	0.004***	0.002***	0.002**
	(<0.001)	(<0.001)	(0.001)	(<0.001)	(<0.001)	(0.001)	(<0.001)	(<0.001)	(0.001)	(<0.001)	(<0.001)	(0.001)
Fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9460	9884	19344	10798	10964	21762	10915	12236	23151	8047	12568	20615
R^2	0.313	0.124	0.172	0.209	0.132	0.155	0.205	0.138	0.167	0.253	0.108	0.139

Standard errors in parentheses

$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

TargDev is δ, the coefficient of $D_{i,t}^{*} - D_{i,t-1}$. GoodDummy is equal to 1 if the firm-year observation belongs to a good stage of the economy, 0 if belongs to bad. Good*TargDev is the interaction term, created by multiplying GoodDummy by TargDev. Adj.Speed is TargDev coefficient expressed in percentage terms.

As defined with Eq. (2), the TargDev coefficient is an estimate of the adjustment speed. Looking at Table 4 Panel B, the speed appears to be higher in positive states of the economy than in negative states for book valued ratios. Moreover, for all macroeconomic variables used to define the stages of the economy, the interaction term is positive and highly significant, which allows us to reject the hypothesis that the two coefficients are equal and strengthens the hypothesis that the speed is faster in favourable stages of the economy.

In Panel A, for the macroeconomic variable DS, the estimated coefficient is greater for the bad sub-samples. However, the interaction term is not significant, and this does not strengthen the obtained result. For the other three macroeconomic variables, on the other hand, the estimated speed is higher in good economic stages. The interaction term is positive and significant only for the variable TS. This further confirmation seems to be weaker for the stages of the economy defined by MDY and GDP. Furthermore, for GDP the coefficient of the GoodDummy variable is negative.

However, what is estimated in Table 4 is quite consistent with what is plotted in Graph 3 and with previous empirical findings, where the deviation from the target expands in the adverse phases of the economy. Flannery and Rangan (2006) and Cook and Tang (2010) exhibit in their studies that the coefficients estimated with the two-stage model are quite modest compared to those estimated with the integrated model. Following their findings and having obtained contrasting results by applying the two-stage model, the adjustment speed is therefore estimated also with this model.

5.2.2. Integrated dynamic partial adjustment capital structure model.

Fitting Eq. (1) into Eq. (2) and rearranging the terms leads to Eq. (3). For Table 5 and Table 12 Table 13, Table 14 in the Appendix the estimation was performed by controlling for firm fixed effects.

Table 12 Panel A in the Appendix shows the results of regressions on the whole sample for market (column 1) and book (column 2) valued ratios. Overall, for the analysed sample the annual adjustment speed is quite high, firms reduce the deviation by 31.10% per year for market ratios and 28.30% per year for book ratios, so all other conditions being equal, a firm takes on average 20 months to compensate for half of the deviation from its preferred debt level. Table

14 and Table 14 in the Appendix respectively show all the results of the regressions presented in Table 6, showing the standard errors for all estimated coefficients and thus for the target.
Table 12 shows, regarding firm-characteristic variables only L.EBIT, L.LNTA and LagLev are strongly significant for market and book valued ratios.
As expected, the positive large magnitude of LagLev indicate that the level of leverage is strongly influenced by the previous period's ratio, as stated by Lemmon et al. (2008) in fact the variation of a firm's capital structure is strongly related to the initial capital structure. The negative and positive L.EBIT and L.LNTA ratios, respectively, are also consistent with the wide findings in the empirical literature. The other control variables are not as significant and relevant for both regressions on the whole sample.
Concerning the macroeconomic variables these are all strongly significant in both regressions. The negative coefficient of L.CPG aligns well with the equally negative value of L.EBIT, higher profit leads to higher retained earnings which leads to repayment of debt in the subsequent period.
In contrast to what is expected and to Kiyotaki and Moore (1997), the coefficient of L.VRMR is negative. Thus, a mostly pro-cyclical debt behaviour would seem to emerge when considering the whole sample. In agreement with Becker and Ivashina (2014) during periods of economic growth new debt is issued. However, this contrasts with L.CPS, which instead seems to show counter-cyclical debt behaviour in agreement with Hackbarth et al. (2006). Unlike to the other coefficients, the difference in magnitude between the two regressions for L.BTS and L.CPS is larger, the two coefficients impact the MDs to a greater extent, thus influencing the leverage ratio when measured in market values.

Table 5. Regression results derived from an integrated model.

Panel A. **Market Leverage Ratios**

	Market Dividend Yield			Default Spread			Term Spread			GDP Growth Rate		
	Good	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**
Adj. Speed	47.10%	27.80%	28.80%	35.60%	33.00%	29.90%	37.00%	30.30%	29.20%	45.30%	35.20%	30.40%
LagLev	0.529***	0.722***	0.712***	0.644***	0.670***	0.701***	0.630***	0.697***	0.708***	0.547***	0.648***	0.696***
	(0.0160)	(0.0121)	(0.0099)	(0.0145)	(0.0125)	(0.0098)	(0.0150)	(0.0124)	(0.0092)	(0.0189)	(0.0120)	(0.0100)
Good*LagLev			-0.028**			-0.044***			-0.089***			-0.051***
			(0.0107)			(0.0097)			(0.0086)			(0.0102)
GoodDummy			0.034***			-0.051***			0.047***			-0.086***
			(0.0035)			(0.0033)			(0.0034)			(0.0042)
Fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9000	9871	18871	10385	10972	21357	10685	12168	22853	7750	12573	20323
R^2	0.378	0.586	0.54	0.46	0.479	0.489	0.466	0.484	0.514	0.378	0.476	0.505

Panel B. **Book Leverage Ratios**

	Market Dividend Yield			Default Spread			Term Spread			GDP Growth Rate		
	Good	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**
Adj. Speed	55.60%	23.60%	25.60%	37.80%	26.30%	25.80%	35.90%	28.80%	28.60%	46.30%	23.80%	25.00%
LagLev	0.444***	0.764***	0.744***	0.622***	0.737***	0.742***	0.641***	0.712***	0.714***	0.537***	0.762***	0.750***
	(0.0172)	(0.0116)	(0.0095)	(0.0142)	(0.0132)	(0.0098)	(0.0131)	(0.0116)	(0.0090)	(0.0187)	(0.0116)	(0.0095)
Good*LagLev			-0.098***			-0.062***			-0.033***			-0.068***
			(0.0117)			(0.0098)			(0.0088)			(0.0110)
GoodDummy			0.032***			0.006*			-0.009**			0.009**
			(0.0035)			(0.0030)			(0.0031)			(0.0034)
Fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9460	9884	19344	10798	10964	21762	10915	12236	23151	8047	12568	20615
R^2	0.262	0.604	0.535	0.443	0.561	0.541	0.463	0.536	0.539	0.361	0.574	0.543

Standard errors in parentheses

$^{*} p < 0.05$, $^{**} p < 0.01$, $^{***} p < 0.001$

LagLev is 1-δ, the coefficient of $D_{i,t-1}$. Adj.Speed is 1 minus LagLev [1-(1-δ)]. GoodDummy is equal to 1 if the firm-year observation belongs to a good stage of the economy, 0 if belongs to bad. Good*LagLev is the interaction term, created by multiplying GoodDummy by LagLev.

According to the results in Table 5, the speed is greatest in the good stages of the economy, independent of the macroeconomic variable used and regardless of whether leverage ratios are expressed in accounting or market values. In addition to the strongly significative ratios estimated the interaction terms are all negative and highly significant. This result gives robust support to the outcomes obtained, indeed, there is a statistically significant and positive relationship between the speed and the GoodDummy variable.

Moreover, the adjustment speed for the good stages, regardless of the macroeconomic variable used, is faster than that estimated for the whole sample, for both ratios. Therefore, when companies are in the good sub-samples, the cost for them to reduce the deviation from the target is lower than for the entire sample, which includes the middle and bad phases.

While the results obtained with both models accord with the findings of Cook and Tang (2010), the estimation carried out on the entire sample, without distinguishing between stages of the economy is at odds with Flannery and Rangan (2006) and Cook and Tang (2010). Flannery and

Rangan (2006) exhibit that the speed estimated with the two-stage model is much lower than it should and would be if estimated with the integrated model, Cook and Tang (2010) come to the same conclusion: the adjustment speed for the entire sample is approximately 20% when estimated with the two-equation model, but is around 50% when estimated with the integrated model. As can be seen from Table 12, Panel A and B in the Appendix, there is no substantial difference between the speed estimated with the two models, and indeed, both for book (28.3% vs. 29.7%) and for market (31.1% vs. 35%) valued ratios, the annual speed of approach to the target is a few percentage points higher in the two-equation model. In any case, with these estimated adjustment speeds firms take on average a bit more than a year to reach their leverage target ratios, this rate of convergence towards the long-term target and the fact that macroeconomic variables are strongly significant seems to give meaning to the changes in capital structure actuated by firms.

5.2.3 Unconstrained and Constrained firms.

The analysis conducted attempts to investigate how the ability of companies to meet their preferences in the composition of their capital structure varies with economic conditions. Whether a company is able to issue debt, if this allows it to approach its target capital structure, in adverse economic phases also depends on the types of debt it has at its disposal. As shown by Becker and Ivashina (2014) and as shown in Table 12 in the Appendix, a tightening of bank debt conditions tends to decrease the debt level of companies. However, if a company can issue bonds for example, it could easily substitute the two sources of debt and still come close to the target.

Furthermore, Almeida et al. (2004) used as a proxy for being financially constrained or unconstrained the fact whether a firm-year observation has a bond rating or not. In this view, constrained companies, that is without a bond rating, should be less able to quickly offset any deviation from their target capital structure.

Table 6. Regression results for constrained and unconstrained firms.

Panel A.

Market Leverage Ratios - Constrained Firms								
	Market Dividend Yield		**Default Spread**		**Term Spread**		**GDP Growth Rate**	
	Good	**Bad**	**Good**	**Bad**	**Good**	**Bad**	**Good**	**Bad**
Adj. Speed	50.80%	31.20%	46.50%	43.30%	41.20%	38.90%	80.50%	50.40%
LagLev	0.492***	0.688***	0.535***	0.567***	0.588***	0.611***	0.195***	0.496***
	(0.022)	(0.021)	(0.028)	(0.022)	(0.022)	(0.026)	(0.034)	(0.023)
Fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4131	3459	4037	4518	5117	3712	2908	4635
R^2	0.331	0.55	0.318	0.381	0.429	0.424	0.151	0.351

Market Leverage Ratios - Unconstrained Firms								
	Market Dividend Yield		**Default Spread**		**Term Spread**		**GDP Growth Rate**	
	Good	**Bad**	**Good**	**Bad**	**Good**	**Bad**	**Good**	**Bad**
Adj. Speed	44.10%	24.50%	38.40%	31.80%	33.30%	35.40%	75.10%	42.20%
LagLev	0.559***	0.755***	0.616***	0.682***	0.667***	0.646***	0.249***	0.578***
	(0.023)	(0.022)	(0.0233)	(0.019)	(0.019)	(<0.026)	(0.033)	(0.022)
Fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4869	3788	4833	4918	5568	3890	3327	4947
R^2	0.429	0.592	0.42	0.515	0.509	0.463	0.248	0.43

Panel B.

Book Leverage Ratios - Constrained Firms								
	Market Dividend Yield		**Default Spread**		**Term Spread**		**GDP Growth Rate**	
	Good	**Bad**	**Good**	**Bad**	**Good**	**Bad**	**Good**	**Bad**
Adj. Speed	60.10%	28.00%	56.40%	33.40%	38.90%	41.20%	81.30%	31.80%
LagLev	0.399***	0.720***	0.436***	0.666***	0.611***	0.588***	0.187***	0.682***
	(0.026)	(0.025)	(0.0281)	(0.026)	(0.02)	(0.028)	(0.031)	(0.021)
Fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4392	3464	4274	4508	5221	3747	3474	4990
R^2	0.219	0.514	0.235	0.457	0.427	0.384	0.14	0.463

Book Leverage Ratios - Unconstrained Firms								
	Market Dividend Yield		**Default Spread**		**Term Spread**		**GDP Growth Rate**	
	Good	**Bad**	**Good**	**Bad**	**Good**	**Bad**	**Good**	**Bad**
Adj. Speed	52.10%	21.10%	35.60%	33.00%	37.00%	30.30%	45.30%	35.20%
LagLev	0.479***	0.789***	0.568***	0.720***	0.666***	0.647***	0.173***	0.619***
	(0.022)	(0.016)	(0.020)	(0.018)	(0.018)	(0.024)	(0.035)	(0.025)
Fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5068	3826	5022	4936	5694	3968	3071	4618
R^2	0.312	0.62	0.388	0.541	0.508	0.425	0.069	0.414

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Bond ratings data were obtained from Compustat - Capital IQ. The ratings data were updated until February 2017, so the analysis was only conducted on firm-year observations from 1993 to 2017. The final sample for market ratios is composed of 21,710 firm-year observations with a bond rating and 23,565 firm-year observations without rating. The final sample for book ratios consists of 22,163 firm-year observations with a bond rating and 23,954 firm-year observations without rating. Cons. LagLev is the coefficient of lagged leverage (1-δ) for firms without bond rating, Uncons. LagLev is the coefficient of the lagged leverage for firms with bond rating. Adj. Speed is [1-(1-δ)]. Panel A reports regression results for sub-samples defined by the presence or absence of bond rating for market ratios, Panel B for book ratios. Table 6 shows the results of the regression using the integrated model as, given the smaller number of firm-year observations in each sample, the prediction of target might not have produced such robust results.

The results of Korajczyk and Levy (2003) show that companies with bond ratings can define how to finance themselves according to the conditions of the economy and according to financing costs, thus limiting the deviation from the target capital structure. In contrast, however, the results presented in Table 6 show a higher adjustment speed for the sub-sample without bond rating than for the sub-sample with bond rating. Thus, offsetting the deviation from the target implies lower costs for the sub-sample without bond rating than if the deviation from the target was maintained. This result could be due to the distance to the target, as shown by (Drobetz and Wanzenried, 2006) the companies that are furthest away from the target are the ones that most quickly try to get closer to it and it is possible that the companies furthest away are included in the unconstrained sub-sample.

In both sub-samples, however, regardless of the macroeconomic variable used to define economic stages, the speed is higher in positive economic phases, in agreement with the results obtained by Cook and Tang (2010).

6. Robustness.

Having obtained contradictory results, some in contrast and others in accordance with previous empirical research, robustness tests are implemented in the following sections to analyse the adjustment speed through different procedures and constructions of regression models.

6.1 Leverage Ratios.

In a variety of empirical studies, it can be observed that the leverage ratios applied in the analyses are defined according to different criteria and using different values. It is therefore possible that, depending on how one decides to define the analysed ratio, the results obtained may differ. For this reason, to test the robustness of the results obtained, the analyses carried out using the two-stage model and the integrated model are replicated using three other definitions of leverage ratios, which have already been employed in previous studies (e.g. Flannery and Rangan (2006), Cook and Tang (2010)). Following are the ratios and variables through which the ratios were calculated:

$$MD1_{i,t} = \frac{SD_{i,t} + LD_{i,t}}{TA_{i,t} - BE_{i,t} + S_{i,t}P_{i,t}} \tag{6}$$

$$MD2_{i,t} = \frac{TL_{i,t}}{TL_{i,t} + S_{i,t}P_{i,t}} \tag{7}$$

$$MD3_{i,t} = \frac{LD_{i,t}}{TA_{i,t} - CL_{i,t} - BE_{i,t} + S_{i,t}P_{i,t}} \tag{8}$$

$TA_{i,t}$, $SD_{i,t}$ and $LD_{i,t}$ represent total assets, short- and long-term debts respectively. $S_{i,t}P_{i,t}$ is the product of common shares outstanding and shares price. $BE_{i,t}$ is the value of equity reported by firms. $TL_{i,t}$ is the accounting values of total liabilities. $CL_{i,t}$ is the book values of current liabilities[10]. All these values are relative to company i at time t. Tables 15, 16 and 17 in the Appendix show the estimated adjustment speed for MD1, MD2 and MD3 respectively. Panel A shows results obtained through the integrated model, thus applying the regression defined with Eq. (3), while Panel B through the application of the two-stage model, where the target leverage for each firm-year observations was first estimated by applying Eq. (1) and then the speed was estimated by applying Eq. (2). Furthermore, a regression including the GoodDummy variable (equal to 1 if the stage is defined as good based on the macroeconomic variables set out in section 4.3, 0 if bad) and an interaction term between the GoodDummy variable and the coefficient used to estimate the adjustment speed was performed.

Regardless of the ratios used to define leverage and irrespective of the regression model used, the prevailing result is that the speed is faster in the good stages of the economy than in the bad stages, independently of the macroeconomic variable used to define these stages.

6.2 NBER's Business Cycle Dating.

Depending on the type of macroeconomic parameters or variables used to define the business cycle, and consequently the phases of economic growth or recession, the sample can be grouped into sub-samples containing different firm-year observations. The NBER's Business Cycle

[10] $TA_{i,t}$ is the Compustat item 6. $LD_{i,t}$ is the Compustat item 9. $SD_{i,t}$ is the Compustat item 34. $S_{i,t}P_{i,t}$ product of items 25 and 24. $BE_{i,t}$ is the Compustat item 60. $TL_{i,t}$ Compustat item 181. $CL_{i,t}$ is the Compustat item 5.

Dating Committee is widely recognised for its role in identifying business cycles in the United States. For this reason, following Cook and Tang (2010), to analyse how the adjustment speed varies, the sample is divided according to the years defined as recessions and stable economic conditions by the NBER[11]. Specifically, a period of time delimited by an initial peak and a final minimum point is defined as a recession; conversely, when starting from a minimum point and reaching a peak, it is called an economic boom - or normal stage of the economy. Thus, unlike the macroeconomic variables previously used and presented in section 1, the sample will not be divided into three groups (good, middle, and bad) according to quintiles but will be divided into two sub-groups, recessions and the normal - or growing - cycle of the economy.
Table 8 shows the years defined as growth and those defined as recessions and the total number of firm-year observations by market and book ratios.

Table 7. Subdivision of years according to NBER-dated recessions.

	Years				Market Obs	Book Obs
Good	1993-2000	2005-2007	2011-2019	2021-2023	39840	40608
Bad	2001-2004	2008-2010	2020		15440	15581

The data were obtained from the National Bureau of Economic Research website. The division into good and bad was defined based on the peaks and troughs exposed by the Historical record of the NBER's Business Cycle Dating Committee.

After dividing the sample as shown in Table 7, the analysis of the rate of adjustment was performed by applying both models exposed in sections 3.1 and 3.2. Table 8, Panel A shows the regression results applying the integrated model, Panel B applying the two-stage model. For both Panels, columns (1), (2) and (3) show the results for market ratio while columns (4), (5) and (6) for book ratio. To further assess how significant the estimate is, a regression including GoodDummy and interaction variables was run to test the difference between the coefficients.
Contrary to what is expected, the adjustment speed is higher for the negative stages of the economy for market and book ratios, applying both regression models. For market valued ratio, columns (1), (2) and (3), the difference between the two coefficients is also quite consistent, it is greater than 14 pp in Panel A and more than 20 pp in Panel B. Moreover, the two interaction terms also reinforce the estimated coefficients, in Panel A it is positive (for the integrated model the adjustment rate is obtained by subtracting one from the estimated coefficient) and strongly significant, while in Panel B it is negative and strongly significant. Regarding book ratio, in

[11] The data on Business Cycle Dating were obtained from the National Bureau of Economic Research website.

Panel A the speed is higher in the positive stages of the economy, but the difference between the estimated coefficients is very small, and the coefficients on the interaction terms are not so significant.

Table 8. Regressions between stages according to the NBER's Business Cycle Dating.

Panel A. NBER's Business Cycle Dating - Integrated Model

	Market Leverage Ratios			**Book Leverage Ratios**		
	Good	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**
Adj. Speed	28.30%	42.90%	34.40%	28.80%	28.70%	27.30%
LagLev	0.717***	0.571***	0.656***	0.712***	0.713***	0.727***
	(0.006)	(0.014)	(0.008)	(0.006)	(0.014)	(0.008)
Good*LagLev			0.0456***			-0.0129
			(0.007)			(0.007)
GoodDummy			-0.0308***			0.00214
			(0.002)			(0.002)
Fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	42766	9319	52085	43525	9329	52854
R^2	0.534	0.446	0.508	0.544	0.549	0.545

Panel B. NBER's Business Cycle Dating - Two-Stage Model

	Market Leverage Ratios			**Book Leverage Ratios**		
	Good	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**
Adj. Speed	29.10%	50.70%	38.80%	29.20%	32.70%	29.00%
TargDev	0.291***	0.507***	0.388***	0.292***	0.327***	0.290***
	(0.007)	(0.012)	(0.007)	(0.007)	(0.011)	(0.007)
Good*TargDev			-0.076***			-0.001
			(0.007)			(0.007)
GoodDummy			0.0070***			0.006***
			(0.001)			(0.001)
Constant	0.005***	0.002***	-0.002*	0.002***	-0.003***	-0.004***
	(<0.001)	(<0.001)	(0.001)	(<0.001)	(<0.001)	(0.001)
Fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	42766	9319	52085	43525	9329	52854
R^2	0.118	0.26	0.162	0.149	0.17	0.149

Standard errors in parentheses

$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

Panel A shows the results of the regression performed with the integrated model. LagLev is 1-δ, the coefficient of $D_{i,t-1}$. Adj.Speed is 1 minus LagLev [1-(1-δ)]. GoodDummy is equal to 1 if the firm-year observation belongs to a good stage of the economy, 0 if belongs to bad. Good*LagLev is the interaction term, created by multiplying GoodDummy by LagLev. Panel B shows the results of the regression performed with the integrated two-stage model. TargDev is δ, the coefficient of $D^*_{i,t} - D_{i,t-1}$. Adj.Speed is TargDev coefficient. GoodDummy is equal to 1 if the firm-year observation belongs to a good stage of the economy, 0 if belongs to bad. Good*TargDev is the interaction term, created by multiplying GoodDummy by TargDev.

These results may depend on several factors. One limitation of this regression is that only slightly less than 30% of the firm-year observations belong to the bad subsamples, whereas all other observations belong to the good subsamples, as there are only 8 periods defined as crisis and the others as stability. This result shows that the results obtained in the previous sections could be influenced by other factors impacting the adjustment speed of firms, rather than only by macroeconomic conditions.

6.3 Distance from Target Leverage.

Drobetz and Wanzenried (2006) document that the greater a company's distance from the target, the faster its adjustment speed towards its target. As can be seen from Graph 3, the deviation is amplified, for market values, in correspondence with bad stages of the economy. Having obtained rather contrasting results by applying an alternative method of dividing firm-year observations between stages of the economy, it is interesting to examine whether the results obtained can be mainly explained by other characteristics of the capital structure of the firms, such as the distance that firms have from the target estimated with Eq. (1).

First, the deviation from the target in absolute value was calculated for each firm-year observations as follows:

$$DIST = |D^{*}_{i,t} - D_{i,t}| \qquad (9)$$

Table 9. Mean of DIST across macroeconomic stages.

	Market Dividend Yield		Default Spread		Term Spread		GDP Growth Rate		NBER	
	Market	Book	Market	Book	Market	Book	Market	Book	Market	Book
Good	0.1591	0.1371	0.1548	0.1385	0.1543	0.1393	0.1623	0.1405	0.1618	0.1414
Bad	0.1625	0.1431	0.1798	0.1430	0.1761	0.1448	0.1786	0.1438	0.1728	0.1417
G vs. B	-0.0033	-0.0060	-0.0250	-0.0045	-0.0217	-0.0054	-0.0162	-0.0033	-0.0110	-0.0004
P-value	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

The table shows the average, across the stages of the economy according to the variables presented in section 4.3, of the absolute distance from target book and market valued ratios ($DIST = |D^{*}_{i,t} - D_{i,t}|$) and the p-values of the t-tests implemented to test the difference between the averages.

According with what is plotted in Graph 3, in Table 9 one can observe that the mean of the absolute deviation is higher in bad stages of the economy, regardless the macroeconomic variable.

To analyse whether the obtained results may effectively be partly due to the distance of the companies from the target, the methodology employed by Drobetz and Wanzenried (2006) is partially applied. For this analysis, the integrated model is used to include an interaction term between the lagged leverage ratio and the variable *DIST* in the regression, with the aim of analysing whether, and in which direction, the distance to the estimated target influences the adjustment speed.

Considering the results shown in Table 18 in the Appendix, the coefficient of the interaction term is positive and significant, in contrast with Drobetz and Wanzenried (2006) findings. The relationship between the speed and the distance from the target is therefore expected to be negative. Since the estimated coefficient is positive, the greater the deviation from the target in absolute value, the lower the adjustment speed, in fact the speed equals the difference between 1 and the estimated coefficient of LagLev. This result indicates that it is less costly for firms in the sample to adjust their capital structure on a more continuous timing over time, with limited proportions, than to implement larger adjustments. As explained by Lööf (2004), a negative relationship emerges between the speed and the distance to the target when the capital structure is modified mainly due to companies' internal dividend policy, on the contrary if positive, companies adjust their debt level less often but more extensively through external capital markets.

In conclusion, according to the results obtained with this approach, the distance to the target seems to have an impact in estimating the speed, in fact according to almost all variables used (except the NBER business cycle) to define the stages of the economy the speed is faster where the distance in absolute value is smaller.

6.4 Adjustment speed of over-levered and under-levered firms.

Other key aspects for companies when discussing capital structure and leverage levels are information asymmetries and conflicts of interest that may arise between different stakeholders. For example, the management entrenchment theory explains that the managers of a company are more inclined to make decisions that could increase the wealth of the shareholders to ensure more stability for their own employment position, therefore a scenario in which debt is reduced as much as possible would be preferred. This type of conflict of interest, resulting from the separation of ownership and control of a firm, can be limited by the presence of debt in the capital structure of a firm. Indeed, debtholders can set limits to managers on how they should allocate capital. Moreover, debt is often useful to overcome the limits set by information asymmetries; for a company, a reliable way to communicate a positive information (e.g. a project that will allow it to expand) to the outsiders is to commit to repay a debt of a certain

amount in the future. In fact, if what the company claims were not true, the cost to the company would be unsustainable. Thus, although having a debt level above the target may mean higher costs (in terms of interest, bankruptcy costs), having a low leverage level also implies costs for firms. Which of these two situations is more costly for the companies in the sample? And thus, which of the two groups will reduce the deviation by approaching the target more quickly?
To analyse how under- and over-levered companies behave, the analysis is structured following Elsas and Florysiak (2011). An event-study approach is applied in which the event is essentially a shock in the leverage level that impacts the deviation from the target. First, for each firm-year observations the target was calculated in accordance with Eq. (1). Next, the deviation from the target was calculated as:

$$DEV = D^*_{i,t} - D_{i,t} \quad (10)$$

After dividing *DEV* into deciles, five groups of firm-year observations were then created, including observations with a *DEV* in the first, third, fifth, eighth and tenth deciles of the cross-sectional distribution. This with the purpose of defining highly over-levered, over-levered, at target, under-levered and highly under-levered firms respectively. After having defined the year of the event *(t=0)*, for each event-firm the period before the event *(t= -1)* and the following five were taken. The adjustment speed for market and book valued ratios was computed for each sub-sample of firms using the integrated model, thus applying Eq. (3).
Looking at Table 19 in the Appendix, the speed gradually increases when looking at the more extreme deciles. It thus appears that the greater the distance after the shock, the greater the speed employed by the firms. Except for the fifth decile, which clearly contains the smallest deviation at *t=0*, the other deciles in the transition from *t=-1* to *t=0* show a considerable expansion of the deviation from the target, due precisely to the leverage shock. For the first decile of Panel A (Panel B) the deviation increases from -0.0251 (-0.0195) to -0.2726 (-0.2268) and for the tenth decile from 0.0231 (0.0349) to 0.2118 (0.1873). In the case of the first decile, and thus the case of highly over-levered firms, at the time of the shock the average leverage is 57.08% (48.90%) and then gradually decreases until it reaches 32.82% (31.83%) at t=5, while for the highly under-levered firms the leverage percentage goes from 12.59% (10.82%) to 31.63% (27.64%). Although the average leverage level in *t=0* is very different among the five groups, at *t=5* due to the adjustment process, the average leverage level then becomes similar among the groups, with a maximum of 32.82% (31.83%) and a minimum of 24.7% (24.35%). This seems to be consistent with Fama and French (2002), they argue that leverage is mean-reverting.

Overall, the adjustment speed is high for all groups, looking at Panel A and Panel B in Table 19, it gradually increases as the deviation from target becomes greater. However, although it is higher for the highly over-levered firms in both Panel A and Panel B, no significant difference emerges compared to the highly under-levered firms (contrary to the findings of Faulkender et al (2012), who find an annual speed for over-levered firms almost double that of under-levered firms).

Hence, the further away from the target firms are from a shock, the higher the adjustment speed towards the target. This result is consistent with previous empirical studies such as Drobetz and Wanzenried (2006), Leary and Roberts (2005) and Elsas and Florysiak (2011). The result obtained with this approach contrasts with the coefficient of the interaction term estimated in Section 6.3, however this approach focuses on analysing and estimating the change in the speed using the years of the leverage shock and the surrounding years, whereas the regression previously performed considers the entire sample.

Thus, it is more costly for companies included in the sample to deviate from the target leverage because of a shock for an extended period, rather than to face the costs of offsetting it.

6.5 Firm size.

Drobetz and Wanzenried (2006) theorize that the correlation between the size of a firm and its adjustment speed is positive. This is because changing the capital structure implies that firms face fixed costs that clearly are less onerous on larger firms. Moreover, it is precisely because of these fixed costs that larger firms can more easily access different sources of capital due to more publicly available information (e.g. larger firms can pay fees to rating agencies to obtain a credit rating following a new debt or equity issuance). With this assumption, then, it is possible that depending on their size, the firms in the sample can reach the target more quickly, influencing the results obtained between the different stages of the economy.

To carry out this analysis, the sample was divided into “Small firms”, identified as the firm-year observations whose LNTA (proxy for the firm *i*’s size in *t*, and it is the natural logarithm of total assets) is less than the median value over the entire sample, and “Big firms” whose LNTA is greater than or equal to the median.

After dividing the sample in this way, the adjustment speed was estimated using the two-stage model, Eq. (2), and the integrated model, Eq. (3).

Looking at Panel A and Panel B of Table 20 in the Appendix, all adjustment speeds are strongly significant, and in line with the results obtained on the entire sample (Table 12 in the appendix).

In both panels, however, one can see that the result obtained is contrary to the premise, the speed is higher for the smallest firms in the sample. Thus, it is more expensive for the smallest firms in the sample to deviate from the target than to bear the fixed costs necessary to decrease this deviation. Fiegenbaum and Karnani (1991) demonstrate that smaller US firms are particularly flexible. Flexibility is a significant source of competitive advantage for small companies (e.g. additional profits), and this can make it easier to achieve target leverage. The result obtained may explain what is shown in section 5.2.3, in fact the unconstrained firms, i.e. those without bond ratings, are most likely to be the smallest ones, the fees for issuing bonds and obtaining ratings being very high. In fact, on average, are the larger firms that use this source of financing.

In this research, when the macroeconomic variables MDY, DS, TS and GDP are used to define the stages of the economy, one result tends to prevail: the speed is greater in the positive stages of the economy than in the negative stages. In contrast, in the robustness test implemented in Section 6.2, where the stages of the economy were defined according to the NBER's business cycle, the speed is greater in the negative stages of the economy. Having reached this conclusion, it is interesting to compare what is shown in Table 20 with what is shown in Table 10. Table 10, columns 1 to 8, shows by market and book valued ratios the average LNTA at the stages of the economy defined by the four macroeconomic variables exposed in section 4.3, while columns 9 and 10 by the NBER's business cycle. To analyse whether the difference between the averages is significant, a t-test was performed. As can be seen from column 1 to 8 (column 9 to 10) of Table 11 the firm size tends to be on average lower (higher) in the positive stages. Thus, the adjustment speed in this analysis seems to be strongly influenced by firm size. In contrast to Cook and Tang (2010), the results show that the stages of the economy in which a faster speed has been estimated are the same as those in which firms with a higher speed (small firms in this analysis) are on average more present.

Table 10. Firm size across good and bad macroeconomic stages.

	Market Dividend Yield		Default Spread		Term Spread		GDP Growth Rate		NBER	
	Market	Book	Market	Book	Market	Book	Market	Book	Market	Book
Good	5.7614	5.7028	6.2335	6.1756	6.4729	6.4602	6.1001	6.0527	6.7255	6.7474
Bad	7.1264	7.1370	6.9155	6.9321	6.8695	6.8767	6.9663	6.9798	6.5101	6.5180
G vs. B	-1.3650	-1.4342	-0.6821	-0.7564	-0.3967	-0.4166	-0.8662	-0.9271	0.2155	0.2294
P-value	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

The mean of the LNTA of the firm-year observations belonging to phases, defined according to the variables MDY, DS, TS, GDP and NBER business cycle, is reported. The p-values of the t-tests implemented to test the difference between the averages.

6.6 Robustness conclusions.

Overall, the results obtained in this research are mixed, some consistent others in disagreement with previous empirical studies. The analysis performed using three alterative leverage ratios produced results consistent with those obtained in sections 5.2.1 and 5.2.2. Overall, the estimated adjustment speeds are quite high but in line with each other. Despite this, however, the estimated adjustment speeds with the two-stage model are higher than in previous studies (Cook and Tang (2010), Flannery and Rangan (2006)). Using a different measure to define the stages of the economy, however, the results obtained are the opposite, suggesting that other factors are also relevant in influencing the adjustment speed of companies. One aspect that seems to explain how the speed varies is the size of the companies in the sample; smaller companies approach the leverage target more quickly, regardless of whether they have bond rating and thus regardless of how easily they can access external capital. However, the distance to the target also seems to have some influence. In conclusion, macroeconomic conditions are crucial for analysing companies' financing choices, but these decisions are also influenced by multiple factors simultaneously. These factors can cause a company to deviate to varying degrees from its target.

7. Limitations.

Although including firms with at least fifteen years of observations in the sample allows for more consistent, stable observations and effectively allows a firm to be analysed at least at a bad and good macroeconomic stage, it places limitations on the results obtained and makes it difficult to generalise the conclusions to the entire population. Even more so since the data is limited to public US companies with all available data (excluding R&D expenses). Despite this, the initial sample of observations is quite large, but is greatly reduced when divided into subsets according to the stages of the economy. Overall, given the limitations of the sample, it would be interesting to repeat the analysis on a larger sample of companies, including non-listed companies (and therefore small and medium firms), and to analyse what the effect of a crisis and the consequent contraction of credit supply and tightening of banking standards might be. Furthermore, economic crises are rarely confined within national borders, just as the companies analysed hardly have no relationships overseas, so it would be interesting to carry out such an analysis including as many economic areas as possible, analysing and comparing how macroeconomic changes impact on companies operating in developed markets and how they impact on companies operating in emerging markets.

8. Conclusions.

Economic conditions have an impact on the capital structure of companies. Depending on economic conditions, companies may find it easier or less easy to access bank loans, to issue new bonds, to self-finance by retaining operating profits. Several empirical studies have provided evidence of the existence of an optimal capital structure for firms, balancing the costs and benefits of debt (Graham and Harvey (2001), Harford et al. (2009)). The economic cycle can then force companies to deviate from this optimal structure, influencing costs, credit supply and other external factors that can make it more convenient for a firm to deviate from the target. Analysing data from US companies for a period between 1993 and 2023, the results show that deviation from target is more durable in adverse economic phases when defined by the variables MDY, TS, GDP and DS, for all five leverage ratios used. These results are consistent with those of Cook and Tang (2010). Although the results remained consistent even when the sample was split between constrained and unconstrained firms, and the speed remained higher in the positive stages of the economy regardless of the firms' ability to access external sources of capital, the results were later refuted when the sample was split according to NBER's business cycle. Further robustness analysis revealed that other factors are also crucial in defining the adjustment speed of firms. In particular, the size of the firms in the sample seems to explain a large part of the results obtained. Thus, although macroeconomic conditions provide an important insight into how companies make decisions about their capital structure, there is a multitude of other factors that simultaneously influence companies' financing choices (Daskalakis et al. (2017)). Therefore, although the reality is very multifaceted, macroeconomic conditions play a key role in influencing firms' financing choices.

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Appendix.

Table 11. Correlation matrix between lagged variables and target leverage.

Panel A. Market Value	$D^*_{i,t}$	L.MB	L.TANG	L.EBIT	L.DEP	L.LNTA	L.SE	L.RD	L.VRMR	L.CPG	L.CPS	L.BTS
$D^*_{i,t}$	1											
L.MB	-0.5058*	1										
L.TANG	0.2321*	-0.1525*	1									
L.EBIT	-0.1246*	0.0410*	-0.0808*	1								
L.DEP	0.1099*	-0.0414*	0.6341*	-0.1975*	1							
L.LNTA	0.1390*	-0.0733*	0.0012	0.3279*	-0.0678*	1						
L.SE	-0.2376*	0.2698*	-0.1906*	-0.2414*	0.0214*	-0.4096*	1					
L.RDD	-0.3074*	0.3553*	-0.1482*	-0.4320*	0.0941*	-0.2698*	0.4296*	1				
L.VRMR	0.0021	0.1089*	-0.006	0.0386*	-0.0409*	-0.0097*	-0.0152*	-0.0087	1			
L.CPG	-0.0568*	0.0578*	-0.0057	0.0314*	-0.0432*	-0.0260*	-0.006	-0.0074	0.3921*	1		
L.CPS	0.0493*	0	-0.0276*	0.0259*	0.0213*	-0.1364*	0.0474*	0.0419*	-0.0832*	-0.1597*	1	
L.BTS	0.0350*	-0.0647*	0.001	-0.0596*	0.0513*	-0.0124*	0.0095*	0.0178*	-0.6704*	-0.3752*	0.3734*	1
Table 3. Book Value	$D^*_{i,t}$	**L.MB**	**L.TANG**	**L.EBIT**	**L.DEP**	**L.LNTA**	**L.SE**	**L.RD**	**L.VRMR**	**L.CPG**	**L.CPS**	**L.BTS**
$D^*_{i,t}$	1											
L.MB	-0.1290*	1										
L.TANG	0.1597*	-0.1562*	1									
L.EBIT	0.0065	0.0887*	-0.0715*	1								
L.DEP	0.0741*	-0.0544*	0.6331*	-0.1817*	1							
L.LNTA	0.2298*	-0.0423*	0.0102*	0.3121*	-0.0579*	1						
L.SE	-0.2225*	0.2407*	-0.2015*	-0.2070*	0.0141*	-0.4024*	1					
L.RDD	-0.2370*	0.3236*	-0.1632*	-0.4139*	0.0865*	-0.2654*	0.4141*	1				
L.VRMR	0.0420*	0.1056*	-0.008	0.0375*	-0.0394*	-0.0166*	-0.0118*	-0.0031	1			
L.CPG	-0.0476*	0.0547*	-0.0058	0.0337*	-0.0426*	-0.0311*	-0.0051	-0.0054	0.3890*	1		
L.CPS	-0.0494*	-0.0065	-0.0270*	0.0227*	0.0220*	-0.1405*	0.0523*	0.0515*	-0.0737*	-0.1601*	1	
L.BTS	-0.0170*	-0.0640*	0.0023	-0.0601*	0.0513*	-0.0054	0.0076	0.0146*	-0.6684*	-0.3811*	0.3673*	1

The correlation between the set of lagged variables (Sections 4.2.1 - 4.2.2) and the estimated target leverage is reported, Panel A for target leverage in market values and Panel B for target leverage measured in book values.

L.VRMR is positively correlated with predicted target leverage, an increasing market return seems to positively impact the level of leverage desirable by companies. This correlation is consistent with Kiyotaki and Moore (1997). They explain that there is a close relation between the value of the assets of the companies and the future market performance. Thus, if the value of assets is high, market conditions are likely to be positive, and the borrowing capacity of the companies will be higher due to the higher value of collateral. Nevertheless, if a company operating in a certain sector is in economic difficulty and the market trend is unfavourable, it is likely that other companies in the same sector will also be in trouble. When an industry is in crisis, the ability of companies in the sector to purchase specific assets that a firm could liquidate in order to face a financial hardship decreases. Therefore, the value of assets would decrease, limiting the ability of companies to borrow. However, this correlation is significant when target leverage is estimated with book values. The hypothesis that the correlation in Panel A is zero at the 5% level of significance cannot be rejected.

L.CPG is negatively and significantly correlated with target market and book valued ratios. When companies' profit growth is positive, these firms tend to have higher retained earnings that can be used to decrease the debt exposure. This relationship is consistent with Levy's (2001) conclusion that managers do not prefer debt when their compensation and the firm's profits tend to increase.

L.CPS has a negative and significant correlation with target leverage measured in book values. In Panel A, by contrast, this correlation is positive. Levy's (2001) explains that the commercial paper spread, reflecting market expectations, tends to increase in anticipation of economic downturns. This seems to be more consistent with the negative correlation in Panel B, in fact, observing Graph 2, with negative periods in the economy, characterised by a higher spread, leverage ratios tend to decrease.

In relation to Section 4.1, it can be observed that the average level of the market valued ratios tends to increase more markedly before periods of economic slowdown, and then decreases significantly after the outbreak of a crisis. It is possible that this positive correlation is influenced by this higher variability. Furthermore, this positive relationship could also depend on the fact that firms with high bond ratings are included in the sample, these could replace bank debt (as banks tighten debt lending measures) with public debt. This hypothesis seems to be consistent the positive correlation between the targe leverage measured in market values and lagged banks tightening standards in Panel A. In contrast, in Panel B there is a negative correlation between L.BTS and target book leverage, a result consistent with the findings of Becker and Ivashina (2014) and Graph 2: when banks tighten standards increase, the amount of bank loans in the economy decreases. This could lead firms to decrease their target leverage, or at least not to rise new bank loans.

However, the correlation between the macroeconomic variables analysed seems to be consistent when the null hypothesis can be rejected at 5% significance level. The two macroeconomic variables CPS and BTS (VRMR and CPG) that if growing (decreasing) indicate a probable economic slowdown are positively correlated with each other and negatively correlated with the macroeconomic variables that if growing indicate economic expansion (economic downturn).

Regarding firm-characteristic variables, almost all correlations are different from zero at 5% significance level.

L.MB, in both Panel A and Panel B, is negatively correlated with the estimated target leverage, which is consistent with the findings of Fama and French (1992) and Flannery and Regan (2006).

L.TANG is positively correlated with leverage, according to Kiyotaki and Moore (1997) and Rajan and Zingales (1995), companies with more tangible assets (in this case property, plant, and equipment) to be secured as collateral prefer a higher target leverage than those with fewer tangible assets, probably because the financing costs are lower.

L.EBIT has a negative relation with target market leverage in Panel A, companies with higher profitability therefore seem to have a lower preferred level of leverage, this is consistent with Levy's (2001) model that managers prefer debt as a source of financing when their compensation is lower (due to lack of bonuses) because the company's profit is low. In Panel B instead, the correlation is positive, but not significative.

L.DEP is positively correlated with target leverage, measured in market and book values, for the sample of companies analysed, so, contrary to the findings of Cook and Tang (2010), the fact that these companies already benefit from tax shields (related to depreciation expense) does not appear to decrease the preferred level of leverage. Another key to this positive correlation could be that companies have higher depreciation expenses as the greater the amount of fixed assets on their balance sheet. It has already been widely discussed that more fixed assets imply more collateral to be employed.

The correlation between the target leverage and L.LNTA is positive. This is consistent with the findings of and Hovakimian et al (2004). They explain that more mature and larger companies are likely to be financially stronger, which is why these are able to access more debt.

The negative correlation of target leverage with L.SE and L.RDD ratios is consistent with the results of Titman (1984) and Hovakimian et al. (2004). Companies with high selling expenses and research and development expenses have lower leverage targets. A higher value of these expenses is considered an indicator of higher intangible assets, and thus less assets to use as collateral.

Table 12. Regression results on the whole sample.

Panel A. Overall Adjustment Speed - Integrated capital structure model

	Market Leverage Ratios	**Book Leverage Ratios**
Adj. Speed	31.10%	28.30%
LagLev	0.689***	0.717***
	(0.006)	(0.006)
L.MB	-0.002**	0.001
	(0.001)	(0.001)
L.TANG	0.004	0.011**
	(0.004)	(0.003)
L.EBIT	-0.042***	-0.034***
	(0.008)	(0.007)
L.DEP	-0.047	-0.009
	(0.045)	(0.040)
L.LNTA	0.020***	0.012***
	(0.001)	(0.001)
L.SE	0.004	-0.012
	(0.007)	(0.007)
L.RDD	-0.006	-0.004
	(0.003)	(0.003)
L.VRMR	0.071***	0.021***
	(0.003)	(0.002)
L.CPG	-0.030***	-0.028***
	(0.003)	(0.002)
L.CPS	5.756***	1.167***
	(0.323)	(0.245)
L.BTS	-0.026***	-0.0003***
	(0.003)	(<0.001)
Constant	-0.063***	-0.011
	(0.008)	(0.006)
Fixed-effects	Yes	Yes
Observations	52085	52854
R^2	0.506	0.545

Panel B. Overall Adjustment Speed - Two-stage model

	Market Leverage Ratios	Book Leverage Ratios
Adj. Speed	35.00%	29.70%
TargDev	0.350***	0.297***
	(0.005)	(0.005)
Constant	0.002***	0.0005
	(<0.001)	(<0.001)
Fixed-effects	Yes	Yes
Observations	52085	52854
R^2	0.163	0.155

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Panel A shows the estimated speed of adjustment with the integrated model on the whole sample. Panel B with the two-stage model over the whole sample.

Table 13. Regression results with integrated model – Market valued Ratios.

	Market Leverage Ratios											
	Market Dividend Yield			Default Spread			Term Spread			GDP		
	Good	Bad	G. vs B	Good	Bad	G. vs B	Good	Bad	G. vs B	Good	Bad	G. vs B
Adj. Speed	47.10%	27.80%	28.80%	35.60%	33.00%	29.90%	37.00%	30.30%	29.20%	45.30%	35.20%	30.40%
LagLev	0.529***	0.722***	0.712***	0.644***	0.670***	0.701***	0.630***	0.697***	0.708***	0.547***	0.648***	0.696***
	(0.016)	(0.012)	(0.010)	(0.015)	(0.013)	(0.010)	(0.015)	(0.012)	(0.009)	(0.019)	(0.012)	(0.010)
L.MB	0.001	-0.001	-0.0005	-0.002	-0.004*	-0.002*	0.004**	-0.004**	-0.002*	-0.00406*	-0.003*	-0.002*
	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
L.TANG	0.008	0.000	-0.006	-0.003	0.024*	-0.022**	0.0434***	0.030**	0.036***	0.004	0.016	0.009
	(0.015)	(0.010)	(0.007)	(0.010)	(0.011)	(0.007)	(0.012)	(0.010)	(0.007)	(0.013)	(0.009)	(0.007)
L.EBIT	-0.079***	-0.020	-0.052***	-0.011	-0.094***	-0.049***	-0.063***	-0.013	-0.035**	0.032	-0.073***	-0.048***
	(0.022)	(0.019)	(0.012)	(0.019)	(0.023)	(0.013)	(0.018)	(0.021)	(0.013)	(0.025)	(0.020)	(0.014)
L.DEP	-0.126	0.003	-0.086	-0.061	-0.164	0.145*	0.021	-0.169	-0.168*	-0.296*	-0.086	-0.181*
	(0.126)	(0.104)	(0.071)	(0.109)	(0.109)	(0.073)	(0.104)	(0.100)	(0.070)	(0.139)	(0.098)	(0.072)
L.LNTA	0.039***	0.018***	0.018***	0.019***	0.031***	0.005***	0.020***	0.040***	0.037***	0.0183***	0.028***	0.025***
	(0.004)	(0.003)	(0.002)	(0.002)	(0.003)	(0.001)	(0.003)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)
L.SE	-0.029	0.032*	-0.002	-0.004	0.012	-0.028*	-0.037*	0.051**	0.024*	0.030	-0.008	0.008
	(0.022)	(0.016)	(0.010)	(0.015)	(0.020)	(0.011)	(0.016)	(0.017)	(0.011)	(0.020)	(0.018)	(0.012)
L.RDD	-0.016	-0.006	-0.007	-0.005	-0.006	-0.009	-0.013	0.007	0.000	-0.009	-0.006	-0.004
	(0.009)	(0.007)	(0.005)	(0.006)	(0.007)	(0.005)	(0.007)	(0.007)	(0.005)	(0.009)	(0.007)	(0.005)
L.VRMR	-0.040***	0.020	0.002	-0.240***	0.613***	0.121***	0.101***	-0.052***	-0.019***	-0.474***	0.190***	0.232***
	(0.008)	(0.011)	(0.005)	(0.022)	(0.017)	(0.006)	(0.018)	(0.011)	(0.004)	(0.047)	(0.009)	(0.007)
L.CPG	-0.440***	-0.022**	-0.056***	-0.582***	0.294***	-0.012*	-0.033***	0.014*	-0.002	-1.033***	0.004	0.070***
	(0.032)	(0.008)	(0.005)	(0.041)	(0.013)	(0.005)	(0.010)	(0.007)	(0.004)	(0.077)	(0.010)	(0.006)
L.CPS	15.74***	5.527***	0.723	25.61***	-4.815***	5.274***	-3.427	25.01***	23.85***	-164.3***	34.35***	28.30***
	(2.693)	(1.596)	(0.746)	(2.099)	(0.730)	(0.498)	(3.176)	(1.079)	(0.907)	(13.750)	(1.219)	(0.912)
L.BTS	-0.293***	-0.056***	-0.024***	0.333***	0.691***	-0.029***	0.0452	-0.116***	-0.117***	-0.201***	-0.233***	-0.092***
	(0.020)	(0.007)	(0.005)	(0.030)	(0.025)	(0.005)	(0.030)	(0.008)	(0.005)	(0.019)	(0.019)	(0.006)
DIST*LagLev			-0.028**			-0.044***			-0.089***			-0.051***
			(0.011)			(0.010)			(0.009)			(0.010)
GoodDummy			0.034***			-0.051***			0.047***			-0.086***
			(0.003)			(0.003)			(0.003)			(0.004)
Constant	-0.024	-0.071**	-0.027	0.177***	-0.242***	0.080***	-0.075***	-0.259***	-0.239***	1.214***	-0.198***	-0.197***
	(0.028)	(0.027)	(0.014)	(0.022)	(0.028)	(0.012)	(0.021)	(0.022)	(0.015)	(0.109)	(0.022)	(0.015)
Fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9000	9871	18871	10385	10972	21357	10685	12168	22853	7750	12573	20323
R^2	0.378	0.586	0.54	0.46	0.479	0.489	0.466	0.484	0.514	0.378	0.476	0.505

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 14. Regression results with integrated model – Book valued Ratios.

	Book Leverage Ratios											
	Market Dividend Yield			**Default Spread**			**Term Spread**			**GDP**		
	Good	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**
Adj. Speed	55.60%	23.60%	25.60%	37.80%	26.30%	25.80%	35.90%	28.80%	28.60%	46.30%	23.80%	25.00%
LagLev	0.444***	0.764***	0.744***	0.622***	0.737***	0.742***	0.641***	0.712***	0.714***	0.537***	0.762***	0.750***
	(0.017)	(0.012)	(0.010)	(0.014)	(0.013)	(0.010)	(0.013)	(0.012)	(0.009)	(0.019)	(0.012)	(0.010)
L.MB	0.001	0.000	0.002*	0.003*	-0.001	0.001	0.002	-0.005***	-0.001	-0.003	0.000	-0.001
	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
L.TANG	0.020	-0.002	0.005	0.009	0.009	0.005	0.023**	0.001	0.011*	0.005	-0.004	0.001
	(0.012)	(0.008)	(0.005)	(0.008)	(0.010)	(0.005)	(0.009)	(0.007)	(0.005)	(0.009)	(0.007)	(0.005)
L.EBIT	-0.086***	0.009	-0.032**	-0.025	-0.047*	-0.034**	-0.061***	0.024	-0.023*	0.016	-0.054**	-0.035**
	(0.020)	(0.017)	(0.012)	(0.017)	(0.019)	(0.012)	(0.018)	(0.016)	(0.011)	(0.023)	(0.017)	(0.013)
L.DEP	-0.247*	0.113	-0.048	0.001	-0.144	-0.038	0.164	0.199*	0.154*	-0.051	-0.017	-0.044
	(0.113)	(0.100)	(0.062)	(0.089)	(0.092)	(0.059)	(0.099)	(0.087)	(0.061)	(0.112)	(0.091)	(0.067)
L.LNTA	0.025***	0.010***	0.013***	0.0158***	0.010***	0.009***	0.013***	0.016***	0.013***	0.016***	0.009***	0.012***
	(0.004)	(0.003)	(0.001)	(0.002)	(0.003)	(0.001)	(0.003)	(0.002)	(0.001)	(0.003)	(0.002)	(0.001)
L.SE	-0.027	0.019	-0.023*	-0.0333*	-0.011	-0.026*	-0.029	0.011	-0.014	-0.024	-0.008	-0.012
	(0.022)	(0.017)	(0.011)	(0.016)	(0.018)	(0.011)	(0.017)	(0.016)	(0.011)	(0.022)	(0.015)	(0.012)
L.RDD	-0.005	-0.006	-0.004	-0.008	-0.001	-0.004	-0.011	0.001	-0.005	-0.012	-0.005	-0.005
	(0.008)	(0.005)	(0.004)	(0.005)	(0.005)	(0.004)	(0.006)	(0.005)	(0.004)	(0.007)	(0.005)	(0.004)
L.VRMR	0.008	0.008	0.026***	-0.017	0.107***	0.048***	-0.036*	0.014	0.001	-0.141**	0.024***	0.051***
	(0.007)	(0.009)	(0.004)	(0.019)	(0.011)	(0.004)	(0.015)	(0.008)	(0.004)	(0.043)	(0.007)	(0.005)
L.CPG	-0.165***	-0.015*	-0.033***	-0.129***	0.011	-0.024***	-0.022*	-0.041***	-0.030***	-0.411***	-0.043***	-0.015**
	(0.027)	(0.006)	(0.004)	(0.036)	(0.010)	(0.004)	(0.009)	(0.005)	(0.003)	(0.067)	(0.008)	(0.005)
L.CPS	9.996***	0.322	2.524***	8.055***	-1.154*	1.168**	7.688**	0.413	0.393	-67.95***	6.824***	4.074***
	(2.375)	(1.350)	(0.629)	(1.826)	(0.568)	(0.372)	(2.661)	(0.783)	(0.659)	(11.850)	(0.765)	(0.566)
L.BTS	-0.001***	0.000	-0.001***	0.000	0.001***	-0.0002***	-0.001**	-0.0002**	-0.0003***	-0.001***	-0.001***	-0.0003***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
DIST*LagLev			-0.098***			-0.062***			-0.033***			-0.0679***
			(0.012)			(0.010)			(0.009)			(0.011)
GoodDummy			0.032***			0.006*			-0.010**			0.010**
			(0.004)			(0.003)			(0.003)			(0.003)
Constant	0.015	-0.006	-0.020	0.028	0.001	0.018	-0.005	-0.023	0.002	0.510***	0.003	-0.019
	(0.025)	(0.025)	(0.012)	(0.020)	(0.023)	(0.010)	(0.020)	(0.017)	(0.012)	(0.095)	(0.017)	(0.012)
Fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9460	9884	19344	10798	10964	21762	10915	12236	23151	8047	12568	20615
R^2	0.262	0.604	0.535	0.443	0.561	0.541	0.463	0.536	0.539	0.361	0.574	0.543

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 15. Regression results when leverage ratio is defined by $MD1_{i,t}$.

MD1

Panel A. Integrated dynamic partial adjustment capital structure model.

	Market Dividend Yield			Default Spread			Term Spread			GDP Growth Rate		
	Good	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**
Adj. Speed	47.90%	27.10%	28.70%	34.50%	31.60%	29.40%	36.70%	32.10%	30.20%	44.40%	32.10%	30.10%
LagLev	0.521***	0.729***	0.713***	0.655***	0.684***	0.706***	0.633***	0.679***	0.698***	0.556***	0.679***	0.699***
	(0.016)	(0.012)	(0.010)	(0.013)	(0.013)	(0.010)	(0.014)	(0.013)	(0.010)	(0.018)	(0.013)	(0.010)
Good*LagLev			-0.023*			-0.030**			-0.070***			-0.027*
			(0.012)			(0.010)			(0.009)			(0.011)
GoodDummy			0.022***			-0.025***			0.018***			-0.041***
			(0.003)			(0.002)			(0.003)			(0.003)
Fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8952	9809	18761	10325	10904	21229	10624	12089	22713	7706	12490	20196
R^2	0.364	0.596	0.541	0.474	0.487	0.5	0.487	0.479	0.521	0.387	0.484	0.502

Panel B. Two-stage dynamic partial adjustment capital structure model.

	Market Dividend Yield			Default Spread			Term Spread			GDP Growth Rate		
	Good	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**
Adj. Speed	47.80%	29.10%	30.40%	36.30%	38.70%	33.90%	39.20%	35.90%	33.40%	48.40%	38.70%	36.00%
TargDev	0.478***	0.291***	0.304***	0.363***	0.387***	0.339***	0.392***	0.359***	0.334***	0.484***	0.387***	0.360***
	(0.016)	(0.012)	(0.011)	(0.014)	(0.014)	(0.010)	(0.013)	(0.013)	(0.010)	(0.018)	(0.013)	(0.011)
Good*TargDev			0.011			0.002			0.056***			-0.006
			(0.012)			(0.011)			(0.009)			(0.012)
GoodDummy			0.013***			-0.005***			-0.023***			-0.004**
			(0.001)			(0.001)			(0.001)			(0.001)
Constant	0.012***	-0.004***	-0.004***	0.003***	0.009***	0.009***	-0.010***	0.011***	0.012***	0.002***	0.007***	0.007***
	(<0.001)	(<0.001)	(0.001)	(<0.001)	(<0.001)	(0.001)	(<0.001)	(<0.001)	(0.001)	(<0.001)	(<0.001)	(0.001)
Fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8952	9809	18761	10325	10904	21229	10624	12089	22713	7706	12490	20196
R^2	0.22	0.158	0.151	0.165	0.176	0.155	0.241	0.156	0.204	0.22	0.176	0.16

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

$MD1_{i,t}$ is defined by Eq. (6). Panel A shows the regression output when the integrated model is applied, i.e. applying Eq. (3). Panel B applying the two-stage model, where the target leverage is the one estimated by Eq.(1) and then, the estimated speed of adjustment is performed with Eq.(3). GoodDummy is a dummy variable equal to 1 if the stage is defined as good on the basis of the macroeconomic variables (section 2.3), 0 if bad. In Panel A, LagLev is 1-δ, the coefficient of $D_{i,t-1}$. Adj.Speed is 1 minus LagLev [1-(1-δ)]. Good*LagLev is the interaction term, created by multiplying GoodDummy by LagLev. In Panel B, TargDev is δ, the coefficient of $D^{*}_{i,t} - D_{i,t-1}$. Adj.Speed is TargDev coefficient. Good*TargDev is the interaction term, created by multiplying GoodDummy by TargDev.

Table 16. Regression results when leverage ratio is defined by $MD2_{i,t}$.

MD2

Panel A. Integrated dynamic partial adjustment capital structure model.

	Market Dividend Yield			**Default Spread**			**Term Spread**			**GDP Growth Rate**		
	Good	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**
Adj. Speed	51.40%	28.80%	30.20%	37.20%	35.10%	34.40%	36.50%	32.00%	30.80%	46.40%	36.50%	31.90%
LagLev	0.486***	0.712***	0.698***	0.628***	0.649***	0.656***	0.635***	0.680***	0.692***	0.536***	0.635***	0.681***
	(0.014)	(0.012)	(0.010)	(0.014)	(0.012)	(0.009)	(0.013)	(0.012)	(0.009)	(0.018)	(0.011)	(0.009)
Good*LagLev			-0.049***			-0.020*			-0.059***			-0.049***
			(0.009)			(0.008)			(0.007)			(0.008)
GoodDummy			0.047***			-0.057***			0.059***			-0.094***
			(0.004)			(0.004)			(0.004)			(0.005)
Fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8954	9830	18784	10329	10925	21254	10644	12120	22764	7713	12517	20230
R^2	0.411	0.595	0.553	0.488	0.495	0.506	0.493	0.507	0.531	0.398	0.499	0.536

Panel B. Two-stage dynamic partial adjustment capital structure model.

	Market Dividend Yield			**Default Spread**			**Term Spread**			**GDP Growth Rate**		
	Good	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**
Adj. Speed	50.30%	31.60%	31.70%	39.60%	48.90%	40.00%	43.40%	39.40%	37.00%	51.50%	48.90%	42.20%
TargDev	0.503***	0.316***	0.317***	0.396***	0.489***	0.400***	0.434***	0.394***	0.370***	0.515***	0.489***	0.422***
	(0.014)	(0.012)	(0.010)	(0.014)	(0.013)	(0.010)	(0.013)	(0.012)	(0.009)	(0.018)	(0.012)	(0.010)
Good*TargDev			0.035**			-0.008			0.049***			-0.014
			(0.011)			(0.010)			(0.008)			(0.011)
GoodDummy			0.019***			-0.024***			-0.034***			-0.024***
			(0.002)			(0.002)			(0.001)			(0.002)
Constant	0.014***	-0.007***	-0.006***	2.6E-05	0.023***	0.023***	-0.011***	0.019***	0.020***	-0.006***	0.019***	0.020***
	(<0.001)	(<0.001)	(0.001)	(<0.001)	(<0.001)	(0.001)	(<0.001)	(<0.001)	(0.001)	(<0.001)	(<0.001)	(0.001)
Fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8954	9830	18784	10329	10925	21254	10644	12120	22764	7713	12517	20230
R^2	0.209	0.154	0.151	0.167	0.217	0.175	0.23	0.153	0.208	0.211	0.224	0.183

Standard errors in parentheses

$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

$MD2_{i,t}$ is defined by Eq. (7). Panel A shows the regression output when the integrated model is applied, i.e. applying Eq. (3). Panel B applying the two-stage model, where the target leverage is the one estimated by Eq.(1) and then, the estimated speed of adjustment is performed with Eq.(3). GoodDummy is a dummy variable equal to 1 if the stage is defined as good on the basis of the macroeconomic variables (section 2.3), 0 if bad. In Panel A, LagLev is 1-δ, the coefficient of $D_{i,t-1}$. Adj.Speed is 1 minus LagLev [1-(1-δ)]. Good*LagLev is the interaction term, created by multiplying GoodDummy by LagLev. In Panel B, TargDev is δ, the coefficient of $D^*_{i,t} - D_{i,t-1}$. Adj.Speed is TargDev expressed in percentage terms. Good*TargDev is the interaction term, created by multiplying GoodDummy by TargDev.

Table 17. Regression results when leverage ratio is defined by $MD3_{i,t}$.

MD3

Panel A. Integrated dynamic partial adjustment capital structure model.

	Market Dividend Yield			**Default Spread**			**Term Spread**			**GDP Growth Rate**		
	Good	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**
Adj. Speed	51.30%	27.40%	30.00%	36.90%	37.40%	34.70%	44.10%	34.80%	33.60%	44.90%	37.70%	34.90%
LagLev	0.487***	0.726***	0.700***	0.631***	0.626***	0.653***	0.559***	0.652***	0.664***	0.551***	0.623***	0.651***
	(0.020)	(0.013)	(0.011)	(0.015)	(0.016)	(0.012)	(0.019)	(0.015)	(0.011)	(0.020)	(0.014)	(0.012)
Good*LagLev			-0.0410**			-0.00525			-0.0961***			-0.00611
			(0.014)			(0.011)			(0.011)			(0.012)
GoodDummy			0.0281***			-0.0347***			0.0229***			-0.0515***
			(0.003)			(0.003)			(0.003)			(0.004)
Fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8339	9291	17630	9714	10208	19922	9809	11428	21237	7248	11719	18967
R^2	0.327	0.575	0.51	0.443	0.426	0.456	0.389	0.434	0.465	0.371	0.43	0.457

Panel B. Two-stage dynamic partial adjustment capital structure model.

	Market Dividend Yield			**Default Spread**			**Term Spread**			**GDP Growth Rate**		
	Good	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**	**Good**	**Bad**	**G. vs B**
Adj. Speed	50.80%	29.20%	31.50%	38.10%	44.40%	38.60%	46.10%	38.40%	36.30%	47.70%	44.30%	40.90%
TargDev	0.508***	0.292***	0.315***	0.381***	0.444***	0.386***	0.461***	0.384***	0.363***	0.477***	0.443***	0.409***
	(0.019)	(0.012)	(0.011)	(0.015)	(0.016)	(0.012)	(0.017)	(0.014)	(0.011)	(0.020)	(0.015)	(0.013)
Good*TargDev			0.026			-0.021			0.083***			-0.036**
			(0.014)			(0.012)			(0.012)			(0.014)
GoodDummy			0.015***			-0.007***			-0.026***			-0.004*
			(0.002)			(0.002)			(0.001)			(0.002)
Constant	0.013***	-0.004***	-0.004***	0.004***	0.010***	0.011***	-0.010***	0.013***	0.014***	0.003***	0.008***	0.008***
	(<0.001)	(<0.001)	(0.001)	(<0.001)	(<0.001)	(0.001)	(<0.001)	(<0.001)	(0.001)	(<0.001)	(<0.001)	(0.001)
Fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8339	9291	17630	9714	10208	19922	9809	11428	21237	7248	11719	18967
R^2	0.233	0.15	0.158	0.17	0.208	0.173	0.269	0.163	0.218	0.21	0.208	0.18

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

$MD3_{i,t}$ is defined by Eq. (8). Panel A shows the regression output when the integrated model is applied, i.e. applying Eq. (3). Panel B applying the two-stage model, where the target leverage is the one estimated by Eq.(1) and then, the estimated speed of adjustment is performed with Eq.(3). GoodDummy is a dummy variable equal to 1 if the stage is defined as good on the basis of the macroeconomic variables (section 2.3), 0 if bad. In Panel A, LagLev is 1-δ, the coefficient of $D_{i,t-1}$. Adj.Speed is 1 minus LagLev [1-(1-δ)]. Good*LagLev is the interaction term, created by multiplying GoodDummy by LagLev. In Panel B, TargDev is δ, the coefficient of $D_{i,t}^{*} - D_{i,t-1}$. Adj.Speed is TargDev. Good*TargDev is the interaction term, created by multiplying GoodDummy by TargDev.

Table 18. Regressions to estimate the adjustment speed considering the distance to the target.

	Market Leverage Ratios	**Book Leverage Ratios**
Adj. Speed	42.70%	37.90%
LagLev	0.573***	0.621***
	(0.006)	(0.006)
L.MB	-0.005***	-0.0001
	(<0.001)	(<0.001)
L.TANG	0.005	0.011**
	(0.004)	(0.003)
L.EBIT	-0.043***	-0.038***
	(0.008)	(0.007)
L.DEP	-0.056	0.009
	(0.044)	(0.040)
L.LNTA	0.022***	0.015***
	(<0.001)	(0.001)
L.SE	-0.002	-0.021**
	(0.007)	(0.007)
L.RDD	0.002	0.002
	(0.003)	(0.003)
L.VRMR	0.065***	0.022***
	(0.003)	(0.002)
L.CPG	-0.028***	-0.030***
	(0.002)	(0.002)
L.CPS	5.544***	1.329***
	(0.319)	(0.241)
L.BTS	-0.022***	-0.0002***
	(0.003)	(<0.001)
DIST*LagLev	0.090***	0.068***
	(0.002)	(0.002)
Constant	-0.049***	-0.005
	(0.007)	(0.006)
Fixed-effects	Yes	Yes
Observations	52085	52854
R^2	0.558	0.582

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The distance away from the target (*DIST*) is estimated as $|D_{i,t}^{*} - D_{i,t}|$. To construct the interaction term *DIST* was standardised to make it scale to book and market leverage ratios. The interaction term is given by the interaction between *DIST* and lagged leverage ratios. The regression was performed by applying the integrated model.

Table 19. Adjustment speed for under and over levered firms.

Panel A. Market Ratios	Years -1	0	1	2	3	4	5	Adj. Speed	Obs
Highly over-levered	-0.0251	-0.2726	-0.1630	-0.1156	-0.0901	-0.0554	-0.0233	84.09%***	8907
	(0.094)	(0.093)	(0.166)	(0.174)	(0.172)	(0.169)	(0.163)	(0.0148)	
Leverage	0.3514	0.5708	0.4898	0.4307	0.3994	0.3600	0.3282		
	(0.219)	(0.204)	(0.245)	(0.258)	(0.260)	(0.254)	(0.243)		
Over-levered	-0.0286	-0.0704	-0.0486	-0.0355	-0.0315	-0.0275	-0.0216	73.65%***	10915
	(0.119)	(0.014)	(0.115)	(0.129)	(0.135)	(0.141)	(0.138)	(0.0134)	
Leverage	0.2789	0.3083	0.2993	0.2912	0.2919	0.2898	0.2887		
	(0.216)	(0.193)	(0.220)	(0.230)	(0.239)	(0.240)	(0.239)		
At target	-0.0075	-0.0001	-0.0012	-0.0069	-0.0020	-0.0003	-0.0004	71.36%***	10361
	(0.109)	(0.008)	(0.100)	(0.123)	(0.130)	(0.128)	(0.132)	(0.0141)	
Leverage	0.2367	0.2295	0.2359	0.2460	0.2433	0.2434	0.2469		
	(0.201)	(0.176)	(0.196)	(0.215)	(0.222)	(0.220)	(0.222)		
Under-levered	0.0303	0.0830	0.0464	0.0316	0.0258	0.0217	0.0085	71.82%***	10579
	(0.101)	(0.010)	(0.106)	(0.122)	(0.127)	(0.128)	(0.136)	(0.0177)	
Leverage	0.2043	0.1665	0.1979	0.2199	0.2299	0.2354	0.2516		
	(0.187)	(0.153)	(0.190)	(0.207)	(0.210)	(0.211)	(0.218)		
Highly under-levered	0.0231	0.2118	0.1235	0.0870	0.0652	0.0494	0.0283	81.11%***	7324
	(0.111)	(0.062)	(0.136)	(0.153)	(0.162)	(0.160)	(0.161)	(0.110)	
Leverage	0.2447	0.1259	0.1939	0.2438	0.2745	0.2971	0.3163		
	(0.201)	(0.122)	(0.183)	(0.210)	(0.223)	(0.231)	(0.316)		

Panel B. Book Ratios	Years -1	0	1	2	3	4	5	Adj. Speed	Obs
Highly over-levered	-0.0195	-0.2268	-0.1553	-0.1150	-0.0834	-0.0572	-0.0381	85.05%***	8919
	(0.087)	(0.088)	(0.134)	(0.135)	(0.139)	(0.141)	(0.137)	(0.0097)	
Leverage	0.3447	0.4890	0.4280	0.3872	0.3591	0.3383	0.3183		
	(0.208)	(0.160)	(0.195)	(0.199)	(0.203)	(0.208)	(0.204)		
Over-levered	-0.0424	-0.0661	-0.0511	-0.0401	-0.0304	-0.0231	-0.0169	72.74%***	10665
	(0.097)	(0.011)	(0.081)	(0.100)	(0.105)	(0.112)	(0.114)	(0.0096)	
Leverage	0.3044	0.3190	0.3090	0.2997	0.2938	0.2913	0.2877		
	(0.168)	(0.140)	(0.164)	(0.177)	(0.182)	(0.183)	(0.185)		
At target	-0.0092	-0.0042	-0.0021	-0.0051	-0.0003	-0.0002	0.0032	69.00%***	10401
	(0.079)	(0.007)	(0.074)	(0.099)	(0.107)	(0.106)	(0.107)	(0.0098)	
Leverage	0.2586	0.2507	0.2509	0.2576	0.2576	0.2606	0.2588		
	(0.160)	(0.144)	(0.159)	(0.173)	(0.181)	(0.179)	(0.178)		
Under-levered	0.0360	0.0731	0.0546	0.0437	0.0327	0.0257	0.0194	72.10%***	10388
	(0.084)	(0.009)	(0.078)	(0.096)	(0.104)	(0.108)	(0.111)	(0.0097)	
Leverage	0.2067	0.1765	0.1974	0.2114	0.2281	0.2367	0.2435		
	(0.156)	(0.136)	(0.153)	(0.160)	(0.170)	(0.174)	(0.176)		
Highly under-levered	0.0349	0.1873	0.1263	0.0887	0.0708	0.0488	0.0316	84.80%***	7436
	(0.093)	(0.061)	(0.114)	(0.123)	(0.131)	(0.134)	(0.134)	(0.110)	
Leverage	0.2159	0.1082	0.1677	0.2069	0.2303	0.2583	0.2764		
	(0.176)	(0.110)	(0.154)	(0.170)	(0.178)	(0.181)	(0.187)		

Highly over-levered, over-levered, at target, under-levered and highly under-levered are the first, third, fifth, eighth and tenth deciles of the cross-sectional leverage deviation ($DEV = D^*_{i,t} - D_{i,t}$). If more than one DEV of a company were included in the same decile, only the first observation was included. Target leverage ($D^*_{i,t}$) was computed according to Eq. (1).

Leverage rows are the means of leverage. In parentheses are reported the standard deviations.

In column 9 the adjustment speed is reported, computed according to Eq. (3). The estimation was implemented with firm fixed effects and time fixed effects.

Standard errors in parenthesis. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 20. Adjustment speed for firm size.

Panel A. Overall Adjustment Speed - Integrated capital structure model

	Market Ratios		Book Ratios	
	Small Firms	**Big Firms**	**Small Firms**	**Big Firms**
Adj. Speed	34.20%	29.60%	34.80%	26.70%
LagLev	0.658***	0.704***	0.652***	0.733***
	(0.009)	(0.008)	(0.009)	(0.008)
L.MB	-0.002	-0.006***	-8.8E-05	-2.0E-04
	(0.001)	(0.001)	(0.001)	(0.001)
L.TANG	0.019**	0.007	0.027***	-1.3E-04
	(0.006)	(0.006)	(0.005)	(0.004)
L.EBIT	-0.045***	-0.003	-0.051***	0.025*
	(0.010)	(0.020)	(0.009)	(0.013)
L.DEP	-0.103	-0.142	-0.107	0.040
	(0.056)	(0.073)	(0.056)	(0.058)
L.LNTA	0.027***	0.011***	0.020***	0.001
	(0.002)	(0.002)	(0.002)	(0.002)
L.SE	0.016	0.017	0.005	0.004
	(0.010)	(0.015)	(0.010)	(0.011)
L.RDD	-0.013*	0.001	-0.011**	-3.2E-04
	(0.005)	(0.004)	(0.004)	(0.003)
L.VRMR	0.083***	-0.052***	0.030	-0.067***
	(0.022)	(0.014)	(0.020)	(0.012)
L.CPG	0.069***	-0.026**	-0.016	-0.029***
	(0.018)	(0.008)	(0.013)	(0.010)
L.CPS	12.18**	-16.27***	2.363	-15.61***
	(4.154)	(2.97)	(3.603)	(2.54)
L.BTS	-0.213***	-0.029	-0.001**	-0.001***
	(0.025)	(0.015)	(<0.001)	(<0.001)
Constant	-0.108***	0.059*	-0.029	0.131***
	(0.025)	(0.026)	(0.021)	(0.021)
Fixed-effects	Yes	Yes	Yes	Yes
Observations	25064	27021	25529	27325
R^2	0.497	0.554	0.465	0.585

Panel B. Overall Adjustment Speed - Two-stage model

	Market Ratios		Book Ratios	
	Small Firms	**Big Firms**	**Small Firms**	**Big Firms**
Adj. Speed	37.50%	34.60%	34.60%	26.60%
TargDev	0.375***	0.346***	0.346***	0.266***
	(0.009)	(0.009)	(0.009)	(0.008)
Constant	0.001***	0.004***	0.003***	0.004***
	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Observations	25064	27021	25529	27325
R2	0.174	0.155	0.179	0.135

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Panel A shows for small and big firms (column 1, 3 and 2, 4 respectively) the results of the regression performed with the integrated dynamic partial adjustment capital structure model. LagLev is 1-δ, the coefficient of $D_{i,t-1}$. Adj.Speed is 1 minus LagLev [1-(1-δ)]. Panel B shows the results of the regression performed with the integrated two-stage model. TargDev is δ, the coefficient of $D_{i,t}^{*} - D_{i,t-1}$. Adj.Speed is TargDev expressed in percentage terms.