

DOES PRIVATISATION AFFECT INDUSTRIES AND FIRMS' CAPITAL STRUCTURE IN EUROPE?

Victor Barros^{*}, Décio Chilumbo^{**}, Joaquim Miranda Sarmiento^{**}

^{*} Corresponding author, ADVANCE/CSG, ISEG (Lisbon School of Economics and Management), University of Lisbon, Lisbon, Portugal
Contact details: ADVANCE/CSG, ISEG (Lisbon School of Economics and Management), University of Lisbon, Rua Miguel Lupi, 20,
1249-078 Lisbon, Portugal

^{**} ADVANCE/CSG, ISEG (Lisbon School of Economics and Management), University of Lisbon, Lisbon, Portugal



Abstract

How to cite this paper: Barros, V., Chilumbo, D., & Sarmiento, J. M. (2021). Does privatisation affect industries and firms' capital structure in Europe? *Journal of Governance & Regulation*, 10(2), 166–178.
<https://doi.org/10.22495/jgrv10i2art14>

Copyright © 2021 The Authors

This work is licensed under a Creative Commons Attribution 4.0 International License (CC BY 4.0).
<https://creativecommons.org/licenses/by/4.0/>

ISSN Print: 2220-9352
ISSN Online: 2306-6784

Received: 01.02.2021
Accepted: 23.04.2021

JEL Classification: G32, L33
DOI: 10.22495/jgrv10i2art14

Over the past decades, there has been a trend towards privatisation in Europe. However, surprisingly little has been published in the finance literature on the industry effects of privatisation on non-financial firms' capital structure. Talberg, Winge, Frydenberg, and Westgaard (2008) demonstrate that capital structures are industry-specific, and the literature on privatisation and leverage claims both a positive and a negative effect. Using a large sample of privatised firms in Europe, this paper analyses the impact of privatisation on firms' capital structure. Our results provide no evidence that privatisation impacts firms' capital structure. Instead, the level of leverage remains largely the same a few years after privatisation. These results remain unchanged even after controlling for certain characteristics, such as the type (asset sale or share issue) of privatisation and the percentage of privatisation. However, additional tests reveal that industry specificities are relevant in explaining capital structure variations following privatisation. When considering industry-specific characteristics, we found substantial statistical evidence that firms in capital-intensive industries experience a greater leverage level after being privatised. Our findings also suggest that governments may optimise privatisation processes after considering what capital-intensive firms may require in terms of funding long-term assets.

Keywords: Capital Structure, Leverage, Privatisation

Authors' individual contribution: Conceptualization — V.B. and D.C.; Methodology — V.B., D.C., and J.M.S.; Software — V.B. and J.M.S.; Validation — V.B. and J.M.S.; Formal Analysis — V.B. and J.M.S.; Investigation — V.B. and J.M.S.; Resources — V.B. and D.C.; Data Curation — V.B. and J.M.S.; Writing — Original Draft — V.B. and J.M.S.; Writing — Review & Editing — V.B. and J.M.S.; Visualization — J.M.S.; Supervision — V.B. and J.M.S.; Project Administration — V.B. and J.M.S.; Funding Acquisition — V.B. and J.M.S.

Declaration of conflicting interests: The Authors declare that there is no conflict of interest.

Acknowledgements: The authors gratefully acknowledge the financial support received from FCT — Fundação para a Ciência e Tecnologia (Portugal), and the national funding obtained through a research grant (UIDB/04521/2020).

1. INTRODUCTION

The last 40 years have seen a pronounced move towards privatisation across Europe. Privatisation

amounts to transferring full or partial ownership of a firm from a government organisation to a privately-owned entity. In Europe, privatisations have been carried out on the basis of three perceived

benefits (Vickers & Yarrow, 1988): 1) privatisation contributes to a reduction in the public deficit through the income generated from the sale of state-owned enterprises (SOE); 2) privatised firms exhibit increased efficiency; 3) privatisation delivers increased opportunities to redistribute income and wealth since a privatisation affords easier access to capital markets.

Because company ownership changes during the process of privatisation, there has been some research into the relationship between privatisation events and the capital structure of firms. Most authors (Boubakri & Cosset, 1998; Arcas & Bachiller, 2008; Chahyadi, 2008) have found that leverage ratios tend to decrease after privatisation. Traditionally SOE have higher leverage levels because their only access to equity is through retained earnings and capital injections from the government (Vaz Ferreira, 2012). Moreover, Errunza and Mazumdar (2001) argue that, since bankruptcy costs after privatisation are high, firms have to reduce their leverage levels in order that privatisation can deliver the positive effect that the firm foresees. Since governments operate under fiscal constraints, there is an incentive for SOEs in need of capital injections and investment to raise debt rather than equity.

However, there is a lack of research on the effect of industry characteristics on the capital structure decisions taken by firms following privatisation. Hall, Hutchinson, and Michaelas (2000) studied — in the case of small and medium firms from the UK — the relationship between the determinants of capital structure and industry effects, and how the effects of these determinants on long-term and short-term debt differ across industries (MacKay & Phillips, 2005). However, the authors did not analyse the impact of privatisations on such decisions. Talberg et al. (2008) demonstrate clearly that capital structures are industry-specific. The literature on privatisations and leverage claims both a positive (Barbosa, Costa, & Funchal, 2012) and a negative effect (Arcas & Bachiller, 2008), without taking industry effects into consideration as a moderating variable that could better explain capital structure decisions.

Therefore, our paper analyses the impact of privatisation on non-financial firms' capital structure, conditional on industry effects. We collected panel data from 55 privatised firms in 5 industries located in 18 European countries. These firms were privatised between 2009 and 2013, and the financial data collected covers the period from 2006 to 2015 with a total of 483 observations. The list of privatised firms was taken from the Privatisation Barometer database.

To analyse whether privatisation affected these firms' capital structure, we measured the firm's leverage for each year of our sample (2006–2015). For each firm, this covers the period before and after privatisation. In this way, we were able to examine whether privatisation changed the level of leverage and if there are differences at the industry level. We were also able to control for some potential endogeneity. Therefore, our research question asks: "How do different industry characteristics affect capital structure decisions following a privatisation?"

We found little evidence that privatisation reduces the level of leverage of privatised firms. Even after controlling for privatisation characteristics, these results persist irrespective of the type (asset sale or share issue) and the percentage of privatisation. However, there is some evidence that the effect of privatisation on leverage is different when looking at the industry level. This suggests that the potential effect of privatisations on firms' level of leverage is industry-specific. Furthermore, results suggest that the capital intensity of these firms amplifies the effect of privatisation on the leverage level. That is to say, given the level of capital intensity, the effect on the firm's level of leverage in industries such as utilities, transportation, and telecommunications is about two times greater than if their capital intensity is not considered.

Previous evidence on capital structure and privatisation is mixed (Chahyadi, 2008; Arcas & Bachiller, 2008; Barbosa et al., 2012; Errunza & Mazumdar, 2001). This paper contributes to the existing literature in that our findings suggest that the context of the country- and industry-specific characteristics may be relevant in explaining firms' capital structure decisions that are purely derived from privatisation. Specifically, we contribute to the existing literature by using industry effects as a moderating variable while investigating the impact of privatisation on the firm's capital structure.

Our paper also provides a managerial contribution. In narrowing the analysis to capital intensity, we found that investment requirements constitute a relevant factor in explaining capital structure decisions following privatisation. Therefore, successful privatisations may well depend on the funding of such investment requirements. Governments may optimise privatisation processes by considering the funding of long-term assets that may be required for capital-intensive firms.

This paper is organised as follows: Section 2 presents a literature review on capital structure and privatisation. Data, methodology, and propositions are presented in Section 3. Section 4 provides the results and raises specific issues for discussion. The paper's conclusions are presented in Section 5 where we consider its contribution to the literature, identify the limitations of the study, and point to some avenues for future research.

2. LITERATURE REVIEW: CAPITAL STRUCTURE AND PRIVATISATIONS

Privatisation can be described as the "act of reducing the government role or increasing the role of the private institutions of society in satisfying people's needs" (Savas, 2000, p. 132). There are various types of privatisation strategies, as suggested by Eaton (1989). However, Megginson, Nash, Netter, and Poulsen (2004) state that most frequently governments choose between three approaches: 1) the asset sales method, where the government sells company assets (typically through an auction) to a small group of investors; 2) through a share issue, in which equity shares are sold on public stock markets; 3) through vouchers, which represent part ownership of former state-owned firms, which are distributed free to all

citizens, or at a small fraction of their market value. The authors added that privatisation through a share issue is the largest and most economically important type of privatisation, although governments with less state control over the economy tend to carry out asset sales.

The majority of privatisation programmes of a significant size start with partial privatisation, where only non-controlling shares are sold on the stock market (Gupta, 2005). Sheshinski and López-Calva (2003) provide evidence that fully privatised firms perform better under the same conditions than partially privatised firms. Other studies have focused on firm performance, looking at specific countries (Vaz Ferreira, 2012; Kabir, 2013; Morresi & Nobili, 2015). Empirical studies, such as those of Harris and Raviv (1991), D'Souza and Megginson (1999), and Boubakri and Cosset (1998), found that privatised firms experienced significant increases in profitability, sales, operating efficiency, and dividend payments, as well as a substantial decrease in leverage ratios. Nevertheless, these papers do not consider whether and how industry-specific factors may affect outcomes differently.

Capital structure can be defined as the way a company finances its operations. There are two primary sources that a company can draw on for funding: debt and equity. In the words of Myers (2001), "capital structure attempts to explain the mix of securities and financing sources used by corporations to finance real investment" (p. 81). Capital structure literature is based on M&M theory (Modigliani & Miller, 1958, 1963) and is mainly determined by two foremost and widely-studied theories: the "trade-off theory" (Hovakimian, Hovakimian, & Tehrani, 2004; de Jong, Verbeek, & Verwijmeren, 2011), and the "pecking order theory" (Myers & Majluf, 1984). On the relationship between leverage and those other variables that can exert some influence on leverage, the "pecking order theory" argues for an inverse relationship between leverage and size, leverage and profitability, and leverage and tangibility of assets (Frank & Goyal, 2009). This is the opposite of the "trade-off theory" where growth and leverage are positively related. Myers (2001) claims that the "pecking order theory" may explain why larger and more profitable firms use less debt—which is that such firms have more internal financing available to apply to other investments.

According to Hovakimian et al. (2004) and de Jong et al. (2011), the "trade-off theory" suggests that leverage has a positive relationship with the size and profitability of the firm, the tangibility of assets, and the use of taxes. The theory also argues that the high industry median leverage should introduce more debt. Furthermore, it anticipates that, due to increasing financial distress costs, the relationship between growth and leverage should be negative (Frank & Goyal, 2009).

Two other compelling theories are the "agency theory" and the "signalling theory". The agency theory may also explain capital structure decisions following privatizations. Borisova and Megginson (2011) found that fully privatized versus partially privatised firms may exhibit different credit spreads, which may derive from a bondholder-shareholder conflict. Sheshinski and López-Calva (2003) also

suggest that agency issues in SOE may flow differently following privatisations, especially for full privatisations. Regarding the signalling theory, literature has focused on issues such as the residual state ownership in partially privatised firms (Chang & Boontham, 2017). On the capital structure effect, the residual state ownership may signal lower credit risk, thus allowing a higher proportion of debt to be issued.

Regarding capital structure and leverage following privatisation, most of the literature tends to support the position that privatisation reduces the level of leverage (with less debt after privatisation). Indeed, Chahyadi (2008) and Arcas and Bachiller (2008) found that firms are less leveraged following privatisation. Chahyadi (2008) added that privatised firms have a target capital structure that does not change randomly over time. According to Borisova and Megginson (2011), privatised firms face a higher cost of debt as state-ownership diminishes. This could be because bondholders demand higher spreads, especially when privatisation occurs in several phases. This may explain why firms' leverage ratios suffer a decline after privatisation. Traditionally, state-owned firms have higher leverage levels because their only access to equity is through retained earnings and capital injections from the government (Vaz Ferreira, 2012).

However, some authors have concluded that there is an increase in leverage after a firm is privatised. Barbosa et al. (2012) claim that leverage and privatisation are positively correlated. This result is in line with the agency theory, which argues that firms usually choose to increase their leverage levels to discipline managers. Errunza and Mazumdar (2001) argue that, since bankruptcy costs are high after privatisation, firms must reduce their leverage levels in order to ensure that privatisation has a positive effect on the firm.

Regarding the influence that industries have on capital structure, Talberg et al. (2008) demonstrate that there is a significant difference in the capital structure depending on the firm's industry. Myers (1984) argues that, because asset type, asset risk, and requirements for external funds differ from industry to industry, the outcome is different average debt ratios across industries. Degryse, de Goeij, and Kappert (2012) claim that the effects of firm characteristics on leverage across industries are mostly in line with the "pecking order theory". Bradley, Jarrell, and Kim (1984) infer that firms' leverage ratios operating in the same industry are similar to intra-industry ratios. Capital structure decisions may also be country-specific (Otieno & Ngwenya, 2015; Adhari & Viverita, 2015; Ntoug Agbor Tabot, Cecilio, & Puime Guillén, 2016; Cecchi, 2017; Hussein, 2020; Hundal & Eskola, 2020), which opens up a space for using cross-country data, as is the case in our study.

Overall, the literature has found that leverage ratios tend to either decrease (Borisova & Megginson, 2011; Boubakri & Cosset, 1998; Arcas & Bachiller, 2008; Chahyadi, 2008; Errunza & Mazumdar, 2001), or increase (Barbosa et al., 2012), although depending on mediating factors, among others, mixed findings were also found (Chahyadi, 2008; Arcas & Bachiller, 2008; Barbosa et al., 2012; Errunza & Mazumdar, 2001). Regarding leverage levels and industry idiosyncrasies, there is literature suggesting

that capital structures are industry-specific (Talberg et al., 2008), leverage is similar within each industry (Bradley et al., 1984), is depending on capital intensity (Arsov & Navmoski, 2016) and may also depend on business cycles (Berman & Pfleeger, 1997; Jordà, Schularick, & Taylor, 2013).

Based on our research question, “*How do different industry characteristics affect capital structure decisions after privatisation?*” and to test whether privatisations have an impact on the capital structure of firms, we advance four propositions.

First, Chahyadi (2008) posits that, when state-owned firms are privatised, their leverage ratios should decrease because there is an additional external capital source in the form of equity. Whilst most of the literature suggests a decrease in leverage following privatisations, Barbosa et al. (2012) are one of a few exceptions in finding the opposite. In fact, they reported that leverage and privatisation are positively correlated. The research design used by Barbosa et al. (2012), with its wide control sample, may be the driver of the divergent findings. We draw in part on the research of Chahyadi’s (2008), Boubakri and Cosset (1998), and D’Souza and Megginson (1999), which found a significant decrease in leverage ratios for privatised firms, to derive our first proposition:

Proposition 1: A firm’s leverage is reduced after privatisation.

In relation to the ownership structure, the findings of Borisova and Megginson (2011) point to some evidence that fully privatised firms tend to use more debt than partially privatised firms. This could also suggest that fully privatised firms have better market conditions in which the cost of debt is reduced, providing them with a higher optimal level of debt in the capital structure. Therefore, our second proposition is:

Proposition 2: Firms fully privatised experience a greater reduction in leverage.

Talberg et al. (2008) claim that each industry has a different reaction to changes in market conditions. Berman and Pfleeger (1997) postulated that some industries may be relatively immune to business cycles whilst others may be overly sensitive. Indeed, they found evidence that industries such as consumer-related services, construction, and manufacturing are mostly correlated with business cycles. According to Opler

and Titman (1994), highly-leveraged firms in industries experiencing economic decline tend to experience loss of profits, when compared to firms with reduced leverage. Given that leverage variations are highly dependent on business cycles because of interest rates (Jordà et al., 2013) and that there is usually an inverse relationship between leverage and profitability (Titman & Wessels, 1988), our third proposition is as follows:

Proposition 3: Firms in industries more affected (cyclical) by economic growth and business cycles experience a smaller reduction in leverage.

Arsov and Navmoski (2016) stated that firms investing more heavily in fixed assets experience higher leverage levels. Nevertheless, previous research, such as the study by Talberg et al. (2008), corroborates this conclusion, which gives us reason to test the following proposition:

Proposition 4: Firms in capital-intensive industries experience a smaller reduction in leverage.

3. DATA, PROPOSITIONS, AND METHODOLOGY

This paper aims to test the impact of privatisation on industries’ and firms’ capital structure decisions in order to fill the information gap left by the academic literature.

Our initial sample comprises 483 firm-year observations from 55 European privatised non-financial firms. The list of privatised firms was taken from the Privatisation Barometer database (<http://www.privatizationbarometer.com>), and the accounting data were obtained from the Amadeus Bureau Van Dijk database for private firms and from Bloomberg for publicly traded firms. The privatisation of these firms occurred between 2009 and 2013, and the period for the data on financial statements extends from 2006 to 2015. Firms were excluded from the sample because: 1) the accounting data did not provide observations for at least two years before and after the privatisation; 2) some privatisations registered on the Privatisation Barometer database did not materialize; 3) other firms listed on this database were already fully privatised before the period of study. Table 1 describes the countries and the industries that are included in this study.

Table 1. Countries and industries in the sample

Country	Privatisations	Observations	Industry	Privatisations	Observations
Belgium	3	27	Manufacturing	10	94
Czech Republic	1	8	Services	15	123
Estonia	1	6	Telecommunications	3	25
Finland	1	10	Transportation	12	111
France	5	39	Utilities	15	130
Germany	4	37	Total	55	483
Greece	5	46			
Hungary	1	10			
Ireland	1	10			
Italy	10	91			
Lithuania	1	5			
Luxembourg	1	4			
Netherlands	1	8			
Portugal	7	62			
Slovenia	1	10			
Spain	5	46			
Sweden	3	28			
The United Kingdom	4	36			
Total	55	483			
			Year	Privatisations	Observations
			2006	–	38
			2007	–	42
			2008	–	45
			2009	7	48
			2010	11	55
			2011	11	54
			2012	12	52
			2013	14	50
			2014	–	51
			2015	–	48
			Total	55	483

3.1. Dependent variable

To test whether privatisation had changed industries' and firms' capital structure, we used firms' leverage as a dependent variable for the capital structure. The definition of this variable can differ slightly across the literature. Boubakri and Cosset (2013) and Frank and Goyal (2009) argue that the leverage ratio should consider both short-term and long-term debt. Other authors, such as Talberg et al. (2008) and Chahyadi (2008), argue that only long-term debt should be considered for the leverage measure because trade credit is associated with short-term debt and can influence a firm's operations. Keeping in mind that the industry component is present and that different industries display different characteristics, this research defines leverage as the ratio between total debt and total assets. For robustness purposes, we used the ratio between debt and fixed assets as a dependent variable because most privatisations occur in capital-intensive industries.

3.2. Methodology and independent variables

In the literature, most empirical studies on the performance of privatised firms perform the Wilcoxon signed-rank test to analyse the impact of privatisation on their study's key variables (D'Souza & Megginson, 1999; Arcas & Bachiller, 2008; Harper, 2002). As the main objective of our research is to test the effect of privatisation on the capital structure over time (treatment effect), we consider it adequate to apply an approach that stresses the privatisation period. This method allows us to examine the influence of an event on the dependent variable by comparing the estimated averages of two groups, one before and one after the event. In this case, the event is the process of privatisation. This method also allows us to control for potential endogeneity.

A dummy variable called 'Privatisation' was created to evaluate these effects, which is equal to 1 from the year a firm is privatised onwards, and 0 otherwise. To test the first proposition, the following equation was estimated:

$$LEVERAGE_{it} = \beta_0 + \beta_1 Privatisation_{it} + \beta_2 EBIT\ m_{it} + \beta_3 Ln\ Assets_{it} + \beta_4 Fixed\ Assets_{it} + \beta_5 Efficiency_{it} + \beta_6 GDP\ g_{it} + \beta_7 Ln\ GDP_{it} + \beta_8 Money\ Supply_{it} + \beta_9 Market\ Capitalization_{it} + \sum_{t=1}^{10} \delta_t + \sum_{z=1}^6 \varphi_z + \sum_{c=1}^{18} \gamma_c + \varepsilon_{itzc} \quad (1)$$

where δ_t is the time fixed-effect variable for year t , φ_z is the industry fixed-effect specification for industry z , and γ_c is the country-fixed-effect variable for country c . *LEVERAGE* represents the measure of leverage explained above. To control for firms' characteristics, common capital structure determinants present in the literature were used as variables:

- *EBIT m* is equal to the ratio of earnings before interest and taxes (EBIT) to sales and, according to Hall et al. (2000), this can be used as a proxy for profitability.
- *Ln Assets* is the logarithm of the firm's total assets and is used as an approximation for the firm's size.
- *Fixed Assets* is equal to the ratio between fixed assets and total assets of the firm.
- *Efficiency* is denoted as the ratio of sales to assets and is used as a proxy for efficiency.

Despite using a country-fixed effect, we also included variables to control for the economic cycle, which is country-specific. To measure the economic cycle, we used the log of gross domestic product (GDP) (*Ln GDP*) and the year GDP growth (*GDP g*). *Money Supply* is defined as the ratio of a country's broad money supply to GDP, which is measured by M3. The control is used because the monetary system may influence the privatisation process

(Vicencio, 2016). *Market Capitalization* is defined as the total value of all listed shares in a country's stock market, divided by GDP. These three country-level variables were included to verify whether the growth of a country's economy, the improvement in access to the financial system, and the development of the financial markets are indeed essential factors in capital-structure ratios. An analysis of listed versus non-listed firms is also performed, including a variable that takes the value 1 for listed firms. This variable is only included in the base estimation because interactions in further analyses hinder readability. The interaction is maintained along with the individual term to capture the privatisations of listed firms that were partially held by governmental entities.

To test the second proposition, we added the interaction *Privatisation × Partial*. This is an interaction term between *Privatisation* and the dummy *Partial*, which is equal to 1 if the privatisation is partial and equal to 0 if the firm is fully privatised. We also added the interaction term *Privatisation × Partial × Percentage*, which is the percentage of privatisation for each firm. This approach is similar to that of Borisova and Megginson (2011). The equation is the following:

$$LEVERAGE_{it} = \beta_0 + \beta_1 Privatisation \times Partial_{it} + \beta_2 Privatisation \times Partial \times Percentage_{it} + \beta_3 Privatisation_{it} + \beta_4 Partial_{it} + \beta_5 Percentage_{it} + Controls_{it} + \varepsilon_{itzc} \quad (2)$$

To evaluate the impact of industry on leverage after privatisation, a new variable was included, *Privatisation × Industry*. This variable consists of

an interaction between *Privatisation* and each industry present in the sample. The equation is presented below:

$$LEVERAGE_{it} = \beta_0 + \beta_1 Privatisation_{it} + \beta_2 Privatisation \times Industry_{itz} + Industry_{itz} + Controls_{it} + \varepsilon_{itzc} \quad (3)$$

Finally, to test the relationship between capital structure and capital-intensive industries, an interaction variable was created, *Privatisation × Industry × Fixed Assets*. It consists of

the interaction between the dummy *Privatisation*, the different industries, and the efficiency ratio of fixed assets to total assets. The equation is presented below:

$$LEVERAGE_{it} = \beta_0 + \beta_1 Privatisation_{it} + \beta_2 Privatisation \times Industry \times FixedAssets_{itz} + Industry + FixedAssets_{itz} Controls_{it} + \epsilon_{itzc} \quad (4)$$

All firm-specific and country-specific control variables will be applied to every equation. The standard errors were computed using White's robust procedure. The correlation matrix and the VIF tests (not formally reported) show no

multicollinearity among the independent variables. The Wald test was significant (p-value = 0.0000). Table 2 presents the description of the variables, and Table 3 supplies the descriptive statistics.

Table 2. Variables description

Variable	Definition
<i>Leverage</i>	The ratio of total debt over total assets.
<i>EBIT m</i>	The ratio of EBIT to sales. Proxy for profitability.
<i>Ln Assets</i>	Size of the firm, measured by the logarithm of total assets.
<i>Fixed Assets</i>	The ratio of fixed assets to total assets.
<i>Efficiency</i>	The ratio of sales to assets. Proxy for efficiency.
<i>Ln GDP</i>	The logarithm of GDP.
<i>GDP g</i>	The GDP year growth.
<i>Money Supply</i>	The ratio of a country's money supply to the GDP, measured as the broad money supply — M3, as defined by the OECD.
<i>Market Capitalization</i>	The total value of all listed shares in a stock market as a percentage of GDP.
<i>Privatisation</i>	Dummy variable equal to 1 from the year when a firm is privatised until the end of the sample, and 0 otherwise.
<i>Partial</i>	Dummy variable, which is equal to 1 if the privatisation is partial and is equal to 0 if the firm is fully privatised.
<i>Perct</i>	Percentage, which is a variable that describes the percentage of privatisation for each firm.
<i>Listed</i>	Dummy variable equal to 1 for publicly traded firms, and 0 otherwise.

Table 3. Descriptive statistics

Variable	N	Mean	Std. deviation	Min	1st quantile	Median	3rd quantile	Max
Dependent variable								
<i>Leverage</i>	483	0.636	0.267	0.051	0.486	0.638	0.771	2.662
Controls								
<i>EBIT m</i>	483	7.705	23.977	-132.23	0.880	6.170	16.300	157.05
<i>Ln Assets</i>	483	19.636	2.891	13.106	17.259	19.352	21.705	26.295
<i>Fixed Assets</i>	483	0.506	0.247	0.006	0.304	0.505	0.691	0.994
<i>Efficiency</i>	483	0.839	0.750	0.003	0.338	0.630	1.219	4.937
<i>Ln GDP</i>	483	27.090	1.260	23.373	25.918	27.656	28.129	28.741
<i>GDP g</i>	483	0.390	3.265	-14.434	-0.962	0.792	2.193	25.163
<i>Money Supply</i>	483	0.953	0.343	0.396	0.799	0.899	1.057	3.991
<i>Market Capitalization</i>	483	0.561	0.344	0.085	0.285	0.471	0.773	2.247
<i>Listed</i>	483	0.383	0.487	0.000	0.000	0.000	1.000	1.000

4. RESULTS AND DISCUSSION

To analyse if leverage ratios changed after privatisation, Table 4 presents the mean of leverage before and after privatisation and the univariate *t*-test for each industry subsample. Overall, a preliminary analysis points to a statistical decrease in leverage following privatisations of approximately 3.1% to 61.6%. However, preliminary evidence suggests that changes in leverage following privatisation are industry-specific. Finance, manufacturing, and utilities are industries exhibiting a decrease in the level of leverage, this difference

being statistically significant. On the contrary, services, telecommunication, and transportation show evidence of an increase in leverage following privatisation, although this is only significant for the transportation industry. On the basis of this preliminary evidence, changes in leverage following privatisations are affected differently depending on the industry of the privatised firm. We can also infer that the most developed economies exhibit lower leverage ratios after privatisation (not reported for reasons of parsimony), which is consistent with Harper (2002).

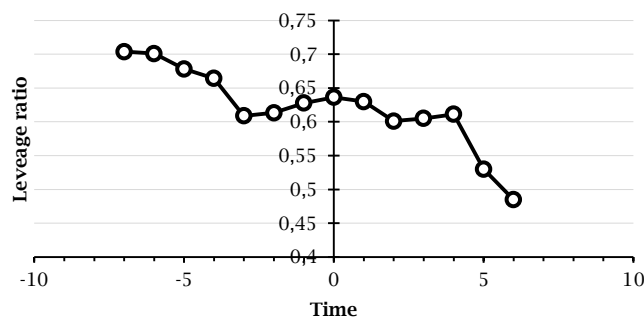
Table 4. Debt ratios before and after privatisation, by industry and by country

<i>Panel A: Industry</i>	<i>N</i>	<i>Leverage Before</i>	<i>Leverage After</i>	<i>Difference</i>
All industries	483	0.641 (0.016)	0.631 (0.018)	0.010 (0.024)
Manufacturing	94	0.706 (0.046)	0.614 (0.026)	-0.092* (0.058)
Services	123	0.594 (0.042)	0.636 (0.053)	+0.042 (0.071)
Telecommunications	25	0.512 (0.071)	0.551 (0.054)	+0.039 (0.088)
Transportation	111	0.616 (0.020)	0.664 (0.023)	+0.048* (0.031)
Utilities	130	0.672 (0.022)	0.627 (0.024)	-0.045* (0.032)
<i>Panel B: Country</i>	<i>N</i>	<i>Leverage Before</i>	<i>Leverage After</i>	<i>Difference</i>
Belgium	27	0.590 (0.012)	0.630 (0.032)	+0.039 (0.036)
Czech Republic	8	0.196 (0.017)	0.094 (0.033)	-0.102** (0.037)
Estonia	6	0.130 (0.076)	0.316 (0.072)	+0.185 (0.118)
Finland	10	0.563 (0.014)	0.634 (0.007)	+0.071*** (0.014)
France	39	0.822 (0.077)	0.753 (0.043)	-0.069 (0.081)
Germany	37	0.712 (0.041)	0.638 (0.030)	-0.074 (0.049)
Greece	46	0.799 (0.091)	0.596 (0.048)	-0.203** (0.099)
Hungary	10	0.455 (0.086)	0.410 (0.013)	-0.045 (0.136)
Ireland	10	1.008 (0.010)	1.020 (0.002)	+0.012 (0.010)
Italy	91	0.697 (0.025)	0.671 (0.021)	-0.026 (0.033)
Lithuania	5	0.119 (0.028)	0.211 (0.062)	+0.092 (0.059)
Luxembourg	4	0.406 (0.037)	0.275 n/a	-0.131 n/a
Netherlands	8	0.517 n/a	0.521 (0.025)	+0.004 n/a
Portugal	62	0.678 (0.014)	0.731 (0.020)	+0.053** (0.024)
Slovenia	10	0.484 (0.018)	0.616 (0.019)	+0.131*** (0.027)
Spain	46	0.539 (0.055)	0.582 (0.162)	+0.043 (0.151)
Sweden	28	0.581 (0.038)	0.575 (0.052)	-0.006 (0.063)
The United Kingdom	36	0.582 (0.060)	0.590 (0.058)	+0.009 (0.084)

Notes: The column "difference" refers to a t-test for average differences. Standard errors are in parenthesis, and the symbols *, **, and *** represent significant levels of 10%, 5%, and 1%, respectively. The symbols presented are for a one-tailed test.

Figure 1 illustrates the effect that time has on the sample firms' leverage ratio, in which a relationship was established between the mean of the ratio of debt to assets and t . It corresponds to the year of privatisation of any firm in the sample. The evolution of the ratio over time is shown in the graph, starting from $t-7$ and moving to $t+6$.

The graph begins with the debt ratio on the highest point (0.703), decreasing until $t-3$ (0.609). The average debt ratio goes up to t (0.636), where it starts to decrease again until $t+2$ (0.601), rising slightly to $t+4$ (0.611) and finally decreasing to reach its lowest point at $t+6$ (0.485).

Figure 1. Debt ratio evolution of the sample firms, over time

Source: Authors' elaboration.

Results from our first proposition on whether privatisation affects firms' leverage are presented in Table 5. We are unable to assess its effect, which is to say that our sample provides no evidence that privatisation has affected the level of leverage of the selected firms. In fact, explanations were derived mainly from the control variables. Firms with more assets would seem to be more leveraged. According to Faulkender and Petersen (2006), this is to be expected, given that larger firms are more diversified, face less risk and, therefore, the expected costs of bankruptcy and the probability of distress are lower. In addition, larger firms may have a stronger position in negotiating their financing needs (Degryse et al., 2012). Being a listed firm after privatisation is associated with lower leverage, as expected. Better access to capital

markets reduces incentives to fund the company through financial debt.

From the opposite point of view, more profitable firms (measured by the EBIT margin) and those with higher operational efficiency, seem to be less leveraged. This is consistent with the findings of Berger, Ofek, and Yermack (1997) and Berger and di Patti (2006), showing that more efficient firms prefer to use more equity to protect future income – generated on the basis of higher efficiency – from the possibility of liquidation. A better economic climate (measured by the GDP growth) seems to incentivize firms to underwrite more debt. The conclusions are similar to those in column 2, including the fixed-effect specification for the industry.

Table 5. Effect of privatisation on capital structure: Proposition 1

	(1)	(2)	(3)
	<i>Leverage</i>	<i>Leverage</i>	<i>Leverage</i>
<i>Privatisation</i>	-0.034 (0.050)	-0.036 (0.048)	-0.067 (0.056)
<i>EBIT m</i>	-0.003*** (0.001)	-0.003*** (0.001)	-0.003** (0.001)
<i>Ln Assets</i>	0.006 (0.004)	0.007 (0.005)	0.014*** (0.005)
<i>Fixed Assets</i>	-0.001 (0.056)	-0.014 (0.058)	-0.033 (0.063)
<i>Efficiency</i>	-0.049*** (0.019)	-0.052*** (0.019)	-0.044* (0.019)
<i>Ln GDP</i>	0.559*** (0.179)	0.558*** (0.182)	0.552*** (0.174)
<i>GDP g</i>	-0.012** (0.005)	-0.012** (0.005)	-0.013** (0.005)
<i>Money Supply</i>	0.067 (0.178)	0.066 (0.181)	0.042 (0.176)
<i>Market Capitalization</i>	-0.089 (0.122)	-0.090 (0.121)	-0.085 (0.119)
<i>Utilities</i>		-0.007 (0.064)	
<i>Transportation</i>		-0.015 (0.054)	
<i>Telecommunications</i>		-0.053 (0.049)	
<i>Manufacturing</i>		-0.019 (0.049)	
<i>Listed</i>			-0.117** (0.051)
<i>Privatisation × Listed</i>			0.082** (0.039)
<i>Constant</i>	-15.238*** (5.086)	-15.208*** (5.174)	-15.117*** (4.955)
<i>Year effects</i>	Yes	Yes	Yes
<i>Industry effects</i>	No	Yes	Yes
<i>Country effects</i>	Yes	Yes	Yes
<i>Observations</i>	483	483	483
<i>F-test</i>	19.07	17.37	19.50
<i>Adjusted R²</i>	0.288	0.283	0.291

Notes: This table presents the results of equation (1), concerning Proposition 1 (Firm's leverage is reduced after privatisation). Our explanatory variable is Privatisation, assuming 1 from the year a firm is privatised onwards, and 0 otherwise, along with the control's variables. We used year, country, and industry firm effects. Country-level analysis set against the omitted country in the first column (Germany) shows statistically significant higher levels of leverage, except for the United Kingdom. Regressions were run (for robustness checks) with a subsample (t - 2 to t + 2) and the results were similar. Robust standard errors are in parenthesis, and the symbols *, **, and *** represent significant levels of 10%, 5%, and 1%, respectively.

For robustness purposes, we used the ratio between debt and fixed assets as a dependent variable because most privatisations occur in capital-intensive industries. The results tables are not included for reasons of parsimony and because the results are very similar to the result tables presented above.

Our second proposition assesses whether

partially privatised firms exhibit higher leverage ratios than those that are fully privatised. The results are presented in Table 6. In this case, in line with previous results, different types of privatisation do not seem to impact the level of leverage. For robustness purposes, we can confirm that our control variables remain similar to the previous regression.

Table 6. Effect of the privatisation type and ownership structure: Proposition 2

	(1)	(2)
	<i>Leverage</i>	<i>Leverage</i>
<i>Privatisation</i>	0.015 (0.046)	-0.017 (0.049)
<i>Type</i>	0.053 (0.050)	
<i>Privatisation × Type</i>	-0.069 (0.039)	
<i>Partial</i>		-0.085 (0.052)
<i>Perct</i>		0.397*** (0.103)
<i>Privatisation × Partial</i>		0.032 (0.067)
<i>Privatisation × Partial × Perct</i>		-0.133 (0.185)
<i>EBIT m</i>	-0.003** (0.001)	-0.003*** (0.001)
<i>Ln Assets</i>	0.009 (0.005)	0.014** (0.006)
<i>Fixed Assets</i>	-0.026 (0.068)	-0.006 (0.056)
<i>Efficiency</i>	-0.056*** (0.019)	-0.019 (0.023)
<i>Ln GDP</i>	0.542*** (0.179)	0.489*** (0.174)
<i>GDP g</i>	-0.012* (0.005)	-0.013** (0.005)
<i>Money Supply</i>	0.054 (0.178)	0.009 (0.180)
<i>Market Capitalization</i>	-0.091 (0.122)	-0.093 (0.123)
<i>Constant</i>	-14.792*** (5.101)	-13.435*** (4.963)
<i>Year effects</i>	Yes	Yes
<i>Industry effects</i>	Yes	Yes
<i>Country effects</i>	Yes	Yes
<i>Observations</i>	483	483
<i>F-test</i>	17.65	19.69
<i>Adjusted R²</i>	0.283	0.309

Notes: This table presents the results of equation (2), concerning Proposition 2 (Firms fully private have a higher level of reduction in leverage). Our explanatory variable is *Privatisation*, assuming 1 from the year a firm is privatised onwards, and 0 otherwise, along with the control's variables. We used year, country, and industry firm effects. Regressions were run (for robustness checks) with a subsample ($t - 2$ to $t + 2$) and the results were similar. Robust standard errors are in parenthesis, and the symbols *, **, and *** represent significant levels of 10%, 5%, and 1%, respectively.

Our third proposition tests the influence of the firm's industry on changes in its capital structure, through a series of regressions that contain interaction terms between *Privatisation* and each of the industries present in the sample. The results are presented in Table 7. Conclusions per industry are diverse. Column 1 presents a specific estimation for the finance industry. Overall, firms in the finance industry exhibit lower leverage levels after privatisation than the omitted industry (services), although the level of leverage decreases on average by 11.2% following privatisation, and in direct and exclusive response to

this event. Whereas utility, manufacturing, and service firms appear not to experience a change in the level of leverage following privatisation, firms in the transportation and telecommunications industries increase leverage by about 10.5% and 15.6%, respectively. This result is not consistent with that of Berman and Pflieger (1997) who found evidence that the telecommunications industry was among the least correlated with business cycles. Overall, leverage appears not to be sensitive to privatisation, although significant variations can be found in specific industries.

Table 7. Effect of industry: Proposition 3

	(1)	(2)	(3)	(4)	(5)	(6)
	Leverage	Leverage	Leverage	Leverage	Leverage	Leverage
Privatisation	-0.022 (0.054)	-0.060 (0.050)	-0.043 (0.049)	-0.018 (0.048)	-0.036 (0.046)	-0.035 (0.074)
Privatisation × Utilities	-0.052 (0.048)					-0.041 (0.070)
Utilities	0.017 (0.058)					0.007 (0.057)
Privatisation × Transportation		0.097** (0.038)				0.072 (0.057)
Transportation		-0.066 (0.058)				-0.053 (0.053)
Privatisation × Telecommunications			0.164*** (0.063)			0.156** (0.079)
Telecommunications			-0.135** (0.063)			-0.124* (0.065)
Privatisation × Manufacturing				-0.101** (0.051)		-0.085 (0.070)
Manufacturing				0.026 (0.056)		0.015 (0.059)
Privatisation × Services					0.003 (0.057)	
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	483	483	483	483	483	483
F-test	17.33	17.29	16.56	17.03	16.91	15.62
Adjusted R ²	0.283	0.287	0.286	0.287	0.281	0.291

Notes: This table presents the results of equation (3), concerning Proposition 3 (Firms in industries more affected (cyclical) by economic growth and business cycles have a lower reduction in leverage). Our explanatory variable is Privatisation, assuming 1 from the year a firm is privatised onwards, and 0 otherwise, along with the control's variables. We used year, country, and industry firm effects. Regressions were run (for robustness checks) with a subsample ($t - 2$ to $t + 2$) and the results were similar. Robust standard errors are in parenthesis, and the symbols *, **, and *** represent significant levels of 10%, 5%, and 1%, respectively.

Industries have their specificities, and any comparison of the level of leverage may be influenced by the intensity of the need for assets to finance a firm's growth. Table 8 presents the results of the fourth proposition, which assesses whether industries that have more intensive fixed assets exhibit a different variation in the level of leverage following privatisation. Given that capital-intensive firms are characterised by higher depreciation and more fixed assets, we do not focus on whether a specific industry is capital-intensive but rather on how the structure of the balance sheet reflects the approach focuses on the split in our sample on the level of capital intensity. To define capital-intensive industries, we divided the fixed-assets totals per industry by the number of firms present in each industry to find the average proportion of fixed assets per firm for each industry. The industries selected have at least two billion euros of fixed assets per firm, on average. Results show that half of the industries have positive coefficients for the interaction variable between each industry, fixed assets, and privatisation.

Secondly, we performed equation (4) to understand how industry-specific capital intensity shapes the level of leverage differently following privatisation. The specific results for transportation and telecom are presented in columns 4 and 5. While the effect of privatisations on the level of leverage for these industries was estimated at 10.5% and 15.6%, respectively, when firms' capital intensity was included, these effects were amplified twofold to 26.7% and 32.6%, respectively. This is to say, the level of capital intensity appears to be a catalyst for the level adjusted for capital structures following privatisation. Column 1 presents one result that is of special interest. The level of leverage of firms in the finance industry is affected negatively, and this result does not conflict with the existing empirical evidence. Rampini and Viswanathan (2013) demonstrated that firms with low levels of leverage are essentially firms with few tangible assets — which is the case with finance — due to the strong and positive relationship between leased capital and asset tangibility.

Table 8. Effect of industry and capital intensity: Proposition 4

	(1)	(2)	(3)	(4)	(5)	(6)
	Leverage	Leverage	Leverage	Leverage	Leverage	Leverage
Privatisation	-0.035 (0.052)	-0.065 (0.049)	-0.044 (0.049)	-0.021 (0.048)	-0.032 (0.044)	-0.085 (0.059)
Fixed Assets	-0.013 (0.059)	-0.046 (0.058)	-0.021 (0.058)	-0.011 (0.058)	-0.007 (0.051)	-0.065 (0.063)
Privatisation × Fixed Assets × Utilities	-0.004 (0.067)					0.061 (0.079)
Utilities	-0.006 (0.061)					-0.039 (0.059)
Privatisation × Fixed Assets × Transportation		0.245*** (0.053)				0.281*** (0.064)
Transportation		-0.076 (0.056)				-0.089 (0.053)
Privatisation × Fixed Assets × Telecom			0.342*** (0.112)			0.405*** (0.122)
Telecom			-0.144** (0.062)			-0.154* (0.062)
Privatisation × Fixed Assets × Manufacturing				-0.190 (0.108)		-0.068 (0.126)
Manufacturing				0.018 (0.055)		-0.022 (0.056)
Privatisation × Fixed Assets × Services					-0.029 (0.105)	
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	483	483	483	483	483	483
F-test	17.01	17.47	16.39	16.98	17.36	15.60
Adjusted R ²	0.281	0.292	0.288	0.285	0.281	0.299

Notes: This table presents the results of equation (4), concerning Proposition 4 (Firms in capital-intensive industries experience a smaller reduction in leverage). Our explanatory variable is Privatisation, assuming 1 from the year a firm is privatised onwards, and 0 otherwise, along with the control's variables. We used year, country, and industry firm effects. Regressions were run (for robustness checks) with a subsample ($t - 2$ to $t + 2$) and the results were similar. Robust standard errors are in parenthesis, and the symbols *, **, and *** represent significant levels of 10%, 5%, and 1%, respectively.

5. CONCLUSION

Over recent decades, most countries have privatised a significant number of firms with the aim of increasing efficiency and reducing public debt. In the field of finance research, most authors have found a reduction in firms' leverage after privatisation. Our study aims to examine the impact of privatisation on capital structure decisions whilst analysing the different industry characteristics and how capital structure varies from industry to industry. We collected a sample of 529 firm-year observations from 5 industries and 18 European countries, for the period between 2006 and 2015.

Overall, the empirical analysis does not show the reduction to be statistically significant. These results persist even when controlled for characteristics of privatisations, such as type (asset sale or share issue) and percentage of privatisation.

Nevertheless, there is some evidence at the industry and country levels that privatisation may decrease the leverage ratio. By looking at the debt ratios before and after privatisation, there seems to be a reduction at both the industry level and the country level. However, our regressions do not show this reduction to be statistically significant. By analysing the effects of privatisations on the capital structure at the industry level, which is a topic scarcely examined in finance research, we were able to reach some important conclusions. Firms in capital-intensive industries tend to have more leverage than firms that are less dependent on fixed assets, following privatisation. That is to say, capital intensity amplifies the statistically significant

effect of privatisation on the level of leverage per industry. This outcome supports the extant literature (Talberg et al., 2008; Rampini & Viswanathan, 2013), based on the fact that firms more dependent on fixed assets tend to have more leverage overall. The higher level of leverage of capital-intensive industries following privatisation may well be attributed to the sub-optimal capital structure before privatisation.

Previous evidence on capital structure and privatisation is mixed (Chahyadi, 2008; Arcas & Bachiller, 2008; Barbosa et al., 2012; Errunza & Mazumdar, 2001). This paper contributes to the existing literature by using industry effects as a moderating variable while investigating the impact of privatisation on the privatised firm's capital structure. Moreover, our findings suggest that the political context of a country's position concerning privatisation and industry-specific characteristics are not essential in explaining firms' capital structure decisions that are purely derived from privatisation.

Notwithstanding the contribution this paper makes to the literature, the topic in hand is very much open to further research. One suggestion is to include the concept of market leverage and to establish whether the conclusions change. Patena and Błaszczuk (2016) suggested that managers' characteristics could explain leverage variations after privatisation. Having a human component in this analysis would entail the inclusion of a behavioural variable, such as managers' influence on capital structure decisions. Privatisations yield two principal types of the firm — listed and

non-listed. Since the process may ultimately lead to firms having shares traded in a stock market, the controlling forces may shape the privatisation consequences. Nevertheless, access to capital markets may exert a more gentle pressure on a company's leverage needs depending on industry characteristics such as cyclicity and capital intensity. Future research could benefit from undertaking an in-depth analysis of the consequences of privatisations on groups of listed and non-listed firms.

Our paper is offered to the research community with a number of caveats. The main issue is data

availability on non-listed privatised firms. While privatisations may lead to firms having stock listed, a relevant proportion of privatisations comprise private investors as bidders. Therefore, data availability in these firms is restricted. A useful avenue of further research would be to consider the controlling forces that may be established to tackle agency issues arising from privatisation, such as board composition. This represents an avenue for future research because of the scarcity of data on non-listed firms.

REFERENCES

1. Adhari, R., & Viverita, V. (2015). Capital structure, ownership concentration and firm performance: Evidence of reverse causality hypothesis in ASEAN countries. *Corporate Ownership & Control*, 12(4-4), 451-461. <https://doi.org/10.22495/cocv12i4c4p3>
2. Arcas, M. J., & Bachiller, P. (2008). Performance and capital structure of privatized firms in Europe. *Global Economic Review*, 37(1), 107-123. <https://doi.org/10.1080/12265080801911980>
3. Arsov, S., & Naumoski, A. (2016). Determinants of capital structure: An empirical study of companies from selected post-transition economies. *Zbornik Radova Ekonomskog Fakulteta u Rijeci: Časopis za Ekonomsku Teoriju i Praksu/Proceedings of Rijeka Faculty of Economics: Journal of Economics and Business*, 34(1), 119-146. <https://doi.org/10.18045/zbefri.2016.1.119>
4. Barbosa, C., Costa, C. M., & Funchal, B. (2012). The effects of privatization on the capital structure of Brazilian firms. *Applied Economics Letters*, 19(12), 1189-1192. <https://doi.org/10.1080/13504851.2011.617687>
5. Berger, A. N., & Udell, P. (2006). Capital structure and firm performance: A new approach to testing agency theory and an application to the banking industry. *Journal of Banking and Finance*, 30(4), 1065-1102. <https://doi.org/10.1016/j.jbankfin.2005.05.015>
6. Berger, P. G., Udell, P., & Udell, D. L. (1997). Managerial entrenchment and capital structure decisions. *The Journal of Finance*, 52(4), 1411-1438. <https://doi.org/10.1111/j.1540-6261.1997.tb01115.x>
7. Berman, J., & Pfleeger, J. (1997). Which industries are sensitive to business cycles? *Monthly Labor Review*, 120(2), 19-25. Retrieved from <https://www.bls.gov/mlr/1997/02/art2full.pdf>
8. Borisova, G., & Megginson, W. L. (2011). Does government ownership affect the cost of debt? Evidence from privatization. *The Review of Financial Studies*, 24(8), 2693-2737. <https://doi.org/10.1093/rfs/hhq154>
9. Boubakri, N., & Cosset, J.-C. (1998). The financial and operating performance of newly privatized firms: Evidence from developing countries. *The Journal of Finance*, 53(3), 1081-1110. <https://doi.org/10.1111/0022-1082.00044>
10. Bradley, M., Jarrell, G. A., & Kim, E. H. (1984). On the existence of an optimal capital structure: Theory and evidence. *The Journal of Finance*, 39(3), 857-878. <https://doi.org/10.1111/j.1540-6261.1984.tb03680.x>
11. Cecchi, M. (2017). Financial structure in Italian business groups. *Corporate Ownership & Control*, 14(4-2), 362-379. <https://doi.org/10.22495/cocv14i4c2art3>
12. Chahyadi, C. S. (2008). *What do we know about capital structure of privatized firms? A study of evolution and determinants of capital structure of privatized firms* (PhD dissertation, University of Oklahoma). <https://doi.org/10.2139/ssrn.1089993>
13. Chang, S.-C., & Boontham, W. (2017). Post-privatization speed of state ownership relinquishment: Determinants and influence on firm performance. *The North American Journal of Economics and Finance*, 41, 82-96. <https://doi.org/10.1016/j.najef.2017.04.001>
14. D'Souza, J., & Megginson, W. L. (1999). The financial and operating performance of privatized firms during the 1990s. *The Journal of Finance*, 54(4), 1397-1438. <https://doi.org/10.1111/0022-1082.00150>
15. D'Souza, J., Megginson, W. L., & Nash, R. (2005). Effect of institutional and firm-specific characteristics on post-privatization performance: Evidence from developed countries. *Journal of Corporate Finance*, 11(5), 747-766. <https://doi.org/10.1016/j.jcorpfin.2004.12.001>
16. De Jong, A., Verbeek, M., & Verwijmeren, P. (2011). Firms' debt-equity decisions when the static tradeoff theory and the pecking order theory disagree. *Journal of Banking and Finance*, 35(5), 1303-1314. <https://doi.org/10.1016/j.jbankfin.2010.10.006>
17. Degryse, H., de Goeij, P., & Kappert, P. (2012). The impact of firm and industry characteristics on small firms' capital structure. *Small Business Economics*, 38(4), 431-447. <https://doi.org/10.1007/s11187-010-9281-8>
18. Eaton, J. W. (1989). Bureaucratic, capitalist and populist privatization strategies. *International Review of Administrative Sciences*, 55(3), 467-492. <https://doi.org/10.1177/002085238905500307>
19. Errunza, V. R., & Mazumdar, S. C. (2001). Privatization: A theoretical framework. *Journal of International Financial Markets, Institutions and Money*, 11(3-4), 339-362. [https://doi.org/10.1016/S1042-4431\(01\)00038-5](https://doi.org/10.1016/S1042-4431(01)00038-5)
20. Faulkender, M., & Petersen, M. A. (2006). Does the source of capital affect capital structure? *The Review of Financial Studies*, 19(1), 45-79. <https://doi.org/10.1093/rfs/hhj003>
21. Frank, M. Z., & Goyal, V. K. (2009). Capital structure decisions: Which factors are reliably important? *Financial Management*, 38(1), 1-37. <https://doi.org/10.1111/j.1755-053X.2009.01026.x>
22. Gupta, N. (2005). Partial privatization and firm performance. *The Journal of Finance*, 60(2), 987-1015. <https://doi.org/10.1111/j.1540-6261.2005.00753.x>
23. Hall, G., Hutchinson, P., & Michaelas, N. (2000). Industry effects on the determinants of unquoted SMEs' capital structure. *International Journal of the Economics of Business*, 7(3), 297-312. <https://doi.org/10.1080/13571510050197203>

24. Harper, J. T. (2002). The performance of privatized firms in the Czech Republic. *Journal of Banking and Finance*, 26(4), 621-649. [https://doi.org/10.1016/S0378-4266\(01\)00157-1](https://doi.org/10.1016/S0378-4266(01)00157-1)
25. Harris, M., & Raviv, A. (1991). The theory of capital structure. *The Journal of Finance*, 46(1), 297-355. <https://doi.org/10.1111/j.1540-6261.1991.tb03753.x>
26. Hovakimian, A., Hovakimian, G., & Tehranian, H. (2004). Determinants of target capital structure: The case of dual debt and equity issues. *Journal of Financial Economics*, 71(3), 517-540. [https://doi.org/10.1016/S0304-405X\(03\)00181-8](https://doi.org/10.1016/S0304-405X(03)00181-8)
27. Hundal, S., & Eskola, A. (2020). Board of directors, capital structure, investment decisions and firm-performance: An empirical study of Nordic firms [Special issue]. *Corporate Ownership & Control*, 17(4), 377-390. <https://doi.org/10.22495/cocv17i4siart14>
28. Hussein, A. (2020). The influence of capital structure on company performance: Evidence from Egypt. *Corporate Ownership & Control*, 18(1), 8-21. <https://doi.org/10.22495/cocv18i1art1>
29. Jordà, Ò., Schularick, M., & Taylor, A. M. (2013). When credit bites back. *Journal of Money, Credit and Banking*, 45(s2), 3-28. <https://doi.org/10.1111/jmcb.12069>
30. Kabir, M. H. (2013). Privatization of public enterprises in Swaziland. *Corporate Ownership & Control*, 10(2), 28-39. <https://doi.org/10.22495/cocv10i2art3>
31. MacKay, P., & Phillips, G. M. (2005). How does industry affect firm financial structure? *The Review of Financial Studies*, 18(4), 1433-1466. <https://doi.org/10.1093/rfs/hhi032>
32. Megginson, W. L., Nash, R. C., Netter, J. M., & Poulsen, A. B. (2004). The choice of private versus public capital markets: Evidence from privatizations. *The Journal of Finance*, 59(6), 2835-2870. <https://doi.org/10.1111/j.1540-6261.2004.00718.x>
33. Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. *The American Economic Review*, 48(3), 261-297. Retrieved from <https://www.jstor.org/stable/1809766?seq=1>
34. Modigliani, F., & Miller, M. H. (1963). Corporate income taxes and the cost of capital: A correction. *The American Economic Review*, 53(3), 433-443. Retrieved from <https://www.jstor.org/stable/1809167?seq=1>
35. Morresi, O., & Nobili, A. O. (2015). New evidence on the performance of Italian privatized firms: Should the experiment be repeated in the aftermath of the recent financial crisis? *Corporate Ownership & Control*, 12(3), 94-113. <https://doi.org/10.22495/cocv12i3p9>
36. Myers, S. C. (1984). The capital structure puzzle. *The Journal of Finance*, 39(3), 575-592. <https://doi.org/10.1111/j.1540-6261.1984.tb03646.x>
37. Myers, S. C. (2001). Capital structure. *Journal of Economic Perspectives*, 15(2), 81-102. <https://doi.org/10.1257/jep.15.2.81>
38. Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information the investors do not have. *Journal of Financial Economics*, 13(2), 187-221. [https://doi.org/10.1016/0304-405X\(84\)90023-0](https://doi.org/10.1016/0304-405X(84)90023-0)
39. Ntoug Agbor Tabot, L., Cecilio, H. G., & Puime Guillén, F. (2016). Capital structure determinants: Evidence from Spanish listed firms. *Corporate Ownership & Control*, 13(4-3), 506-519. <https://doi.org/10.22495/cocv13i4c3p9>
40. Opler, T. C., & Titman, S. (1994). Financial distress and corporate performance. *The Journal of Finance*, 49(3), 1015-1040. <https://doi.org/10.1111/j.1540-6261.1994.tb00086.x>
41. Otieno, O. L., & Ngwenya, S. (2015). The relationship between capital structure and financial performance of firms listed on the Nairobi securities exchange. *Corporate Ownership & Control*, 13(1-2), 296-314. <https://doi.org/10.22495/cocv13i1c2p8>
42. Patena, W., & Błaszczak, B. (2016). Post-privatization corporate performance: Evidence from companies privatized in Poland in 2008-2011. *Studia Ekonomiczne*, 2(89), 199-221. Retrieved from <http://bazekon.icm.edu.pl/bazekon/element/bwmeta1.element.ekon-element-000171437274>
43. Rampini, A. A., & Viswanathan, S. (2013). Collateral and capital structure. *Journal of Financial Economics*, 109(2), 466-492. <https://doi.org/10.1016/j.jfineco.2013.03.002>
44. Savas, E. S. (2000). *Privatization and public-private partnerships* (2nd ed.). New York, NY: CQ Press.
45. Sheshinski, E., & López-Calva, L. F. (2003). Privatization and its benefits: Theory and evidence. *CESifo Economic Studies*, 49(3), 429-459. <https://doi.org/10.1093/cesifo/49.3.429>
46. Shyam-Sunder, L., & Myers, S. C. (1999). Testing static tradeoff against pecking order models of capital structure. *Journal of Financial Economics*, 51(2), 219-244. [https://doi.org/10.1016/S0304-405X\(98\)00051-8](https://doi.org/10.1016/S0304-405X(98)00051-8)
47. Talberg, M., Winge, C., Frydenberg, S., & Westgaard, S. (2008). Capital structure across industries. *International Journal of the Economics of Business*, 15(2), 181-200. <https://doi.org/10.1080/13571510802134304>
48. Titman, S., & Wessels, R. (1988). The determinants of capital structure choice. *The Journal of Finance*, 43(1), 1-19. <https://doi.org/10.1111/j.1540-6261.1988.tb02585.x>
49. Vaz Ferreira, J. M. B. (2012). The performance of newly privatized firms: The case of Portugal. *Journal of Governance and Regulation*, 1(2), 92-125. https://doi.org/10.22495/jgr_v1_i2_p6
50. Vicencio, E. R. (2016). Monetary conformation of the corporate governmentality II: The monetary system and the privatization process. *Journal of Governance and Regulation*, 5(2), 71-86. https://doi.org/10.22495/jgr_v5_i2_p8
51. Vickers, J., & Yarrow, C. (1988) *Privatization: An economics analysis*. Cambridge, MA: MIT Press.