

Corporate Governance and Firm Growth

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ABSTRACT

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Research Question/Issue: We examine the impact of corporate governance on firm growth across large listed firms from 12 industrial sectors and 11 EU countries over the period 2002 till 2011. Taking sales growth as a starting point, we employ a firm growth model that takes into account firm- (firm age, size, investment in R&D, leverage and cash flow), industry- (two-digit SIC code dummies) and country-level characteristics (governance and legal structure).

Research Findings/Insights: We find that that “good” governance and legal system environment increase firm growth. Leverage is negatively related to firm growth while cash flow facilitates growth, in particular for firms operating in countries with inferior investor protection. We report that R&D investment exerts a positive impact on firm growth. Older corporations grow slower than younger ones.

Theoretical/Academic Implications: This paper highlights the role of corporate governance in increasing firm growth. In line with widely-attributed positive effects of corporate governance mechanisms on firm performance, firm value, competitiveness and innovation, we document

positive corporate governance-firm growth relationship. Development of this insight requires future research using different samples and measures.

Practitioner/Policy Implications: Corporate managers can use our findings to determine on how to finance growth opportunities of a firm in countries with different governance and legal system environments. Our results provides also empirical support to those recommendations of policy makers advocating increase of the level of investor protection in Europe.

Keywords: Firm Growth, Investor Protection, Cash flows, Debt, R&D.

INTRODUCTION

The nature of firm growth has been for a long time investigated by economists. Growth is considered an important element of firm performance, because it helps to achieve economies of scale and is related to the competitive advantage of the company. Identification of factors that trigger firm growth remain a crucial question in both theoretical and practical terms, since it is a key factor to the creation of wealth and employment, and sometimes fortunes of whole countries depends on firm growth. Let us consider an example of the so-called “one-firm economy”: For the period from 1998 to 2007 Nokia contributed a quarter of Finnish growth and generated nearly a fifth of Finland’s exports, while it’s crisis since 2007 significantly contributed to the decline of the Finnish economy (The Economist, 2012).

Despite the growing number of empirical studies on growth rates, knowledge about determinants and barriers to firm growth is still limited (McKelvie and Wiklund, 2010; Davidsson & Wiklund, 2006). Vast majority of the early literature on firm growth focused mainly on the influence of

firm age and size (Santarelli & Thurik, 2004). Recently, scholars started to consider firm- and industry-specific variables such as financial structure and share of foreign involvement (Fotopoulos & Louri, 2004; Cooley & Quadriani, 2001).

This paper examines the impact of corporate governance on firm growth on a sample of 680 large publicly-traded corporations, from 12 industrial sectors and 11 EU countries (Belgium, Denmark, Finland, France, Germany, Italy, the Netherlands, Norway, Spain, Sweden and Switzerland) over the period from 2002 to 2011. In particular, we employ a firm growth model that takes into account firm- (age, size, investment in R&D, leverage and cash flow), industry- (two-digit SIC code dummies) and country-level characteristics (governance and legal structure).

Our results show that “good” governance and legal system environment increase firm growth. It supports the proposition of La Porta et al. (1997) that investor protection encourages the development of financial markets which affects firms' use of external financing to fund growth as documented by Demirgüç-Kunt and Maksimovic (1998). The negative relationship of firm age and growth confirms that older corporations grow slower than younger ones while the positive relation between R&D investment and growth suggests that firms grow by innovating (García-Manjón & Romero-Merino, 2012; Shefer & Frenkel, 2005; Yang & Huang, 2005).

We find that leverage is negatively related to firm growth, in line with prior studies (Lang et al., 1995; Oliveira and Fortunato, 2006). A debt overhang can destroy a firm's ability to raise outside funds due to the agency costs of debt that arise when shareholders' interests differ from the interests of debt holders. Moreover, lenders can impose restrictive conditions and reporting requirements on a financially-constrained firm increasing the cost of external financing and adversely affecting investment decisions.

Furthermore, we document that cash flow facilitates firm growth, in particular for firms operating in countries with inferior investor protection. Given that countries with inferior investor protection have smaller debt and equity markets (La Porta et al., 1997), firms operating in these countries are likely to rely more on cash flows rather than on external financing to fund growth. This suggests that if a firm does not have sufficient cash flows to finance good growth opportunities, its growth rate can stagger and ultimately decline in a country with poor investor protection. On the contrary, firms operating in countries with effective legal systems and active stock markets use more easily long-term external financing to fund growth as reported by Demirgüç-Kunt and Maksimovic (1998). In other words, the high level of investor protection leads to more efficient capital relocation (Morck et al., 2000; Wurgler, 2000).

The present paper makes a significant contribution to the literature in several ways. First, in line with widely-attributed positive effects of corporate governance mechanisms on firm performance (Barontini & Caprio, 2006), firm value (Ammann et al., 2011), innovation (Hillier et al., 2006), competitiveness (Ho, 2005) and firm's CSR engagement (Jo and Harjoto, 2011), this paper documents positive corporate governance-firm growth relationship. Specifically, we report that large publicly-traded firms operating in countries with high levels of investor protection exhibit higher growth rates, in contrast to firms operating in countries with low levels of investor protection.

Second, we provide new evidence on how financial structure affects firm growth. Specifically, we find that both external (total debt) and internal (cash flows) financing are important determinants of firm growth. Moreover, we show that "good" governance and legal system environment lessen the sensitivity of firm growth to fluctuations in cash flow in the Eurozone countries. To our knowledge, this is the first time a study of these countries has been conducted,

not only on the moderating effect we analyze here but also on the effect of corporate governance on firm growth.

Third, our paper contributes to the on-going debate concerning the impact of innovation on growth rate of a firm (Bottazzi et al., 2001; Coad and Rao, 2008). Specifically, we show that investment in R&D represent a significant determinant of firm growth among both manufacturing and service industries in Europe. Our results match those obtained by García-Manjón and Romero-Merino (2012) for European top R&D spending firms and by Del Monte and Papagni (2003) for Italian manufacturing firms. Therefore, R&D investment increases not only operating and/or market performance of a firm (Hall & Oriani, 2006; Greenhalgh & Rogers, 2006) but also its growth.

Finally, we present evidence on growth dynamics using a unique dataset, covering 680 large publicly-traded firms from 11 EU countries over the period 2002-2011. We employ a panel data analysis that allows us to control for the country, industry and time fixed effects, and to control for the possibility of simultaneity bias between firm growth and R&D investment by using lagged variables as instruments. To alleviate possible concerns regarding autocorrelation of annual growth rates, we also estimate corporate governance-firm growth equations using dynamic model specification.

The remainder of the paper is organized as follows. In the next section, we discuss theoretical arguments and postulate our hypotheses. After that, we describe our sample and research methodology used. Next, we present our findings and robustness analysis of our main results. The following section describes implications and limitations of the study. Finally, we present conclusions drawn from the study.

THEORY AND HYPOTHESES DEVELOPMENT

Given that differences in corporate growth can be explained by firm-, industry-, and country-specific characteristics (Klette & Griliches, 2000; Oliveira & Fortunato, 2006), we discuss below some of the most debated characteristics of firm growth in the academic literature: firm age and size, capital structure, innovation, corporate governance and legal environment.

Several decades ago, Jovanovic (1982) develops a theory of ‘noisy selection’ deviating from Gibrat’s law on the basis of firm’s learning effect and its production efficiency. It postulates that efficient firms grow and survive on the basis of their learning and production efficiency. His model predicts a negative relationship between firm size and age, and their growth. This model has motivated the inclusion of firm size and firm age in empirical research on firm growth dynamics. Furthermore, Cooley and Quadrini (2011) introduce a theoretical model incorporating financial market frictions with persistent shocks into learning ability of firm dynamics and show that the combination of persistent shocks with financial market frictions can account for the simultaneous dependence of firm dynamics on firm size and age.

Capital structure does not influence firms’ investment decisions in perfect capital markets (Modigliani & Miller, 1958). However, financing and investment decisions could interact and firm growth can be determined by firm’s ability to finance them as a consequence of the financial markets’ imperfections. Investment policy depends on several factors such as the choice of financing (debt versus equity, outside equity versus internally generated funds), agency costs (management versus monitoring shareholders), asymmetric information (between management and creditors), and moral hazard (the choice of risk of an investment project).

Given the agency problems and information asymmetry, firms' investment decisions dependent upon mix of external and internal funds (Aivazian et al. , 2005; Pawlina & Renneboog, 2005).

According to the trade-off theory, firm chooses debt financing over equity financing due to tax benefits of debt till the optimal capital structure is reached (Jensen & Meckling, 1976). From one hand, high leverage can decrease the firm's ability to raise funding, and on the other, threat of bankruptcy as a consequence of high indebtedness can force executives to raise organizational efficiency (Aivazian et al., 2005). Note that developed financial markets are important as a source of capital and as a mechanism lowering information asymmetries between managers and investors (Beck et al., 2000). The pecking order theory suggests that managers are likely to opt for internal funds, namely cash flows, due to lower information asymmetry between managers and investors in comparison with debt and equity financing (Myers & Majluf, 1983). Some firms have a high investment-cash flow sensitivity leading to overinvestment problem while others may suffer from underinvestment. In other words, firms either reject good investment projects unless they have sufficient cash flows to undertake them or over-invest in managers' pet projects due to agency costs problem.

There is a compelling evidence from both the Anglo-Saxon and European countries that R&D investment influences positively operating and/or market performance (Hall & Oriani, 2006; Greenhalgh & Rogers, 2006). Geroski and Machin (1992) show also that innovative firms are not only more profitable than non-innovators, but also grow faster in the UK. Besides that, Kletter and Griliches (2000) emphasize that innovation can influence firm growth dynamics. Innovation can help to generate new knowledge, new ideas and new models leading ultimately to firm growth (Anagnostopoulou & Levis, 2008). R&D investment represents the most influential

variable in a firm's ability to innovate (Dosi, 1988), but it is difficult to finance R&D in the free marketplace due to its risky nature and unexpected rate of return (Hall & Lerner, 2009).

The economics literature assumes that macro factors like corporate governance, institutional and regulatory factors facilitate growth and explain differences in the level of financial development (Levine et al., 2000; Beck et al., 2000). Specifically, large differences among countries in the access of firms to external finance, in development of capital markets, in ownership concentration and in dividend policies are connected to the level of investor protection (La Porta et al., 2000). According to La Porta et al. (1998), investor protection is generally high in common-law countries, medium in German- and Scandinavian-civil-law countries, and low in French-civil-law countries. Consistent with these predictions, countries that protect shareholders have more developed stock markets, large number of initial public offerings and a high number of listed securities per capital in contrast to countries with poor investor protection (La Porta et al., 1997). Moreover, several scholars find that better investor protection is associated with higher firm-specific returns variation (Morck et al., 2000; Wurgler, 2000). In other words, stock markets in developed economies incorporate firm-specific information more efficient and thus increase better capital allocation.

Firms rely on external finance in countries with good investor protection (Demirgüç-Kunt & Maksimovic, 1998), while cash holdings are more important in countries with low investor protection (Dittmar et al., 2003). Moreover, countries with weak investor protection typically have a more concentrated control of firms in comparison with countries with good investor protection (La Porta et al., 1999a). In this context, Lappalainen and Niskanen (2009) document that ownership structure and board composition are important determinants of firm growth. In addition, Chen et al. (2014) find that poor legal environment have a large negative effect on firm

growth for family firms than for non-family firms. Furthermore, Doidge et al. (2004) develop and test the model connecting the levels of investor protection and financial development with firm-level mechanisms. They predict that the incentives to increase firm-level governance are low in countries with weak investor protection because better governance mechanisms and external sources of financing are expensive.

Hypotheses

Given that countries with good investor protection have significantly higher debt and equity markets (La Porta et al., 1997), firms operating in these countries can avoid paying premium for external finance due to lower agency costs and information asymmetries between borrowers and lenders. Therefore, these firms can grow faster and at lower cost. It has been shown that there is a high proportion of firms using long-term external financing in countries with effective legal systems and active stock markets (Demirgüç-Kunt & Maksimovic, 1998).

Furthermore, there is extensive expropriation of creditors and minority shareholders in countries with low investor protection (La Porta et al., 2000). Therefore, weak investor protection is penalized by the market with lower valuations (La Porta et al., 1999b). Given that the incentives to improve firm-level corporate governance are low in countries with weak investor protection and weak financial markets, poor investor protection on the country level may also lead to problems with firm-level corporate governance (Doidge et al., 2004). Specifically, inferior investor protection help managers to expropriate minority shareholders and creditors by undertaking ineffective investment decisions or squandering corporate funds on pet projects. Moreover, this expropriation supports severe security price declines in countries with poor

investor protection, especially during financial crises (Johnson et al., 2000). “Good” corporate governance leads to stronger corporate competitiveness (Ho, 2005), higher firm’s specific return variation (Morck et al., 2000; Wurgler, 2000), positive outcome for R&D investments (Hillier et al., 2011) and better firm’s CSR engagement (Jo, and Harjoto, 2011). In this context, our argument is that dynamics of firm growth are related to the country-level governance and legal environment.

Ceteris paribus, corporations obtain higher growth rate in countries with good investor protection in comparison to corporations operating in countries with low investor protection due to higher access to external finance and better protection against expropriation by managers. Accordingly, we formulate our first hypothesis:

Hypothesis 1. Better investor protection enhances firm growth.

The recent literature suggests that internal finance affects firm growth dynamics (Carpenter & Petersen, 2002; Cooley & Quadrini 2001). Several studies report that firms with strong growth opportunities and volatile cash flows hold more cash in contrast to other firms (Kim et al., 1998; Opler, et al., 1999). Firms hold cash when the cost of raising external sources of finance or the costs of cash shortages are high. Apart from the fact that firms with high cash holdings can finance its investment internally (Fazzari et al., 1988), a high cash flow ratio may also support a better access to external sources of finance in imperfect capital markets (Fagiolo & Luzzi, 2006). Alternatively, high cash holdings can allow a firm to deal with unexpected contingent liabilities and cope with obligations during financial downturns. Empirical research on the cash flow-firm growth relation suggests that cash flow increases sales growth (Brush et al., 2000; Fagiolo and

Luzzi, 2006). This supports the notion that availability of internal funds is crucial for firm growth. Consequently, we formulate our second hypothesis as following:

Hypothesis 2a. Cash flow increases firm growth.

Investor protection encourages the development of financial institutions and markets (La Porta et al., 1997; La Porta et al., 1998). In turn, financial institutions appears to mitigate information asymmetries between firms and capital markets (Pawlina & Renneboog, 2005), while financial markets support the efficient capital allocation (Wurgler, 2000). In this context, firms that have the greatest access to the capital markets holds lower ratios of cash flow to total non-cash assets (Opler et al., 1999), while firms' cash holdings are significantly higher in the countries with little investor protection (Dittmar et al., 2003). This is consistent with a view of Demirgüç-Kunt & Maksimovic (1998), that firms use long-term external financing in countries with developed legal and financial systems. This suggests that cross-country differences on the level of investor protection are likely to affect investment decisions of a firm.

We argue that level of investment protection can indirectly affect firm growth through its effects on firm's investment policies and ability to finance them. Firms can grow faster due to the better access to financial intermediaries and external financing in more developed financial markets rather than in less developed capital markets. Specifically, we expect lower firm growth-cash flow sensitivity in countries with high level of investor protection and vice versa in countries with low investor protection. Thus, we derive the following hypothesis:

Hypothesis 2b: Better investor protection reduces the sensitivity of firm growth to cash flow.

Another firm characteristic that may influence growth is financial leverage. The choice of level of debt is jointly determined by the contracting environment and firm characteristics (Billett et

al., 2007). Capital theories suggest a possibility of a relation between financial distress and growth (Lang et al., 1995). Specifically, a debt overhang can destroy a firm's ability to raise outside funds due to the agency costs of debt that arise when shareholders' interests differ from the interests of debt holders over the investment and financing policies of a firm. Furthermore, creditors can impose restrictive conditions and reporting requirements on a financially-constrained firm. This can raise a cost of external financing for a firm and adversely affect its investment decisions.

The early studies of the correlation between leverage and firm growth finds a negative relationship for high-growth firms (McConnell & Servaes, 1995), for firms in distressed industries (Opler & Titman, 1994), for firms with low growth opportunities in terms of Tobin's q (Lang et al., 1995). Furthermore, recent studies reports negative relationship between leverage and firm growth across industrial firms in Greece and Portugal (Oliveira & Fortunato, 2006; Fotopoulos & Louri, 2002). However, Huyhn and Petrunia (2010) find positive and non-linear leverage-firm growth relationship across Canadian manufacturing firms. Some argue that leverage can also have a positive impact on productivity despite its large negative effects on employment and pay increases (Nickell & Nicolitsas, 1999).

On the basis of these contradictory results, we argue that highly leverage firms cannot grow optimally because of their debt overhang. Consequently, firm's over-indebtedness ceteris paribus staggers its growth. In particularly, we predict that highly indebted large corporations will exhibit lower growth rate in comparison to their peers with low levels of leverage. Hence, we formulate our last hypothesis as following:

Hypothesis 3. Leverage affects negatively firm growth.

DATA AND METHOD

Sample

We extend the sample of 675 non-financial (SIC 6000-6999) and non-regulated (SIC 4900-4999) large publicly-traded firms gathered by Barontini and Caprio (2006) to the year 2011. We obtained data on R&D expenditures (all direct and indirect cost related to the creation and development of new processes, techniques, applications and products with commercial possibilities) from the Worldscope database. Our sample includes Belgium, Denmark, Finland, France, Germany, Italy, the Netherlands, Norway, Spain, Sweden and Switzerland. In contrast to the US and the UK, R&D disclosure is not mandatory in the countries covered in this study. Consequently, we were able to collect R&D data only for 680 of the corporations in our initial sample of 871 firms. Data on R&D costs was downloaded for the period from 2002 to 2011 inclusively.

Our sample is unbalanced (6,543 observations) because not all corporations exist for the entire time period. In contrast to a balanced panel our dataset helps us to avoid the survivorship bias problem, statistical inferences could be biased if the study focuses solely on the firms that survived till the end of the study period and excludes failed firms that do not longer exist in the marketplace. To sum up, the final sample includes 680 firms covering periods from 2002 to 2011.

Insert Table 1 about here

Table 1 shows the distribution of sample firms by countries and by industries. The breakdown by countries shows that the largest number of corporations belong to Germany (24.11% of the total) one of the largest economy of the European Union. On the other hand, Finland possesses the lowest number of listed firms (0.52% of the total).

The breakdown of firms by industries (based on industrial classification of Campbell (1996)) shows a fairly widespread distribution. The basic industry (15.80%), the consumer durables (14.11%) and the capital goods (13.54%) are the most represented industries. The unregulated utilities, petroleum and the others have the smallest number of the firms (5.00%, 2.86% and 2.84%, respectively).

Hence, our analysis includes not only 11 EU countries and 12 industries, but also considers a relatively long time period (10 years) for examining the determinants of corporate growth in Europe.

Dependent variable

Prior research suggests several strategies on how to measure firm growth such as sales, profit, market capitalization, added value, value of production or employment indicators (Geroski et al., 2015). As noted by Davidsson and Wiklund (2006), sales growth is considered as the most suitable measure of firm growth because of its accessibility and ability to capture short along with long-term challenges of a firm. Therefore, we adopted sales growth as a measure of a firm growth to achieve the purpose of our study. We calculated sales growth as the log-difference of net sales for firm i at time t and $t-1$, in line with prior studies (Bottazzi et al., 2011; Coad & Rao, 2007; García-Manjón & Romero-Merino, 2012).

Independent variables

We employed the Anti-director Rights Index (ADR) as a proxy for the country's legal environment and governance characteristics in our study in order to consider cross-country differences related to the level of investor protection. In order to calculate this variable, we started considering the most known corporate governance index – ADR Index - originally proposed by La Porta et al. (1998). According to Spamann (2010), over a hundred published papers used this index in corporate governance empirical studies. The ADR Index has been recently used to establish connections between investor protection and capital allocation (Wurgler, 2000), stock price movements (Morck et al., 2000), financial intermediary development (Levine et al., 2000) and financial crises (Johnson et al., 2000). In our study we adopted the Revised Anti-directors Index, a refined version of the original index put forward ten years later by Djankov et al. (2008). We constructed a dummy variable which takes value of one if the country's ADR index is higher than the sample mean.

We estimated cash flow as the sum of net income and all non-cash charges or credits. As it was suggested by prior research (Fagiolo & Luzzi, 2006), we employed cash flow measure scaled by some proxy of firm size. Specifically, in our study we used cash flow to total assets ratio for firm i at time t . Furthermore, we examined the interaction between cash flow ratio and ADR index dummy. In this case, the coefficient of cash flow ratio alone stands for a firm's cash flow in the country with low level of investor protection. The interaction term between cash flow ratio and ADR index dummy captures the predicted difference between the cash flow of a firm in the country with high investor protection and the cash flow of a firm in the country with low investor protection. Furthermore, we included financial leverage in our analysis to examine the effects of indebtedness on firm growth. In line with prior research (Huynh & Petrina, 2010; Moon &

Tandon, 2007; Oliveira & Fortunato, 2006), we estimated financial leverage as the ratio of total long-term debt to total assets of firm *i* at time *t*.

Control variables

Due to the availability of multiple indicators measuring innovation performance, some scholars argue that a multi-indicator approach is preferable in order to capture such latent variable as innovation (Coad & Rao, 2008). In this context, it is worth to mention a study of around 1200 firms by Hagedoon and Cloudt (2003) which does not find major systematical disparity among R&D investment, patent counts, patent citations and new product developments. Therefore, we adopted R&D investment as a measure of innovation performance. R&D investment is generally measured as the ratio of R&D costs to total assets or as the ratio of R&D costs to net sales (Anagnostopolou & Levis, 2008). Given that the ratio of R&D costs to net sales better captures an organizational commitment to innovation activity and allows to conduct a relative comparison across corporations (Hoskisson & Hitt, 1988), we adopted this measure as a proxy of R&D investment in our study.

Vast amount of research suggests that smaller and younger firms grow faster than large and old ones in the U.S. (Evans, 1987; Blonigen & Tomlin, 1999), in the U.K. (Dunne & Hughes, 1994), in Portugal (Oliveira & Fortunato, 2006) in Israel (Shefer and Frenkel, 2005) and in Taiwan (Yang & Huang, 2005). Therefore, we controlled for firm size (the logarithm of total assets) and firm age (the logarithm of number of years for which the firm exists) in our study. In addition, we included in our basic explanatory model (1) industry and year dummies to control variation across industries and over time.

Method of analysis

To cover the purpose of the study we employ the firm growth model proposed by Evans (1987) augmented with firm-, industry- and country-level characteristics:

$$\text{Growth}_{i,t} = \beta_0 + \beta_1(\text{ADR index dummy})_{i,t-1} + \beta_2(\text{Cash flow})_{i,t-1} + \beta_3(\text{Cash flow} * \text{ADR index dummy})_{i,t-1} + \beta_4(\text{Leverage})_{i,t-1} + \beta_5(\text{R\&D investment})_{i,t-1} + \beta_6(\text{Firm Size})_{i,t-1} + \beta_7(\text{Firm Age})_{i,t-1} + \beta_8(\text{Industry dummies})_i + \beta_9(\text{Year dummies})_t + \varepsilon_{it} \quad (1)$$

where $\text{Growth}_{i,t}$ is estimated as the difference of logs of net sales of firm i at time t and $t-1$ accordingly, $\text{ADR index dummy}_{i,t-1}$ is a proxy for investor protection (takes value 1 if the country's level of investor protection is higher than the sample mean and 0 otherwise), $\text{Cash flow}_{i,t-1}$ is a proxy of internal funds (the ratio of firms' cash flows to total assets), $\text{Cash flow}_{i,t-1} * \text{ADR index dummy}_{i,t-1}$ is an interaction term between cash flow and investor protection, $\text{Leverage}_{i,t-1}$ is a proxy of external financing (the ratio of total long-term debt to total assets), $\text{R\&D investment}_{i,t-1}$ is a proxy of innovation (the ratio of firm's R&D expenses scaled by net sales), $\text{Firm Size}_{i,t-1}$ is the logarithm of total assets, $\text{Firm Age}_{i,t-1}$ is logarithm of number of years for which the firm exists, respectively of firm i at time $t-1$, $\text{Industry dummies}_i$ is a proxy for industry effects (two-digit SIC industry dummies) and Year dummies_t is a proxy for macroeconomic shocks.

We estimate our explanatory model (1) using general least squares (GLS). The endogeneity problem can influence our estimations because of simultaneity, omitted variables or measurement error. Specifically, It is hard to distinguish whether more innovative firms grow

more than non-innovative once or whether high-growing firms innovate more in relation to low-growing firms. Therefore, firm growth and R&D investment can be a subject to the simultaneity bias. The standard remedy for endogeneity is to identify strictly exogenous instruments for the endogenous regressors (Roberts and Whited, 2012). Given that the use of lagged regressors as instruments has become a widespread technique among scholars (Hillier et al., 2011; Moon & Tandon, 2007), we have used all the right-hand-side variables lagged one time as instruments in our explanatory model (1).

Descriptive statistics and correlations for the key variables used in the GLS model presented in Table 2 and Table 3, respectively. We did not find any evidence of multicollinearity problem because the mean VIF values of all the independent variables in any model are below the conventional thresholds.

Insert Tables 2 and 3 about here

RESULTS AND DISCUSSION

In Table 4 we report the findings of the GLS model of firm growth. We have estimated our explanatory model (1) stepwise, with model 1 including only control variables, model 2 including corporate governance, model 3 including leverage and cash flow, and model 4 adding the interaction term between cash flow and corporate governance.

As we can see in model 1, the coefficient of firm age is negative and statistically significant ($\beta = -.01, p < .001$) as postulated by prior research (Oliveira & Fortunato, 2006; Yang & Huang, 2005; Fotopoulos & Louri, 2004). We report that R&D investment exerts a positive impact on corporate growth ($\beta = .03, p < .05$) in line with prior studies (García-Manjón & Romero-Merino 2012; Del Monte & Papagni 2003; Geroski & Machin 1992). This suggests that innovative corporations grow faster than non-innovative ones in the knowledge-driven economy. Note that the negative firm age-growth relationship and the positive R&D investment-growth relation holds in all the models. In addition, the coefficient of firm size has a negative sign as predicted in the literature, however it lacks statistical significance.

As illustrated in model 2, the coefficient of ADR dummy variable is positive and highly statistically significant ($\beta = .04, p < .001$) confirming our first hypothesis. Moreover, the coefficient of ADR dummy remains very similar both in terms of the estimated value and of statistical significance in all other models. This indicates that firms obtain higher growth rate in countries with good investor protection in comparison to corporations operating in countries with low investor protection due to higher access to external finance and better protection against expropriation by managers. Hence, we empirically show that investor protection matters in the context of firm growth supporting theoretical predictions of La Porta et al. (1998). Therefore, not only internal corporate governance mechanisms influence firm growth (Chen et al., 2014; Lappalainen and Niskanen, 2009), but also external corporate governance mechanisms as well. This result provides a new view of the corporate governance literature.

Concerning hypotheses 2a and 2b, we document a positive influence of cash flow on firm growth in model 3 ($\beta = .14, p < .05$). This finding highlights that cash flow is a significant determinant of firm growth. In other words, good investment projects can be declined if a firm does not have

a sufficient amount of internal funds to undertake those. Moreover, cash flow may become the only source of growth in countries with weak financial markets because of limited access to external finance. Examining model 4, the interaction of cash flow and ADR dummy has a negative coefficient ($\beta = -.54, p < .01$) suggesting that, as predicted, cash flow is more important for corporations operating in countries with low investor protection in comparison with firms operating in countries with high investor protection. This can be explained by the fact that firms operating in countries with efficient legal systems and active stock markets use more easily long-term external financing to fund growth (Demirgüç-Kunt & Maksimovic, 1998) while firms operating in countries with low investor protection rely more on cash flows because of weak development of financial markets (La Porta et al., 1997). Both hypotheses 2a and 2b are thus supported.

As we can see in models 3 and 4, the coefficient of leverage is negative and statistically significant ($\beta = -.01, p < .10$ and $\beta = -.01, p < .01$, accordingly) confirming our third hypothesis. Highly leveraged firm cannot easily raise external financing due to the agency costs of debt that arise when shareholders' interests differ from the interests of debt holders. Moreover, creditors can impose restrictive conditions and reporting requirements on a financially-constrained firm. Consequently, a cost of external funds for a firm can increase and adversely affect its investment decisions as reported in prior studies (Lang et al., 1995). This result in line by those obtained by Oliveira and Fortunato (2006) and by Fotopoulos and Louri (2002), as they show a negative relation between leverage and growth.

Note that the Wald tests of the joint significance of the industry dummies and of the joint significance of the time dummies provide good results in all the models. In particular, it is interesting to mention that the coefficient for the year 2008 is positive in all the models ($p < .001$

and $p < .05$), while the coefficient for the year 2009 becomes negative in all the models ($p < .001$). It highlights the impact of financial crisis 2008-2009 on corporate growth in Europe.

Insert Table 4 about here

ROBUSTNESS CHECK

Overall our analysis confirmed all of the hypotheses. However, we conducted several additional analyses to ensure robustness of our findings. Specifically, we considered alternative model specifications of the equation (1) and variable definitions.

Given that serial correlation in annual growth rates carries a lot of information on growth processes (Coad, 2008), we estimated a dynamic model specification of our basic explanatory model (1). In particular, we added lagged $Growth_{i,t-1}$ on the right side of the equation (1) to address the issue of annual growth rates autocorrelation. Table 5 present the results of the dynamic model of firm growth. The positive effect of corporate governance on firm growth holds in all the models ($p < .001$). As illustrated in model 3, leverage influences negatively firm growth ($\beta = - 0.01$, $p < .001$) while cash flow affects positively growth rate of a firm ($\beta = 0.16$, $p < .01$). Examining model 4, we observe as expected a negative coefficient of the interaction between cash flow and ADR dummy ($\beta = - 0.63$, $p < .01$). In addition, the coefficient of lagged $Growth_{i,t-1}$ has a positive sign as predicted in the literature (Bottazzi and Secchi, 2003; Coad,

2008), however it is not statistically significant. In brief, the results of the dynamic model of firm growth closely match our main findings reported in prior section.

Insert Table 5 about here

We also rerun our basic explanatory model (1) adopting the following procedures: 1) including ADR index as continuous variable (instead of ADR dummy variable); 2) setting R&D investment variable to zero for all missing values to address the issue of sample selection bias; 3) replacing ADR dummy variable with country dummies. The unreported findings are similar to our main results. To summarize, we believe that we were able to estimate corporate governance-firm growth relationship consistently.

IMPLICATIONS AND LIMITATIONS OF THE STUDY

Theoretical implications

In our study, we show that firm growth is dependent upon a whole set of firm- (age, investment in R&D, leverage and cash flow), industry- (two-digit SIC code dummies) and country-level characteristics (governance and legal structure). One of the major insights of the present paper is that corporate growth is highly dependent on governance and legal environment of a country,

namely the level of investor protection. Development of this insight will require future research using different samples and measures. According to our opinion, researchers who is eager to contribute to this topic may follow three general research strategies.

The first research strategy would be to investigate the relationship between firm growth and country-level governance and legal environment in other institutional settings rather than European one. Due to the diversity of corporate governance models across advanced capitalist economies (Aguilera and Jackson, 2003), future research on firm growth can highly benefit from studies analyzing growth dynamics within a single corporate governance model or from comparative studies encompassing simultaneously several corporate governance models. However, cross-validation and generalization of results would be possible only by adopting a single indicator of investor protection or by using a composite construct based on multiple indicators that could catch such latent variable as country-level governance and legal environment.

Corporate governance includes not only external mechanisms like governance and legal environment, but also internal mechanisms such as ownership structure and board composition (Denis and McConnell, 2003). This points out to the second research strategy that would be to consider the influence of internal corporate governance mechanisms on firm growth. It is very likely that factors like different types of business ownership (family, financial investors, banks, or government) and level of education, expertise and motivation of board members are likely to exhibit impact on growth patterns of a firm. Moreover, an interplay between external and internal corporate governance mechanisms is of significant interest in order to capture an impact of corporate governance on firm growth. This calls for comprehensive studies using an appropriate theoretical constructs and methodological frameworks.

We agree with Baum et al. (2001); McKelvie and Wicklund (2010) that future research of different growth forms is significantly important to develop theory. Therefore, the third research strategy would be to assess modes of firm growth across countries with different governance and legal environments. For instance, Anglo-Saxon corporate governance model places emphasis on interests of shareholders, while European corporate governance model considers also the interests of workers, suppliers, customers and the community. Consequently, firm growth modes might differ significantly across the two models. Thus, this research strategy can help to identify corporate governance determinants of different growth modes across the developed economies in order to obtain a deeper understanding of cross-country differences in modes of firm growth.

Our study is important because it enriches current literature which traditionally focuses more on examination of a single aspect of firm growth like firm size, innovation, or liquidity and less on what happens within a multi-factor growth models. This paper highlights that growth is driven by the diverse range of factors derived from economics, finance and business administration literature. Therefore, a multidisciplinary approach is per se an inherent component of firm growth research (Delmar et al., 2003). We strongly believe that further research can highly benefit from examination of growth dynamics based on multidisciplinary approach.

Managerial and policy implications

We believe that our paper has value for both managers and policy-makers. Specifically, our results provide several interesting insights to be taken into account for a stimulation of firm growth both at the organizational- and country-level.

It is necessary to remind managers about the importance of securing internal funds for financing growth, especially in countries with poor investor protection. Cash flow is not only the instrument to meet unexpected contingencies and short-term obligations, but it can provide better access to the sources of external financing in the marketplace allowing a firm to grow faster in comparison with its rivals. Concerning over-indebtedness, we all know that growing by borrowing above the norm in the sake of growing will not bring benefits in the long term. However, external financing can represent a good option for funding growth, particularly in countries with high investor protection. Therefore, a rigorous assessment of growth opportunities of a firm is a prerequisite for managers in order to determine on how to finance them properly.

This paper provides empirical support to those recommendations of policy makers advocating increase of the level of investor protection in Europe. Given that high level of investor protection fosters better capital allocation (Wurgler, 2000; Morck et al., 2000) and enhances firm growth, it can provide better access to external financing and decrease agency costs together with information asymmetries, and raise competitiveness of European firms. Furthermore, raising European corporate governance standards can also affect transparency and accountability of corporate practices and corporate behavior in general. This might help to reconcile relationship between corporations and public that is so much needed after all recent corporate scandals.

Limitations

Our paper has limitations as well. We examined in this study only relatively large corporations with assets worth more than € 300 millions. Analysis of the impact of corporate governance on growth rate across corporations of other sizes represents one potential avenue for the future

research. Furthermore, in our analysis we have covered only 11 eurozone countries. Therefore, further studies of corporate governance-firm growth relation in other EU members are strongly desired to have a complete picture of growth dynamics in the Eurozone. In addition, the dearth of research on the corporate governance-firm growth relationship in emerging markets represent another interesting area for future studies. Furthermore, since we identify several factors that influence firm growth, our paper implicitly joins the deterministic school of thought. However, we do not explicitly test Gibrat's law in this paper to accept or reject randomness of growth. This task lies beyond the scope of our study. We leave this question for a future research.

CONCLUSIONS

In the present study we examined the impact of corporate governance on European firm growth. Taking sales growth as a starting point, we adopted a firm growth model that takes into account firm- (age, size, investment in R&D, leverage and cash flow), industry- (two-digit SIC code dummies) and country-level characteristics (governance and legal structure). This allowed us to obtain several interesting and novel findings. We find that "good" governance and legal environment improves firm growth in Europe. In other words, investor protection do matter in the context of corporate growth. Firms operating in countries with "good" governance and legal environment have lower firm growth-cash flow sensitivities. Furthermore, both external (total debt) and internal (cash flows) funds are important drivers of firm growth. Cash flow has a positive effect on firm growth, while leverage is negatively associated with growth. Younger and more innovative firms grow faster than older and less innovative once. The present exploratory study sets a call for interdisciplinary dialogue on corporate governance-firm growth relation.

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TABLE 1**Sample distribution by geographical location and industrial classification (based on Campbell (1996))**

	Belgium	Denmark	Finland	France	Germany	Italy	Nether.	Norway	Spain	Sweden	Switz.	Total
Petroleum	.0	2.8	.0	1.4	4.2	1.5	2.7	1.5	.0	7.6	3.0	2.9
Consumer durables	20.2	4.6	31.0	16.4	11.3	13.9	11.1	16.3	14.2	11.8	21.3	14.1
Basic industry	19.2	30.6	13.8	18.5	15.9	18.2	15.4	7.7	4.3	23.8	13.8	15.8
Food and tobacco	23.2	7.4	.0	9.1	6.2	13.0	4.0	10.7	13.5	11.8	4.4	8.5
Construction	6.1	.0	.0	12.0	11.1	7.3	12.2	23.0	2.4	8.0	8.5	10.0
Capital goods	2.0	9.3	34.5	11.7	18.4	16.3	12.2	12.3	11.1	8.9	10.9	13.5
Transportation	7.1	.0	.0	1.4	5.3	11.3	6.7	3.1	10.4	2.9	2.3	5.4
Unregulated Utilities	5.1	.0	.0	5.3	5.6	1.7	7.4	4.6	5.5	1.3	7.9	5.0
Textiles and trade	3.0	29.6	.0	4.7	9.8	6.6	11.5	7.4	12.8	7.6	10.6	9.2
Services	1.0	3.7	20.7	5.0	7.6	9.4	6.2	12.3	10.9	5.3	9.5	7.8
Leisure	9.1	4.6	.0	12.0	3.0	0.8	7.8	.0	8.5	6.7	2.4	5.1
Others	4.0	7.4	.0	2.4	1.7	.0	2.7	1.2	6.4	4.4	5.4	2.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Industries are defined as follows: Petroleum (SIC 13, 29), Consumer durables (SIC 25, 30, 36, 37, 50, 55, 57), Basic industry (SIC 10, 12, 14, 24, 26, 28, 33), Food and tobacco (SIC 1, 2, 9, 20, 21, 54), Construction (SIC 15, 16, 17, 32, 52), Capital goods (SIC 34, 35, 38), Transportation (SIC 40, 41, 42, 44, 45, 47), Unregulated utilities (SIC 46, 48), Textiles and trade (SIC 22, 23, 31, 51, 53, 56, 59), Services (SIC 72, 73, 75, 76, 80, 82, 87, 89), and Leisure (SIC 27, 58, 70, 78, 79). The sample excludes financial companies (SIC 60-69) and regulated utilities (SIC 49).

TABLE 2
Descriptive statistics

Variable	Mean	S.D.	Min.	Max.
Growth	.025	.23	- 3.44	2.28
Firm age (Ln)	4.29	.73	1.09	5.76
Firm size (Ln)	15.08	1.61	9.77	19.70
R&D investment	.07	.16	.00	.99
Leverage	.57	1.15	.00	7.96
Cash flow	.08	.06	- .57	1.03
ADR dummy	.24	.42	.00	1.00

TABLE 3
Correlations

	1	2	3	4	5	6	7
1 Growth	1.00						
2 Firm age (Ln)	-.09*	1.00					
3 Firm size (Ln)	.05	.00	1.00				
4 R&D investment	-.10*	-.08†	-.28***	1.00			
5 Leverage	-.01	-.06	-.26***	.02	1.00		
5 Cash flow	.20***	-.05	.05	-.16***	.03	1.00	
6 ADR dummy	.06	-.14**	-.09*	.15***	.12**	-.08†	1.00

† p<.10, * p<.05, ** p<.01, *** p<.001

TABLE 4

GLS model of firm growth

Dependent variable: Growth	Model (1)		Model (2)		Model (3)		Model (4)	
Firm size (Ln)	-.00	(-.18)	-.00	(-.78)	-.00	(-.13)	-.00	(-.80)
Firm age (Ln)	-.01***	(-5.34)	-.01***	(-4.00)	-.01***	(-3.53)	-.01***	(-3.50)
R&D investment	.03*	(2.32)	.03**	(3.03)	.04*	(1.99)	.03†	(1.67)
ADR dummy			.04***	(6.45)	.03***	(4.06)	.09***	(5.14)
Leverage					-.01†	(-1.89)	-.01**	(-2.76)
Cash flow					.14*	(2.52)	.23***	(4.03)
Cash flow * ADR dummy							-.54**	(-2.92)
Industry	Yes		Yes		Yes		Yes	
Year	Yes		Yes		Yes		Yes	
Wald test	13753.18(22)		2470.93(23)		1490.31(25)		2875.09(26)	
Constant	.05**	(2.97)	.05*	(2.21)	.07†	(1.95)	.09*	(2.35)
Observations	744		744		508		508	

This table presents the coefficients and t-statistics (in parentheses) using GLS regressions with heteroskedastic error structure. Wald test is a test of the joint significance of the reported coefficients. † p<.10, * p<.05, ** p<.01, *** p<.001.

TABLE 5

Robustness check: Dynamic GLS model of firm growth

Dependent variable: Growth	Model (1)		Model (2)		Model (3)		Model (4)	
Growth	.01	(.46)	.01	(.75)	.01	(.44)	.01	(.44)
Firm size (Ln)	-.00	(-.76)	-.00	(-1.30)	.00	(.30)	.00	(.85)
Firm age (Ln)	-.01**	(-3.07)	-.01*	(-2.40)	-.02***	(-3.82)	-.02***	(-3.70)
R&D investment	.03*	(2.29)	.03*	(2.24)	.03*	(2.24)	.03†	(1.81)
ADR dummy			.04***	(10.29)	.05***	(5.44)	.11***	(6.16)
Leverage					-.01***	(-3.66)	-.02***	(-3.65)
Cash flow					.16**	(2.77)	.29***	(4.51)
Cash flow * ADR dummy							-.63**	(-3.00)
Industry	Yes		Yes		Yes		Yes	
Year	Yes		Yes		Yes		Yes	
Wald test	6100.05(22)		4375.81(23)		672.35(25)		1688.51(26)	
Constant	.09***	(4.38)	.09***	(3.55)	.12**	(2.80)	.08	(1.61)
Observations	618		618		426		426	

This table presents the coefficients and t-statistics (in parentheses) using GLS regressions with heteroskedastic error structure. Wald test is a test of the joint significance of the reported coefficients. † p<.10, * p<.05, ** p<.01, *** p<.001.