

Does Leverage Affect Company Growth in the Baltic Countries?

Mari Avarmaa ⁺

Tallinn University of Technology

Abstract. This paper investigates the impact of leverage and credit constraints on sales growth of companies operating in the Baltic countries. A fixed effects regression model on company level data, covering the period from 2001 to 2008 is employed. The results demonstrate that leverage has a positive impact on the growth of local companies, especially at low levels of leverage. On the other hand, leverage does not have a significant impact on growth of multinational companies. Credit constraints appear to hinder the growth of local companies while multinational companies seem to be more flexible in attracting financing. When shaping the regulatory environment, governments might wish to establish measures for enhancing companies' access to financing, especially for the ones with local ownership, in order to support company growth and thereby overall economic development.

Keywords: financing, corporate growth, Baltic countries, local companies, multinational companies

1. Introduction

The Baltic economies have demonstrated solid economic growth during the past decades until the recent economic crisis. However, the GDP per capita levels have not reached to the European averages yet and the countries would need to find sources for the convergence process to continue. As the real sector represents one of the cornerstones of an economy, it is essential to explore the determinants of corporate growth in that perspective. The linkage between company financing and growth has gained limited attention in empirical literature, especially in the context of transition economies. The current paper seeks to investigate the relationship between leverage and company growth with focus on the differences in the financial behaviour of local and multinational companies (MNCs). Empirical analysis of the financing related determinants of sales growth of MNCs compared to that of local companies in the Baltic countries (Estonia, Latvia and Lithuania) based on company-level data for 2001-2008 has been performed.

2. Literature review

Some of the classical capital structure theories shed light on the possible impact of leverage on company growth. The pecking order theory by Myers and Majluf (1984) demonstrates that due to asymmetric information, companies prefer internal financing sources to the external ones, and debt to external equity. The availability of internal financing may therefore be a determinant of the ability to grow, and companies with lower leverage might be able to grow faster.

The agency theory of capital structure has several (although controversial) implications on the impact of leverage on corporate growth. Jensen and Meckling (1976) show that debt functions as a monitoring device over managers. Higher debt levels might thus result in better performance. The debt overhang concept by Myers (1977) demonstrates however that high leverage may cause companies to underinvest since the benefits of additional capital investments accrue largely to debt holders instead of equity holders. This is likely to lead to slower company growth. At the same time, the overinvestment problem outlined by Jensen (1986) implies that managers may wish to expand the scale of companies even if it means investing into

⁺ Tel.: +372 6283 545; fax: +372 6283 527.
E-mail address: mari.avarmaa@nordea.com.

poorly performing projects, whereas debt might limit the free resources available for such investments. This would result in a negative relationship between leverage and investment growth for companies that have weak growth opportunities.

The empirical works dealing with the impact of leverage on sales growth have been focussed either on SMEs or young companies. Most of the studies have identified a positive impact of leverage on sales growth (e.g. Heshmati 2001, Honjo and Harada 2006, Hermelo and Vassolo 2007 and Huynh and Petrunia 2010). The positive impact of leverage has been explained by the difficulties with access to credit of these types of companies in relation to informational asymmetries. The only paper concentrating on company growth in the CEE region (Mateev and Anastasov 2010) found the relationship between leverage and sales growth of SMEs to be insignificant.

3. The model

This paper seeks to investigate how financial leverage and credit constraints impact sales growth of companies operating in the Baltic countries, and whether the impact is different for local companies and MNCs. I build a fixed effects regression model in similar veins to the panel data regression model of Mateev and Anastsov (2010). Since access to finance is believed to be the most binding obstacle on company growth (Dinh et al. 2010), I have added a measure of credit constraints as one of the independent variables. In order to allow for differences in the impact of growth, I have included interaction terms between independent variables and the dummy variable for MNCs.

The growth of an i -th company at time t has been modelled as follows:

$$GROWTH_{it} = \beta_1 GDP_{it} + \beta_2 AGE_{it} + \beta_3 AGE_{it}^2 + \beta_4 LEV_{i(t-1)} + \beta_5 LEV_{i(t-1)}^2 + \beta_6 CRED_{it} + \beta_7 SIZE_{i(t-1)} + \beta_8 HHI_{i(t-1)} + \beta_9 AGE \times MNC_{it} + \beta_{10} AGE^2 \times MNC_{it} + \beta_{11} LEV \times MNC_{i(t-1)} + \beta_{12} LEV^2 \times MNC_{i(t-1)} + \beta_{13} CRED \times MNC_{it} + \beta_{14} SIZE \times MNC_{i(t-1)} + \beta_{15} HHI \times MNC_{i(t-1)} + \alpha_i + u_{it},$$

where α_i denotes company level fixed effects. The variables are described in Table 1 and explained in the text below.

Table 1. Variables used in the regression model

Variable	Abbreviation	Measurement
Company sales growth	GROWTH	[Real sales(t) / Real sales (t-1)] - 1
Country GDP growth	GDP	Real GDP growth; data from Eurostat
Company leverage	LEV	(Short-term debt + Long-term liabilities) / (Total equity + Long-term liabilities + Short-term debt)
Industry credit constraints	CRED	Industry level value of financing constraints; data from BEEPS
Company size	SIZE	Log of real assets
Company age	AGE	Number of years from incorporation
Industry Herfindahl index	HHI	Squared sum of market shares of sales of all firms in the industry
Company multinationality	MNC	1 if more than 50% owned by a foreign company, otherwise 0

The measure of leverage (LEV), the independent variable of main interest, is calculated similarly to several studies on capital structure (Rajan and Zingales 1995, Huizinga et al. 2008, Avarmaa et al. 2011). I have included both leverage (LEV) and the quadratic term of leverage (LEV^2) in the regression model given the characteristics of the data observed from descriptive statistics. I use company age (AGE) and size ($SIZE$) as the most common determinants of company growth as control variables. Quadratic form of company age is used similarly to Huynh and Petrunia (2010). GDP growth (GDP) is included to control for the impact of economic cycles on corporate growth. Since company growth tends to be industry specific, I control for this impact by including interaction terms between year and sector dummies. For that purpose, industries are divided into four sectors (manufacturing, trade, construction, and service).

In addition to the whole sample, the impact of leverage on company growth has been investigated by three groups of leverage: low ($0 < LEV \leq 21.2\%$), medium ($21.2\% < LEV \leq 51.5\%$), and high ($LEV > 51.5\%$). As another test of robustness, regressions covering different phases of the economic cycle have been run. Since the Baltic countries experienced an economic and credit boom during 2006-2007, and local companies increased their leverage substantially during that period (Avarmaa et al. 2011), the impact of

leverage on growth is expected to be different for the subsample.

4. Data

I have obtained financial and ownership information of companies operating in the Baltic countries from the Amadeus database compiled by Bureau van Dijk. The sample consists of 68,000 firm-year observations covering the period from 2001 to 2008. 14% of observations belong to MNCs and 86% to local companies. For every company, data are included in the sample for the years for which financial information was available in sufficient level of detail and all components of assets and liabilities were non-negative. Companies operating in the financial and public utilities sector were excluded from the sample since industry-specific regulations might impact capital structure in these sectors. Observations with sales growth above 200% were eliminated in order to minimise the impact of outliers on the regression results. For the same reason, I have counted the age of companies established before 1991 as starting from year 1991, when the Baltic countries regained their independence and the regulatory frameworks for operating a company were fundamentally changed.

The data for credit constraints have been obtained from the BEEPS survey conducted by EBRD and the World Bank. The indicator has been composed according to a similar procedure as applied by Avarmaa et al. (2011), using the BEEPS 2002, 2005 and 2009 data on access to finance. The original data provides companies' estimates regarding their ability to access finance in their country of operation on a four-point scale ranging from "No obstacle" to "Very Severe Obstacle". The variable has been normalised, taking values between 0 and 1. The missing observations for the years 2003-2004 and 2006-2007 have been derived using the cubic spline interpolation technique. The observations for 2000 and 2001 have been linearly extrapolated. The indicator allows for variance across industries and over time.

Descriptive statistics (Table 2) reveal that MNCs are considerably bigger than local companies in terms of sales and total assets but are relatively less leveraged and have experienced lower credit constraints. There are no major differences in the growth rates achieved by local companies and MNCs.

Table 2. Descriptive Statistics (monetary values in thousands of euros)

		Mean	Median	sd	Min	Max
Total Assets	Local	2,205	727	10,239	0	1,023,049
	MNC	6,520	2,026	15,093	1	286,731
Sales	Local	3,785	1,355	14,469	0	1,613,346
	MNC	12,197	3,729	33,926	1	730,074
Sales growth	Local	17%	10%	41%	-100%	200%
	MNC	17%	10%	39%	-100%	200%
Leverage	Local	32%	27%	29%	0%	100%
	MNC	29%	17%	31%	0%	100%
Credit Constraints	Local	0.46	0.45	0.06	0.27	0.65
	MNC	0.39	0.39	0.08	0.21	0.71
Age	Local	9	10	4	1	17
	MNC	9	9	4	1	17
HHI	Local	0.05	0.02	0.07	0.01	1
	MNC	0.05	0.02	0.08	0.01	1

5. Results

Regression results (Table 3, panel 1) show that MNCs operating in the Baltic countries differ from local companies in the impact of financing on growth. Leverage appears to have a positive impact on sales growth only for local companies and not to influence the growth of MNCs. Credit constraints appear to have a stronger negative impact on the sales growth of local companies compared to MNCs. This indicates that the ability to obtain debt financing is vital for the development of local companies. This could be related to a relatively low capital market development in the Baltic countries, as well as to informational asymmetries that make local companies dependant on bank lending rather than private or public equity capital. MNCs seem to be able to finance their growth without excess lending, potentially due to the support of their corporate group and better access to capital markets. An alternative explanation for the different impact for

MNCs stems from the agency theory - leverage might function as a disciplining device more effectively for local companies than MNCs.

The results by groups of leverage (Table 3 panel 2)¹ indicate that the increase of leverage tends to bring additional growth for the local companies only at low levels of leverage while high leverage does not enable to achieve additional growth. A similar outcome is arrived at by Avarmaa et al. (forthcoming) showing that at moderate levels of leverage increases in leverage help to improve labour productivity in the local companies operating in the Baltic counties, while high leverage tends to have an opposite effect.

Table 3. Regression results²

	Sales Growth whole sample (1)	Sales Growth low leverage (2)	Sales Growth boom (3)
GDP growth	0.250** (0.115)	0.277 (0.226)	1.389*** (0.299)
Age	-0.060*** (0.023)	0.003 (0.055)	omitted
Age ²	0.002*** (0.000)	0.001*** (0.000)	0.002*** (0.001)
Leverage	0.023*** (0.006)	0.120*** (0.041)	0.308*** (0.032)
Leverage ²	0.0002*** (0.000)	0.021** (0.010)	0.036*** (0.008)
Credit Constraints	-0.309*** (0.045)	-0.392* (0.089)	-1.526*** (0.241)
HHI	0.062 (0.058)	0.248 (0.133)	0.249 (0.166)
Size	-0.124*** (0.006)	-0.232*** (0.014)	-0.345*** (0.026)
Age × MNC	-0.024*** (0.009)	-0.038* (0.020)	-0.089** (0.042)
Age ² × MNC	0.001*** (0.000)	0.002** (0.001)	0.003 (0.002)
Leverage × MNC	-0.023** (0.010)	-0.092** (0.042)	-0.295*** (0.034)
Leverage ² × MNC	-0.0002*** (0.000)	-0.020** (0.010)	-0.036*** (0.008)
Credit Constraints × MNC	0.188** (0.080)	0.250* (0.152)	0.768* (0.399)
HHI × MNC	0.123 (0.145)	-0.094 (0.286)	-0.577 (0.417)
Size × MNC	0.001 (0.010)	0.022 (0.021)	0.055 (0.0363)
Number of observations	67,945	18,575	22,209
R ²	21.0%	27.1%	28.4%

The regression results for the boom period (2006-2007) in Table 3 panel 3 show that the positive impact of leverage on growth of local companies is strongly evident during the time when the availability of credit was rapidly improving. The growth of MNCs does not seem to depend on lending to the same extent as in local companies as MNCs had been more flexible in financing their growth already before the boom. The descriptive statistics show that the credit constraints have been lower for MNCs during the whole period covered in this paper. The strong negative impact of credit constraints of the local companies during the boom period implies that while the levels of leverage were increasing in the economy and availability of lending improved the financing needs of the companies increased even more rapidly and companies perceived increased obstacles for getting credit. (Avarmaa et al. 2011)

¹ The results for high- and medium-level leverage available upon request.

² *, ** and *** indicate significance at 10%, 5%, and 1% level respectively. Robust standard errors in parentheses. Company fixed effects, year dummies and year-sector interactions included. The Hausman test showed fixed effects regression model to be preferred to the random effects model.

As regards to control variables, age has a more negative impact on the sales growth of MNCs compared to local companies, indicating that young MNCs are likely to grow faster, probably due to the availability of financial resources from their parent company.

6. Conclusions

I found the impact of leverage and credit constraints on company growth to be considerably different for MNCs and local companies operating in the Baltic countries. While there appears to be a positive relationship between leverage and growth for local companies, there is no evident impact of leverage on growth for MNCs. In addition, credit constraints do not seem to hinder the growth of MNCs to the same extent as in the case of local companies. The positive effect of leverage on growth seems to be the highest for local companies with low use of external financing. The most likely reasons for the differences might be the lower access of local companies to capital markets and lack of internal funding. These findings suggest that when shaping the regulatory environment, governments might wish to establish measures for enhancing companies' access to financing, especially for the ones with local ownership, in order to support company growth and thereby overall economic development.

7. Acknowledgements

I am grateful to Professor Karsten Staehr, Dr Juan Carlos Cuestas, Dr Kadri Männasoo, and Dr Aaro Hazak as well as to the participants of the 3rd International Conference "Economies of Central and Eastern Europe: Convergence, Opportunities and Challenges" for their valuable comments and suggestions. I am grateful to the Estonian Science Foundation (grant no ETF8796) for financial support.

8. References

- [1] M. Avarmaa, A. Hazak, K. Männasoo. Capital structure formation in multinational and local companies in the Baltic States. *Baltic Journal of Economics*. 2011, **11**(1): 125-145.
- [2] M. Avarmaa, A. Hazak, K. Männasoo. Does leverage affect labour productivity? A comparative study of local and multinational companies of the Baltic countries. *Journal of Business Economics and Management*, forthcoming
- [3] H. Dinh, D. Mavridis, H. Nguyen. The Binding Constraint on Firms' Growth in Developing Countries. *The World Bank. Policy Research Working Paper*. 2010, 5485.
- [4] F. Hermelo, R. Vassolo. The Determinants of Firm's Growth: an Empirical Examination. *Revista Abante*. 2007, **10** (1): 3-20.
- [5] H. Heshmati. On the Growth of Micro and Small Firms: Evidence from Sweden. *Small Business Economics*. 2001, **17** (3): 213-228.
- [6] Y. Honjo, N. Harada. SME Policy, Financial Structure and Firm Growth: Evidence from Japan. *Small Business Economics*. 2006, **27** (4): 289-300.
- [7] H. Huizinga, L. Laeven, G. Nicodame. Capital Structure and International Debt Shifting. *Journal of Financial Economics*. 2008, **88** (1): 80-118.
- [8] K. Huynh, R. Petrunia. Age effects, leverage and firm growth. *Journal of Economic Dynamics & Control*. 2010, **34** (5): 1003-1013.
- [9] M. Jensen. Agency costs and free cash flow, corporate finance and takeovers. *American Economic Review*. 1986, **76** (2): 323-329.
- [10] M. Jensen, W. Meckling. Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure. *Journal of Financial Economics*. 1976, **3** (4): 305-360.
- [11] M. Mateev, Y. Anastasov. Determinants of small and medium sized fast growing enterprises in Central and Eastern Europe: a panel data analysis. *Financial Theory and Practice*. 2010, **34** (3): 269-295.
- [12] S. Myers. Determinants of Corporate Borrowing. *Journal of Financial Economics*. 1977, **5** (2): 147-175.
- [13] S. Myers, N. Majluf. Corporate Financing and Investment Decisions When Firms Have Information that Investors Do Not Have. *Journal of Financial Economics*. 1984, **13** (2): 187-221.

- [14] R. Rajan, L. Zingales. What Do We Know about Capital Structure? Some Evidence from International Data.
Journal of Finance. 1995, **50** (5): 1421-1460.