Financing patterns of European SMEs – An empirical taxonomy

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Motivation

Access to finance of small and medium sized enterprises (SMEs) in Europe has always been challenging but deteriorated during and in the aftermath of the financial market crisis (Artola and Genre, 2011; Drakos, 2012; Ferrando and Griesshaber, 2011). Even though, research on SME financing increased over the last years (Beck et al., 2008; Cosh et al., 2009; Chavis et al., 2011), the financing patterns of SMEs in Europe are still not well understood as most research focused on a single financing instrument (e.g., bank loans) and its determinants. However, this topic is of high political concern as SMEs play a vital role for the innovativeness, economic growth and competitiveness of the European Union and access to finance is an essential precondition for SMEs to ensure their survival and growth.

To understand the financing of SMEs, their specific characteristics and the impact on demand for and supply of financing need to be considered. To determine SMEs' financing decisions, cost arguments have to be put in the context of the entrepreneurial interest of self-determination and the desire to maintain control of the firm (Achleitner et al., 2011; Cressy, 1995). Hence, financing decisions of SMEs are highly complex as they are based on an array of social, behavioral and financial factors (Romano et al., 2001). Furthermore, access to finance for SMEs is restricted by high information asymmetries, agency risks, insufficient collateral and small transaction volumes.

Prior research has shown that the utilization of financing instruments by SMEs depends on various firm- and product-specific characteristics such as firm size, firm age, ownership structure or innovativeness of firms (Artola and Genre, 2011; Berger and Udell, 1998; Ferrando and Griesshaber, 2011; Huyghebaert et al., 2007; Michaelas et al., 1999), the industry in which they operate (Degryse et al., 2012; Hall et al., 2000) and their macroeconomic, financial and legal environment (Agarwal and Mohtadi, 2004; Beck et al., 2008; La Porta et al., 1997). However, there are only few studies that integrate the different determinants and the various financing instruments available to SMEs into a single and comprehensive empirical analysis (Beck et al., 2008; Casey and O'Toole, 2014).

Research Goal

The isolated study of different financing instruments and their determinants is unsatisfactory as various substitutive and complementary effects exist between them (Beck et al., 2008; Cosh et al., 2009). This study taps into this research gap by taking a more holistic perspective. It develops an empirical taxonomy of European SME financing patterns using a large number of financing instruments and characterizes these financing patterns according to their firm-, product-, industry-, and country-specific factors.

Data and Method

To develop an empirical taxonomy of SME financing patterns, we use the firm level data of the 'Survey on the access to finance of enterprises (SAFE)', which is compiled in a joint project by the European Central Bank (ECB) and the European Commission (EC). The survey is well-suited for the research project as it has information on 14,859 (2013H1) companies in 37 countries in Europe but with most of the firms questioned in the survey being SMEs (around 85%). Furthermore, the SAFE contains information on a large number of financing instruments such as retained earnings or sale of assets, grants and subsidized bank loans, bank overdrafts, credit lines or credit card overdrafts, bank loans, trade credits, other loans (from related companies or family and friends), leasing, hire-purchase or factoring, equity, debt securities issued and subordinated/participating loans or preferred stock. To identify financing patterns of European SMEs these financing instruments are used as active variables in a cluster analysis including 28 European countries and 12,726 SMEs. Afterwards the financing patterns are analyzed according to various passive variables including firm-specific (i.e., firm size, firm age, ownership, growth, and profitability), product-specific (i.e., innovativeness), industry-specific (i.e., main activity), and country-specific (e.g., geography, financial market systems) variables.

Findings

The results of this study reveal that SME financing in Europe is not homogenous but that different financing patterns of SMEs exist. The cluster analysis identifies six distinct SME financing types in Europe: mixed-financed SMEs, state-subsidized SMEs, debt-financed SMEs, flexible-debt-financed SMEs, trade-financed SMEs and internally-financed SMEs (see Table 1). These groups of SMEs differ according to the number of different financing instruments used as well as the specific combinations of these instruments. Furthermore, it was analyzed how these SME financing types differ according to a number of different characteristics. The results indicate that various financing instruments are considered as substitutes and complements in SME financing and the different financing patterns are determined by various firm-, product-, industry-, and country-specific factors (see Table 2).

Table 1: Cluster results

	Clusters						
Financing instruments	**Mixed-financed SMEs**	**State-subsidized SMEs**	**Debt-financed SMEs**	**Flexible-debt-financed SMEs**	**Trade-financed SMEs**	**Internally-financed SMEs**	**Pearson Chi²**
Retained earnings or sale of assets	27.85%	22.73%	20.55%	14.72%	25.49%	13.97%	236.90***
Grants or subsidized bank loans	14.86%	100%	1.60%	0.00%	1.91%	0.00%	8750.74***
Bank overdrafts, credit lines or credit card overdrafts	44.98%	53.95%	56.19%	100%	6.25%	0.00%	6443.20***
Bank loans (new or renewal)	36.27%	55.20%	95.18%	0.00%	0.00%	0.00%	8160.22***
Trade credit	41.29%	32.11%	41.43%	20.81%	70.73%	0.00%	3498.16***
Other loans	72.53%	1.15%	0.00%	0.00%	0.00%	0.00%	8391.15***
Leasing, hire-purchase or factoring	27.85%	24.41%	30.43%	20.43%	41.23%	0.00%	1702.82***
Equity	24.10%	3.59%	0.00%	0.00%	0.00%	0.00%	2387.21***
Other[(a)]	17.08%	0.00%	0.00%	0.00%	0.00%	0.00%	1803.36***
No external finance	0.00%	0.00%	0.00%	0.00%	0.00%	100%	12312.00***
N	2,060	887	1,981	1,627	1,888	3,869	
Percentage of firms	16.73%	7.20%	16.09%	13.21%	15.34%	31.43%	
Description	Firms that use a large variety of financing instruments	Firms that use grants / subsidized loans and other debt	Firms that use all types of debt with a strong focus on bank loans	Firms that use only flexible, short-term debt	Firms that use mainly trade-related types of financing	Firms without external financing	

Notes: N = 12,312; Pearson's chi-square test: ***p < 0.01, **p < 0.05, *p < 0.1.
[(a)] Other financing instruments = debt securities issued, subordinated/participating loans, preferred stocks or similar instruments

Table 2: SME financing patterns and their determinants

Cluster	Financing in cluster	Characteristics			
		Firm-specific	Product-specific	Industry-specific	Country-specific
Mixed-financed SMEs	SMEs that used a large variety of instruments with a focus on other loans (72%); only cluster with a noteworthy amount of equity financing (24%)	more often younger, small and medium-sized firms with different ownership structures; moderate past growth but with high future growth expectations and more often increased profit margins	more innovation	most likely for construction sector	esp. in Northern European and market-based countries
State-subsidized SMEs	100% of SMEs used subsidized bank loans or grants; large amount of other debt	more often small and in particular medium sized firms; especially family firms or entrepreneurial teams; high to moderate past growth and future growth expectations with decreased profit margins	more innovation	most likely for industry sector	esp. in Southern European, bank-based and distressed countries
Debt-financed SMEs	95% of SMEs used bank loans; all types of debt used	more mature small and medium-sized firms; especially family firms or entrepreneurial teams; low growth in the past and low growth expectations	low innovation	more likely for industry and construction sector	esp. in Western European, bank-based and 'old' EU member countries
Flexible-debt-financed SMEs	100% of group used short-term bank debt; some trade credit and leasing / factoring	more mature micro firms with lower turnover; especially single-owner firms; more often high employee growth; average growth expectations	average innovation	more likely for industry and trade sector	esp. in Western European, bank-based and 'old' EU member countries
Trade-financed SMEs	70% of group used trade credit and 40% leasing / factoring	more often younger (2-5 years), small firms in family hands or entrepreneurial teams; moderate turnover growth; moderate to no growth expectations	average innovation	most likely for trade sector	esp. in Northern and Southern European countries; more often in market-based countries
Internally-financed SMEs	100% of group used no external debt; 14% retained earnings	more often very young, micro, single-owner firms with high and moderate employee growth in the past; no turnover growth and expectation to stay the same size	low innovation	most likely for service sector	esp. in Eastern European, former socialist countries

References

Achleitner, A.-K., Braun, R. and Kohn, K. (2011), "New Venture Financing in Germany: Effects of Firm and Owner Characteristics", *Zeitschrift für Betriebswirtschaft*, Vol. 81 No. 3, pp. 263–294.

Agarwal, S. and Mohtadi, H. (2004), "Financial Markets and the Financing Choice of Firms: Evidence from Developing Countries", *Global Finance Journal*, Vol. 15 No. 1, pp. 57–70.

Artola, C. and Genre, V. (2011), "Euro Area SMEs Under Financial Constraints: Belief or Reality?", *ZBW - Leibniz-Informationszentrum Wirtschaft*, available at: http://www.econstor.eu/handle/10419/53136 (accessed 26 February 2015).

Beck, T., Demirguc-Kunt, A. and Maksimovic, V. (2008), "Financing Patterns Around the World: Are Small Firms Different?", *Journal of Financial Economics*, Vol. 89 No. 3, pp. 467–487.

Berger, A.N. and Udell, G.F. (1998), "The Economics of Small Business Finance: The Roles of Private Equity and Debt Markets in the Financial Growth Cycle", *Journal of Banking & Finance*, Vol. 22, pp. 613–673.

Casey, E. and O'Toole, C. (2014), "Bank Lending Constraints, Trade Credit and Alternative Financing during the Financial Crisis: Evidence from European SMEs", *Journal of Corporate Finance*, Vol. 27, pp. 173–193.

Chavis, L.W., Klapper, L.F. and Love, I. (2011), "The Impact of the Business Environment on Young Firm Financing", *The World Bank Economic Review*, Vol. 25 No. 3, pp. 486–507.

Cosh, A., Cumming, D. and Hughes, A. (2009), "Outside Enterpreneurial Capital", *The Economic Journal*, Vol. 119, pp. 1494–1533.

Cressy, R. (1995), "Business Borrowing and Control: A Theory of Entrepreneurial Types", *Small Business Economics*, Vol. 7 No. 4, pp. 291–300.

Degryse, H., de Goeij, P. and Kappert, P. (2012), "The Impact of Firm and Industry Characteristics on Small Firms' Capital Structure", *Small Business Economics*, Vol. 38 No. 4, pp. 431–447.

Drakos, K. (2012), "Bank Loan Terms and Conditions for Eurozone SMEs", *Small Business Economics*, Vol. 41 No. 3, pp. 717–732.

Ferrando, A. and Griesshaber, N. (2011), "Financing Obstacles Among Euro Area Firms: Who Suffers the Most?", *ECB Working Paper Series No 1293*, available at: http://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1293.pdf (accessed 26 February 2015).

Hall, G., Hutchinson, P. and Michaelas, N. (2000), "Industry Effects on the Determinants of Unquoted SMEs' Capital Structure", *International Journal of the Economics of Business*, Vol. 7 No. 3, pp. 297–312.

Huyghebaert, N., van de Gucht, L. and van Hulle, C. (2007), "The Choice between Bank Debt and Trade Credit in Business Start-ups", *Small Business Economics*, Vol. 29 No. 4, pp. 435–452.

Michaelas, N., Chittenden, F. and Poutziouris, P. (1999), "Financial Policy and Capital Structure Choice in UK SMEs: Empirical Evidence from Company Panel Data", *Small Business Economics*, Vol. 12 No. 2, pp. 113–130.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R. (1997), "Legal Determinants of External Finance", *Journal of Finance*, Vol. 52 No. 3, pp. 1131–1150.

Romano, C., Tanewski, G. and Smyrnios, K. (2001), "Capital Structure Decision Making: A Model for Family Business", *Journal of Business Venturing*, Vol. 16 No. 3, pp. 285–310.