Economy

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Ownership Structure as a Determinant of Capital Structure - An Empirical Study of DAX Companeis

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List of Abbreviations

2SLS	two stage least squares
3SLS	three stage least squares
AG	Aktiengesellschaft (stock corporation)
BAFin	Bundesanstalt für Finanzdienstleistungsaufsicht (Federal Financial Services Supervisory Office)
CAGR	compound annual growth rate
CEO	Chief Executive Officer
DAX	Deutscher Aktienindex (German share index)
df	degrees of freedom
EBIT	earnings before interest and taxes
EBITDA	earnings before interest, taxes, depreciation and amortization
GPPE	gross property, plant and equipment
HCCM	heteroskedasticity consistent covariance matrix
HC0	HCCM estimation proposed by WHITE (1980)
HC3	Alternative HCCM estimation proposed by MACKINNON/WHITE (1985)
HGB	Handelsgesetzbuch (German accounting law)
IAS	International Accounting Standards
IFRS	International Financial Reporting Standards
KGaA	Kommanditgesellschaft auf Aktien (limited partnership on shares)
LN	natural logarithm
MDAX	Mid-cap DAX (see also DAX)
MM	MODIGLIANI/MILLER
n	number of observations
NPPE	net property plant and equipment
OECD	Organization for Economic Cooperation and Development
OI	operating income
OLS	ordinary least squares
R&D	research and development
ROI	return on investment
ROA	return on assets
SDAX	Small-cap DAX (see also DAX)
SEC	Securities and Exchange Commission

SMEs	small and medium sized enterprises
SPSS	Statistical Product and Service Solutions
TA	total assets
TecDAX	Technology DAX (see also DAX)
UK	United Kingdom
US	United States
US GAAP	United States Generally Accepted Accounting Principles
VIF	Variance Inflation Factor
WpHG	Wertpapierhandelsgesetz (Securities Trading Act)

List of Symbols

$A_{S_o}(E)$	agency costs of outside equity
$A_B(E)$	agency costs of debt
$A_T(E)$	total agency costs of external financing, with $A_T(E) = A_{S_o}(E) + A_B(E)$
B	external debt
β_i	regression coefficient
E	fraction of outside equity to total external financing, with $E = S_o/(B + S_o)$
E^*	optimal fraction of outside equity, with $E^* \equiv S_o/(B + S_o)$
ε_i	random error term in regression specifications
H_i	hypothesis i, with i = 1 to 5
K	index of the amount of outside financing, with $K = (B + S_o)/V^*$
S_i	management equity ownership
S_o	outside equity ownership
V^*	scale of the firm

1 Introduction

1.1 Problem and Objective of the Thesis

The idea that the general characteristics of a firm's ownership structure can affect performance has achieved considerable attention, and related research brought forward relatively consistent empirical evidence, e.g. on the positive impact of managerial ownership on firm performance.[1] However, the evidence on the relation between ownership and capital structure is less consistent and numerous, although there are good reasons to believe that there may be such a relationship.[2]

Since the capital structure irrelevance propositions of MODIGLIANI/MILLER (MM)[3] economists have devoted considerable time to studying cross-sectional and time-series variations in capital structure. More recent work following the seminal contribution by JENSEN/MECKLING[4] has employed an agency theory perspective in the search for an explanation of capital structure variations.[5] With this managerial perspective capital structure is not only explained by variations in internal and external contextual factors of the firm, but also by the values, goals, preferences and desires of managers. Corporate financing decisions are influenced by managers' incentives, and the incentives for managers to act opportunistically can be influenced by the ownership structure of the firm.[6]

However, most empirical work analyzing a firm's capital structure in cross-sectional and time-series studies ignores the equity ownership structure as a possible explanatory variable.[7] This can be partly explained by problems associated with the availability of ownership data, when compared to readily available accounting and market data on other relevant variables. Not withstanding, it entails a problem of model misspecifica-

1 Examples for recent empirical studies on the link between ownership structure and firm performance include ANDERSON/REEB (2003); DESSI/ROBERTSON (2003); ZHOU (2001); HIMMELBERG/HUBBARD/PALIA (1999); SHORT/KEASEY (1999); CHO (1998); BLASI/CONTE/KRUSE (1996) and MEHRAN (1995). Available German studies include LEHMANN/WEIGAND (2000), EDWARDS/NIBLER (2000) and THONET/POENSGEN (1979). The earliest contributions for the United States go back to ELLIOTT (1972); KAMERSCHEN (1968) and MONSEN/CHIU/COOLEY (1968).

2 See chap. 2 for a detailed discussion.

3 See MODIGLIANI/MILLER (1958); MODIGLIANI/MILLER (1963). Another seminal work extending the theory of the irrelevancy of capital structure for firm valuation is due to MILLER (1977). ROSS/WESTERFIELD/JAFFE (2002), pp. 390-452, provide a basic overview of capital structure theory.

4 See JENSEN/MECKLING (1976).

5 See MYERS (2001) or HARRIS/RAVIV (1991) for surveys of non-tax-related capital structure theories.

6 See DEMSETZ (1983), pp. 387-390; SHLEIFER/VISHNY (1986), pp. 461-465, AGRAWAL/MANDELKER (1990), pp. 158-159.

7 See e.g. WALD (1999); BASKIN (1989); TITMAN/WESSELS (1988); BRADLEY/JARRELL/KIM (1984).