

# **Internet Appendix for “The Economics of Capital Allocation in Firms: Evidence from Internal Capital Markets”**

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## **Abstract**

The internet appendix provides supplementary material for the paper “The Economics of Capital Allocation in Firms: Evidence from Internal Capital Markets”.

The internet appendix contains six sections:

Section A presents definitions and data sources for all variables used in the cross-sectional analysis (Table A.1) and correlations of the control variables (Table A.2). The section also presents the analysis of firm characteristics of responding firms versus target population (Table A.3).

Section B presents the survey questionnaire, which was mailed to 992 firms on April 26, 2010.

Section C presents the theoretical concepts and previous empirical evidence that guided our questionnaire design. In preparing the questionnaire, we extensively reviewed the economics, finance, and accounting literature on capital allocation. The tables in Section C provide summaries of the extracted predictions/arguments and link these to the corresponding survey questions.

Section D presents some univariate analyses whose results we discuss in the main paper but that we relegate to the Internet Appendix for the sake of brevity.

Section E presents additional empirical analyses. To simplify exposition and for brevity, we present only univariate results in the main paper and relegate all multivariate, mostly logistic, regressions (using the main variables of interest as independent variables) to this internet appendix. The section shows that the conclusions reported in the main paper are robust to these alternative empirical specifications.

We present the theoretical concepts and previous empirical evidence (Section C) and the results from the empirical analyses (Section D and E) in the order of the questions as asked in the survey questionnaire.

Section F presents a section-by-section discussion of the potential threat of biased or otherwise inaccurate responses and explains why any sort of reporting bias is arguably low.

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## **A. Data Definitions, Correlations, and Respondent-Versus-Population Test**

Table A.1  
Definitions and data sources for variables used in cross-sectional analysis

Control variable	Subsample 1	Definition 1	Subsample 2	Definition 2	Source
Size	small	≤ EUR 1bn revenue	large	> EUR 1bn revenue	Annual sales revenue at my company is in the range of? (Question 1, Closing Section)
Lines of business	few	≤ 3	many	> 3	How many lines of business is your company running? (Question 2, Closing Section)
Diversification	related	1 primary industry	unrelated	≥ 2 primary industries	What broad industries are you working in? (Question 3, Closing Section)
Capital constraints	no	unconstrained	yes	constrained	When capital markets are operating normally, is your company capital constrained? (Question 1, Section D)
Debt ratio	low	≤ 30%	high	> 30%	What is your debt-to-asset ratio (e.g., 0.2, 0.3)? (Question 7, Closing Section)
Agency Cost	low	≤ 0.4	high	> 0.4	Average value of the five ratings of within-firm agency problems (4 or 5 recoded as 1, and 1, 2, or 3 recoded as 0) (Question 5a-c, e-f, Section B)
Equity	public	public firms	private	private firms	Ownership? (Question 5a, Closing Section)
Managerial ownership	low	≤ 1%	high	> 1%	If all options were exercised, what percentage of your company's equity would be owned by the top 3 managers (e.g., 5%)? (Question 5b, Closing Section)
Rating	low	A- or better	high	BBB+ or worse	What is your credit issuer rating (e.g., AA-, B+)? Write NONE if debt is not rated. (Question 6, Closing Section)
Age (year)	young	≤ 50 years	mature	> 50 years	Age of CFO? (Question 2, CFO Demographics)
Tenure (year)	short	≤ 4 years	long	> 4 years	Tenure (time in current job) of CFO (Question 3, CFO Demographics)
Education	MBA, PhD.	MBA, PhD.	others	Undergraduate, Non-MBA Master's	Highest educational background? (Question 4, CFO Demographics)

This table defines the variables used in the cross-sectional analyses. We divide the total sample into two groups using the medians as cut-off points for all variables except for Diversification (one/many major industries), Capital constraints (yes/no), Equity (public/private), and Education (MBA and PhD/other). The industry definition follows Graham, Harvey, and Rajgopal (2005). The last column shows from which survey sections the variables are drawn.

Table A.2  
Correlations of control variables of the survey

	Size (small to large)	Lines of business (few to many)	Diversification (related to unrelated)	Capital constrained (no to yes)	Debt ratio (low to high)	Equity (public to private)	Managerial ownership (low to high)	Rating (high to low)	Age (young to mature)	Tenure (short to long)
Lines of business (few to many)	0.202**									
Diversification (related to unrelated)	- 0.005	0.155*								
Capital constrained (no to yes)	- 0.322***	0.007	- 0.046							
Debt ratio (low to high)	- 0.182**	0.014	- 0.026	0.144						
Equity (public to private)	0.109	0.136	0.060	0.095	0.125					
Managerial ownership (low to high)	- 0.196*	0.034	0.162	0.152	0.035	- 0.051				
Rating (high to low)	0.054	- 0.003	0.336**	- 0.103	0.074	- 0.041	- 0.118			
Age (young to mature)	0.131	- 0.018	0.049	0.007	0.127	0.090	- 0.014	- 0.197		
Tenure (short to long)	0.063	0.008	0.113	0.025	0.043	0.004	0.175	- 0.029	0.392***	
Educ. MBA Dr. (MBA, Dr. to others)	- 0.118	0.105	- 0.057	0.017	0.092	0.019	0.165	- 0.089	- 0.081	- 0.031

Table A.2 reports the correlations ( $\rho$ /mean square contingency) for Size, Lines of business, Diversification, Diversity in investment prospects, Debt ratio, Equity, Managerial ownership, Rating, Age, Tenure, Education (firm and CFO) characteristics. Variables and their categories are defined in Table A.1.

\*\*\*, \*\*, \* denotes a significant difference at the 1 %, 5 % and 10 % level, respectively.

Table A.3  
Responding and non-responding firms: Firm characteristics

Characteristics	Invitations	Invitations (%)	Received	Received (%)	p-value	Significance level
	<i>n</i>	<i>p</i>	<i>n</i>	<i>p</i>		
<i>Country</i>						
Germany	212	21.4%	41	35.7%	0.00	***
Austria	30	3.0%	10	8.7%	0.00	***
Switzerland	66	6.7%	12	10.4%	0.10	
United Kingdom	243	24.5%	12	10.4%	0.00	***
Sweden	79	8.0%	10	8.7%	0.77	
Netherlands	37	3.7%	6	5.2%	0.40	
Belgium	29	2.9%	4	3.5%	0.72	
Norway	44	4.4%	5	4.3%	0.96	
France	175	17.6%	10	8.7%	0.01	**
Denmark	33	3.3%	3	2.6%	0.67	
Finland	44	4.4%	2	1.7%	0.16	
<b>Total</b>	<b>992</b>	<b>100.0%</b>	<b>115</b>	<b>100.0%</b>	<b>0.00</b>	<b>***</b>
<i>Number of operating Segments</i>						
2 segments	200	20.2%	30	26.1%	0.11	
3-4 segments	529	53.3%	60	52.2%	0.80	
≥ 5 segments	263	26.5%	25	21.7%	0.25	
<b>Total</b>	<b>992</b>	<b>100.0%</b>	<b>115</b>	<b>100.0%</b>	<b>0.22</b>	
<i>Annual revenue</i>						
< 25 million €	72	7.3%	4	3.5%	0.10	
25-100 million €	174	17.5%	9	7.8%	0.00	***
100-500 million €	284	28.6%	19	16.5%	0.01	**
0.5-1 billion €	115	11.6%	16	13.9%	0.07	*
1-5 billion €	200	20.2%	34	29.6%	0.11	
5-10 billion €	53	5.3%	8	7.0%	0.23	
> 10 billion €	94	9.5%	25	21.7%	0.00	***
<b>Total</b>	<b>992</b>	<b>100.0%</b>	<b>115</b>	<b>100.0%</b>	<b>0.00</b>	<b>***</b>
<i>Debt ratio</i>						
Low (≤ 0.3)	466	52.1%	65	56.5%	0.34	
High (> 0.3)	429	47.9%	50	43.5%	0.34	
missing	97		0			
<b>Total</b>	<b>992</b>	<b>100.0%</b>	<b>115</b>	<b>100.0%</b>	<b>0.34</b>	

\*\*\*, \*\*, \* denotes a significant difference at the 1 %, 5 % and 10 % level, respectively.

This table reports statistics of the 115 "surveyed" firms and the 992 "invited" firms that we selected from Worldscope. The analysis is based on the variables Country, Number of operating segments, Annual revenue, Equity, Capex-to-asset ratio, and Debt ratio. Demographic characteristics of the "invited" firms are obtained from Worldscope. Demographic characteristics for the "surveyed firms" are obtained from the questionnaire. Variables and their categories are defined in Table A.1. Chi-square tests for goodness of fit across all categories of the six variables are conducted to test whether the distribution of each variable in the sample of "surveyed" firms follows the patterns in the population of "invited" firms. The six values in the last column and row of each table (in bold) report the p-values. In addition, one-proportion z-tests (here: also equivalent to chi-square tests) are conducted to compare the proportion of "surveyed" firms in a particular category to the proportion of "invited" firms.

## **B. Questionnaire**

**Note: The questionnaire contains questions that are not covered in the paper.**

## Survey on Internal Capital Markets and Diversification

**THANK YOU** for taking the time to complete the survey. We estimate that the survey will take about 15 minutes. Please note that we will not share your responses with anyone. We will use only aggregate results and will do so exclusively for research purposes. Individual responses are strictly confidential. To ensure the high quality of this study, we would highly appreciate your filling out the entire questionnaire.

Please fax your responses to [REDACTED]

For further questions, please [REDACTED]

### Section A: Motives for Diversification

1. How important are the following *motives* for operating more than one line of business *for your company* (1 = not important at all, 5 = highly important)? *Note: Some of these motives will be further investigated below.*

	Not important	Highly important		Not important	Highly important
	1	2	3	4	5
a) Creating operational synergies (e.g. purchasing, manufacturing, or revenue economies)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Utilizing the ability to move skilled managers from one business to another	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Achieving beneficial conditions for raising capital	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Being able to add value by making superior investment decisions under a common roof	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Reducing the risk of financial distress	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Reducing investors' risk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Building the ability to have internal funds when competitors do not have them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) Reducing volatility of earnings / cash flows	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Section B: Financing Effects of Diversification

1. Does headquarters raise funds on behalf of the divisions?  Yes  No  
(if "No", please continue with Section C)

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2. Do divisions also raise funds by themselves?  Yes  No, never  
 No, only in exceptional situations

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3. How important are the following *effects of diversification* for *your company*? Please answer compared to the situation where your divisions were stand-alone companies and had to raise funds by themselves.

	Not important	Highly important		Not important	Highly important
	1	2	3	4	5
a) Lower cost of capital	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Ability to borrow more / Higher debt capacity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Better conditions for raising equity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Less need to hold (precautionary) cash	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Ability to avoid external financing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Lower personal taxes for investors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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4. If your divisions were spun off as stand-alone firms, they would have to raise money in outside markets rather than going to headquarters for financing. How strongly would you agree with the following statements that compare your headquarters with an external investor directly providing financing to the divisions?

	I strongly disagree	I strongly agree		I strongly disagree	I strongly agree
	1	2	3	4	5
a) Headquarters reacts more understandingly in the event that a project faces financial difficulties.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Headquarters can directly intervene in the divisions' businesses, while outside investors cannot.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Headquarters has better information about the divisions' businesses than an external provider of financing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Sensitive information such as detailed strategic and operating plans can be reported to headquarters without leaking to the public.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>





12. From your perspective, how **effective** are **monetary incentives**, such as bonuses, in stimulating **divisional managers'** . . .

	Very ineffective				Very effective					Very ineffective				Very effective
	1	2	3	4	5					1	2	3	4	5
a) ...motivation to work hard?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) ... searching for long-term investment opportunities?										<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Section D: Headquarters and Allocation of Capital

1. When capital markets are operating normally, is your company **capital constrained**?  Yes  No  
 In other words: Does your financing capacity **limit** your ability to pursue attractive **investment projects**?

2. Does your company's top management impose **a limit on total investments** of the firm by a predetermined, fixed budget?  Yes  No

3. Is the capital allocation to a division restricted by the division's **own** generated cash flow?  Yes  No

4. Diversified firms may use the ability to move funds from divisions that are generating **strong cash flow** to divisions with **less cash flow but strong investment opportunities**. How frequently do you use this ability in order to achieve the highest capital productivity?

Never  Rarely  Sometimes  Often  Always

5. How important are the following **financial criteria** for your capital allocation decision?

	Not important				Highly important					Not important				Highly important
	1	2	3	4	5					1	2	3	4	5
a) Net present value (NPV)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	e) Sensitivity analysis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Internal rate of return (IRR)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	f) Real-option valuation methods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Hurdle rate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	g) Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Payback period	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									

6. How important are the following **factors** that **go beyond pure financial criteria** for your capital allocation decision?

	Not important				Highly important					Not important				Highly important
	1	2	3	4	5					1	2	3	4	5
a) The assessment of divisional managers' abilities to deliver the expected results	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	d) Ability to execute projects (e.g., manpower, knowledge)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Previous industry experience or affiliation of decision-makers at headquarters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	e) Current market trends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Strategic information of top management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	f) Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. How frequently do you allocate financial resources **more evenly across divisions** than pure financial criteria (e.g., NPV) suggest?

Never  Rarely  Sometimes  Often  Always

(if "Never" please continue with the Closing Section)

8. Please think about situations where you have decided to **allocate capital more evenly** than pure financial criteria suggested. How important were the following factors for your allocation?

Please check "Not important", if a statement does not apply.

	Not important				Highly important					Not important				Highly important
	1	2	3	4	5					1	2	3	4	5
a) Too uneven capital allocation diminishes divisional managers' motivation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	e) A more even capital allocation avoids opportunistic investment behavior within divisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Capital allocation conveys information about the (future) role of the division as part of the firm.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	f) A more even capital allocation frequently strengthens divisions in mature industries.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) A more even capital allocation stimulates divisional managers' motivation to generate new investment ideas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	g) A more even capital allocation strengthens our monetary performance incentive scheme.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) A more even capital allocation helps to retain divisional managers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	h) Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Closing Section – Valuation of Diversified Companies**

1. On average, by what percentage do you feel your stock is *misvalued* because you run a *diversified company* (-20% means 20% undervalued; 0 means correctly valued; +10% means 10% overvalued)? \_\_\_\_\_ %  
 Write NONE if your company has no publicly traded shares.

**Closing Section – Company-related Characteristics**

1. Annual sales revenue at my company is in the range of:  
 < 25 million €     25 million €–100 million €     100 million €–500 million €     500 million €–1 billion €     1 billion €–5 billion €     5 billion €–10 billion €     >10 billion €

2. How many lines of business (i.e., distinct operating divisions such as autos, food, and retail) is your company running? \_\_\_\_\_

3. What broad industries are you working in?  
 (Check only if an industry accounts for at least 10% of total sales. Fill in multiple squares if needed.)

<input type="checkbox"/> Retail and Wholesale	<input type="checkbox"/> Transport	<input type="checkbox"/> Tech (Software / Biotech / etc.)
<input type="checkbox"/> Mining	<input type="checkbox"/> Energy	<input type="checkbox"/> Healthcare / Pharmaceutical
<input type="checkbox"/> Construction	<input type="checkbox"/> Communication / Media	<input type="checkbox"/> Consulting / Service
<input type="checkbox"/> Manufacturing	<input type="checkbox"/> Bank / Finance / Insurance	<input type="checkbox"/> Other: _____

4. What is the highest / lowest *expected sales growth rate* among your divisions?  
 Division expecting the *highest* sales growth: \_\_\_\_\_ % (e.g., 15% p.a.)  
 Division expecting the *lowest* sales growth: \_\_\_\_\_ % (e.g., 1% p.a.)

5. The following questions help us understand your ownership structure.

a) Ownership  Public  Private    b) If all options were exercised, what percentage of your company's equity would be owned by the *top 3 managers* (e.g., 5%)? \_\_\_\_\_ %

c) Does a *single investor* own *more than 10%* of your company's equity?  Yes  No

6. What is your *credit issuer rating* (e.g., AA-, B+)? Write NONE if debt is not rated. \_\_\_\_\_    7. What is your *debt-to-asset ratio* (e.g., 0.2, 0.3)? \_\_\_\_\_

**Closing Section — CFO Demographics**

1. Gender of CFO:  Male  Female

2. Age of CFO: \_\_\_\_\_

3. Tenure (time in current job) of CFO: \_\_\_\_\_

4. Educational background of CFO (Fill in multiple squares if needed):

Undergraduate (or domestic equivalent)  
 Non-MBA Master's (or domestic equivalent)  
 MBA  
 Dr. / PhD  
 Other: \_\_\_\_\_

5. In which country is your firm based?

<input type="checkbox"/> Germany	<input type="checkbox"/> Netherlands	<input type="checkbox"/> Belgium	<input type="checkbox"/> Denmark
<input type="checkbox"/> France	<input type="checkbox"/> Austria	<input type="checkbox"/> Sweden	<input type="checkbox"/> Norway
<input type="checkbox"/> United Kingdom	<input type="checkbox"/> Switzerland	<input type="checkbox"/> Finland	

6. Do you have further comments?  
 \_\_\_\_\_  
 \_\_\_\_\_

Check if you would like to receive an exclusive report of this study.

Yes, I would like to receive a copy

a) We need your email or postal address if you want a copy. Please note: we will store your contact details separately from the questionnaire responses. The confidentiality of your responses is very important to us. \_\_\_\_\_

b) Each questionnaire holds a unique tracking number. This number is only used to identify those companies that have not yet responded. It is recorded separately from the responses of the survey. If you do not want the number to be recognizable, please feel free to blacken it. 1589

THANK YOU for completing this survey! Please fax your responses to [REDACTED]

## **C. Theoretical Foundations of the Questionnaire**

**Table B.1: Motives for Diversification – Theoretical Concepts and Questionnaire**

How important are the following motives for operating more than one line of business for your company?

A Question 1	Theory / Concept	Author	Argument
(a) Creating operational synergies (e.g. purchasing, manufacturing, or revenue economies)	Resource-based view	Penrose (1959); Panzar, Willig (1981); Teece (1980, 1982)	“Economies of scope” and “economies of scale”: Excess resources (tangible assets) cannot be sold easily in the marketplace and require expansion in scope or scale to exploit them; also: indivisibility of intangible assets, such as brand names.
(b) Utilizing the ability to move skilled managers from one business to another	Internal labor transfer	Doeringer and Piore (1985); Baker and Holmström (1995)	Internal labor market argument: Firms can allocate managers with firm-specific human capital across divisions.
(c) Achieving beneficial conditions for raising capital	More-money effect	Lewellen (1971); Hadlock et al. (2001); Stein (2003)	More-money effect (Stein, 2003), see also below.
(d) Being able to add value by making superior investment decisions under a common roof	Smarter-money effect	Williamson (1975); Stein (1997); Stein (2003)	Smarter-money effect (Stein, 2003). Headquarters adds value by incorporating residual control and monitoring incentives. Headquarters generates more information and can engage in winner-picking.
(e) Reducing the risk of financial distress	Financial distress cost	Corollary of Smith, Stulz (1985)	Given imperfectly correlated divisions' cash flows, diversification is a way to decrease the probability and therefore the (expected) cost of financial distress.
(f) Reducing investors' risk	Portfolio selection	Corollary of Smith, Stulz (1985); Stulz (1996)	Diversification can eliminate idiosyncratic risk. This may benefit investors if they cannot diversify more efficiently by themselves (e.g. large shareholders) or do not want to (e.g. family ownership).
(g) Building the ability to have internal funds when competitor's do not have them	Financial strength in product markets	Bernheim, Whinston (1990); Edwards (1955); Montgomery (1994); Inderst, Müller (2003)	Related to "market-power-view": Firms diversify because of the ability of predatory pricing in other divisions (“deep pockets”).
(h) Reducing volatility of earnings / cash flows	Risk management	Corollary of Smith, Stulz (1985); Graham, Harvey, Rajgopal (2005)	Idea: diversification into businesses with imperfectly correlated cash flows. Some overlap to other arguments above. See also Graham, Harvey, Rajgopal (2005): “An overwhelming 96.9% of the survey respondents indicate that they prefer a smooth earnings path.”

**Table B.2: Financing Effects of Diversification - Theoretical Concepts and Questionnaire**

B	Question 2	Theory / Concept	Author	Argument
(1)	Does headquarters raise funds on behalf of the divisions?	Provider of finance	Stein (2003)	Headquarters as the single centralized provider of finance.
(2)	Do divisions also raise funds by themselves?	Internal labor transfer	Kolasinski (2009); Cestone, Fumagalli (2005)	Some firms allow divisions to raise funds.

**Table B.3: Financing Effects of Diversification – Theoretical Concepts and Questionnaire**

How important are the following effects of diversification for your company? Please answer compared to the situation where your divisions were stand-alone companies and had to raise funds by themselves.

B Question 3	Theory / Concept	Author	Argument
(a) Lower cost of capital	Lower cost of capital	Hann, Ogneva, Ozbas (2013)	Integrating imperfectly correlated cash flows can lead to a reduction of systematic risk and hence lead to a lower cost of capital.
(b) Ability to borrow more / Higher debt capacity	Coinsurance effect	Lewellen (1971); Kuppuswamy and Villalonga (2015); Stein (1997)	Lewellen (1971): The debt capacity of diversified firms is increased because of coinsurance across imperfectly correlated divisions. Also, Stein (1997): Unused borrowing capacity of one division may be used to raise additional financing.
(c) Better conditions for raising equity	Information div. hypothesis (Superior issuing)	Hadlock, Ryngaert, Thomas (2001)	Risk pooling helps to alleviate Myers and Majluf (1984) adverse selection problems in the external equity market. Price effects in the case of issuing equity are less severe.
(d) Less need to hold (precautionary) cash	Less cash holding	Duchin (2010)	Diversified firms can hold less cash because diversification reduces the ex-ante probability of financing shortages that might lead to underinvestment.
(e) Ability to avoid external financing	Propensity of external funding	Henderson (1970, 1979); Liebeskind (2000); Rajan (1994)	Integrating imperfectly correlated divisional cash flows enhance the reliability of capital supply and make project funding independent of market conditions.
(f) Lower personal taxes for investors	Tax advantage	Bhide (1990)	Owning multiple businesses allows a diversified company to transfer cash from units with excess funds to units facing cash deficits without the tax payment that might result if the transfer were to be made between two independent companies.

**Table B.4: Financing Effects of Diversification – Theoretical Concepts and Questionnaire**

If your divisions were spun off as stand-alone firms, they would have to raise money in outside markets rather than going to headquarters for financing. How strongly would you agree with the following statements that compare your headquarters with an external investor directly providing financing to the divisions?

B	Question 4	Theory / Concept	Author	Argument
(a)	Headquarters reacts more understandingly in the event that a project faces financial difficulties.	Soft budget constraints	Bolton, Scharfstein (1996); Dewatripont, Maskin (1995)	Bolton and Scharfstein investigate the benefits and costs of a small number of creditors. Transferred to an ICM setting, the CEO's inability to pre-commit not to renegotiate with divisional managers leads to a "soft budget constraint" for them.
(b)	Headquarters can directly intervene in the divisions' businesses, while outside investors cannot.	Control rights	Grossman, Hart (1986); Hart, Moore (1990); Hart (1995)	Headquarters can unilaterally decide what to do with the firm's assets, while the same is not true of a banker if the firm is not currently in default.
(c)	Headquarters has better information about the divisions' businesses than an external provider of financing.	More monitoring	Gertner, Scharfstein, Stein (1994); Stein (1997)	Even if internal and external providers of capital have the same ability to monitor, internal providers will choose to monitor more intensively (compared to a bank, for example) because of residual control rights.
(d)	Sensitive information such as detailed strategic and operating plans can be reported to headquarters without leaking to the public.	Keeping secrets	Liebeskind (2000, 1997); Cheung (1982)	Internal funding is valuable as crucial information has to be transferred to external investors in the case of external funding.

**Table B.5: Financing Effects of Diversification - Theoretical Concepts and Questionnaire**

If another corporate manager made the following statements, how strongly would you agree or disagree with each of them when you think about divisional management in your company?

B	Question 5	Theory / Concept	Author	Argument
(a)	If divisional management were running their divisions as stand-alone companies, they would act more entrepreneurial.	Entrepreneurial incentives	Many; in context of internal capital markets: Gertner, Scharfstein, Stein (1994); Aghion, Tirole (1997)	In context of internal capital markets: Divisional managers' entrepreneurial incentives are reduced as a consequence of headquarters intervening to often in the form of "winner-picking". These effects would not occur if division managers operated the firm as CEO.
(b)	If divisional management were running their divisions as stand-alone companies, they would work harder.	Effort incentives	Many; in context of internal capital markets: Brusco, Panunzi (2005)	In context of internal capital markets: "Winner-picking" (i.e. optimizing capital allocation ex post and after managerial effort has been exerted) reduces effort incentives ex-ante if managers are empire-builders. This effect would not occur if division managers operated the firm as CEO.
(c)	If divisional management were running their divisions as stand-alone companies, they would feel more committed to raising the firm's attractiveness to capital markets.	Free-rider problem	de Motta (2003)	In context of internal capital markets: Divisional managers may free-ride on the perception of the firm as a whole when accessing external capital markets. This effect would not occur if division managers operated the firm as CEO.
(d)	Divisional managers have superior information / knowledge about their businesses compared to the information that headquarters has.	Information asymmetry	Proxy for informational asymmetry	Their specific human capital and expertise in the corporation make divisional managers very knowledgeable, which acts as a proxy for informational asymmetry.
(e)	Divisional managers try to influence the capital allocation decisions of headquarters.	Influencing activities	Meyer, Milgrom, Roberts (1992)	Divisional managers use time and effort unproductively in their attempt to influence the CEO.
(f)	Divisional managers prefer running large divisions with more capital under their control over running small divisions with less capital under their control.	Empire-building	Jensen (1986, 1993); Holmström and Ricart I Costa (1986)	A basic assumption of ICM-theory concerns "empire building tendencies by divisions": managers may have an excessive taste for running large firms or large divisions.



**Table B.6: Headquarters and Investment Decisions – Theoretical Concepts and Questionnaire**

C	Questions	Theory / Concept	Author	Argument
(1)	Does headquarters have the decision-making authority regarding major investments?	Decision-making authority	Grossman, Hart (1986); Hart, Moore (1990); Hart (1995)	Control rights of headquarters.
(2)	Does your company use an investment committee for some of these decisions?	Investment committee	-	-
(3)	Is approval from headquarters required beyond a certain size of investment? If "Yes", from which project size (threshold amount) on does the authority to make decisions reside with headquarters?	Threshold amount	Harris, Raviv (1996); Malenko (2019); Gitman, Forrester (1977); Ross (1986); Marino and Matsusaka (2005)	-
(4)	In an average year, how many investment proposals are submitted to headquarters for approval?	Number of proposals	-	-
(5)	On average, how many of these obtain approval?	Approval rate	-	-
(6)	On average, how many proposals receive close scrutiny by headquarters?	Proposals under detailed investigation	-	-
(7)	What is the total amount of capital expenditures of your company in an average year?	Total CAPEX	-	-
(8)	What percentage of this total amount does not require explicit approval by the headquarters (e.g., because it is part of an initial divisional budget)?	% of CAPEX w/o approval	-	Proxy for degree or extent of delegation/ decentralization

**Table B.7: Headquarters and Investment Decisions – Theoretical Concepts and Questionnaire**

C	Questions	Theory / Concept	Author	Argument
(9)	Does divisional management provide financial information such as cash flow forecasts or NPV calculations as part of their investment proposals?	Financial forecasts	Bower (1970)	Bottom-up budgeting process
(10)	From your personal experience: On average, the forecasts provided in investment proposals are ... ...substantially higher / ...in accordance / ...substantially lower than actual outcomes	Quality of forecasts	See below – section on business practices to ensure truthful reporting.	Divisional managers have incentives to misrepresent their private information.

**Table B.8: Headquarters and Investment Decisions – Theoretical Concepts and Questionnaire**

From your perspective, how effective are monetary incentives, such as bonuses, in stimulating divisional managers'...

C	Question 12	Theory / Concept	Author	Argument
(a)	...motivation to work hard?	Effort incentives	Many	Imperfect monitoring requires financial incentives.
(b)	...searching for long-term investment opportunities?	Innovation incentives	Many	Imperfect monitoring requires financial incentives.

**Table B.9: Headquarters and Investment Decisions – Theoretical Concepts and Questionnaire**

How important are the following business practices in your company to ensure that divisional managers provide truthful forecasts and do not overstate the attractiveness of investment projects? If you use these practices for other reasons and not for truthful reporting, please check “Not Important”.

C	Question 11	Theory / Concept	Author	Argument
(a)	We link the performance-based pay of divisional managers to overall firm performance.	Compensation contracts	Loeb and Magat (1978); Cohen and Loeb (1984)	Capital allocation is more efficient and less biased when divisional managers' compensation is linked to the performance of the entire company.
(b)	We adopt criteria (e.g., pay-back rules) that discount distant long-horizon cash flows more heavily than does the NPV method.	Budgeting Techniques	Bernardo, Cai, Luo (2001)	Managers may have incentives to overstate project cash flows further in the future. Firms thus may impose greater penalties on long-term cash flows.
(c)	We rotate divisional managers across divisions.	Management rotation	Ozbas (2005)	Management rotation programs are used to reduce rent-seeking behavior. The incentives to misreport are smaller for a manager with bad assets if there is some chance that he might be assigned to more profitable assets. Only truthful reporting would bring about a new assignment.
(d)	We set the required hurdle rate for project approval in excess of the "true" cost of capital.	Hurdle Rate	Antle and Eppen (1985); Harris et. al. (1982); Poterba and Summers (1995); Antle and Fellingham (1997)	In general: The tradeoff is foregone NPV versus informational rent (slack, effort and private benefit). Antle and Eppen: To mitigate the effects of the manager's having private information, firms promise to pay off the manager when he reports returns above a hurdle rate. The optimal hurdle rate balances inefficiencies from slack (private benefit) and rationing (foregone NPV) in an ex ante sense.
(e)	The proportion of performance-based pay relative to base salary is high if a divisional manager claims better expected investment prospects.	Compensation contracts	Bernardo, Cai, Luo (2001, 2004)	Headquarters can reduce a manager's incentives to overstate project quality by allocating more capital and giving more incentive-based pay (relative to fixed wages) when the manager reports higher project quality.

**Table B.9: Continued**

C	Question 11	Theory / Concept	Author	Argument
(f)	We put a relatively high weight on industry information that is gathered externally compared to internal information.	External information	Wulf (2009)	Headquarters relies more on noisy external information than on internal information, which is distortable.
(g)	We require divisional managers to produce investment proposals with information that can be verified by headquarters.	Hard information	Stein (2002); Harris and Raviv (1996 and 1998)	Information must be credibly transmittable. Headquarters must be able to verify information to avoid distortion.
(h)	We grant each division a minimum level of capital budget / investment.	Minimum Budget	Ozbas (2005)	Making a portion of the capital budget non-contingent can reduce the intensity of internal competition and reduce gains from exaggeration by bad managers.
(i)	We have institutionalized post-investment audits.	Auditing	Antle, Eppen (1985); Magee (1980)	Auditing represents the possibility of reviewing investment outcomes and might be less costly than capital rationing as a way to address information asymmetry and moral hazard.

**Table B.10: Headquarters and Allocation of Capital – Theoretical Concepts and Questionnaire**

D	Questions	Theory / Concept	Author	Argument
(1)	When capital markets are operating normally, is your company capital constrained? In other words: Does your financing capacity limit your ability to pursue attractive investment projects.	Capital constraints (external)	-	Measures external capital constraints
(2)	Does your company's top management impose a limit on total investments of the firm by a predetermined, fixed budget?	Capital constraints (internal)	Gitman, Forrester (1977); Ross (1986)	The CFOs in our pre-testing group stressed the importance of a “limit placed on investing by top management” (see also Gitman and Forrester, 1977). Ross (1986) shows in a sample of twelve firms that six of them used capital rationing in which projects compete for a fixed budget.
(3)	Is the capital allocation to a division restricted by the division's own generated cash flow?	Capital constraints (internal)	Gitman, Forrester (1977); Ross (1986)	Some CFOs in pre-testing group mentioned rationing at the division level as measure to counteract agency problems. Related to capital rationing at the firm level, see above.
(4)	Diversified firms may use the ability to move funds from divisions that are generating strong cash flow to divisions with less cash flow but strong investment opportunities. How frequently do you use this ability in order to achieve the highest capital productivity?	Winner-Picking	Stein (1997)	Headquarters has the ability and the incentives to reallocate resources between divisions and to add value by picking superior investment projects.

**Table B.11: Headquarters and Allocation of Capital – Theoretical Concepts and Questionnaire**

How important are the following financial criteria for your capital allocation decisions?

D	Question 5	Theory / Concept	Author	Argument
(a)	Net present value (NPV)	Budgeting criteria	-	
(b)	Internal rate of return (IRR)	Budgeting criteria	-	
(c)	Hurdle rate	Budgeting criteria	-	Questions help to introduce the subsequent question(s). Measures the relative importance of different budgeting criteria and allows for comparisons with earlier studies
(d)	Payback period	Budgeting criteria	-	(see Graham, Harvey, 2001 and others cited in the main paper).
(e)	Sensitivity analysis	Budgeting criteria	-	
(f)	Real-option valuation methods	Budgeting criteria	-	

**Table B.12: Headquarters and Allocation of Capital – Theoretical Concepts and Questionnaire**

How important are the following factors that go beyond pure financial criteria for your capital allocation decision?

D Question 6	Theory / Concept	Author	Argument
(a) The assessment of divisional managers' abilities to deliver the expected results	Managerial abilities	Hoang, Ruckes (2015)	Argument related to Ross' (1986) field analysis of 12 firms, which indicates that a divisional manager's investment projects are more often approved when he has delivered larger returns in the past. Also, this item is in the spirit of "Informed Headquarters" (Hoang, Ruckes, 2015), see below Q6c.
(b) Previous industry experience or affiliation of decision-makers at headquarters	Empire-building / Bridge-Building	Xuan (2009); Shleifer, Vishny (1989)	Bridge-building argument (Xuan, 2009): Specialist CEOs use the capital budget as a bridge-building tool to elicit cooperation from powerful divisional managers in previously unaffiliated divisions. Empire-building argument (Shleifer, Vishny, 1989): CEOs prefer to invest in industries where they have more personal experience, as this makes them indispensable.
(c) Strategic information of top management	Strategic information	Hoang, Ruckes (2015); Almazan, Chen, and Titman (2017)	Headquarters has informational advantages regarding strategic intentions, possible spillovers, and political developments, among others. These advantages result from top managers' activities beyond the realm of the firm, e.g. board memberships, activities in professional associations, or the use of personal contact networks.
(d) Ability to execute projects (e.g., manpower, knowledge)	Non-Financial Capability to implement	Bromiley (1986)	Bromiley (1986, p.129) emphasizes that "manpower and the ability to implement projects could constrain investment when funds and good projects are available".
(e) Current market trends	Herding Behavior	Scharfstein, Stein (1990); Banerjee (1992); Bikhchandani, Hirshleifer, Welch (1992)	Some CFOs in our pre-testing group stressed the importance of following long-term trends and the industry. Related to herding arguments.

**Table B.13: Headquarters and Allocation of Capital – Theoretical Concepts and Questionnaire**  
Socialism

D Question 7	Theory / Concept	Author	Argument
(1) How frequently do you allocate financial resources more evenly across divisions than pure financial criteria (e.g. NPV) suggest?	Socialistic Cross- Subsidization	See below – section on corporate socialism.	Headquarters cross-subsidizes relatively “weak” divisions at the expense of “strong” divisions.



**Table B.14: Headquarters and Allocation of Capital – Theoretical Concepts and Questionnaire**

Please think about situations where you have decided to allocate capital more evenly than pure financial criteria suggested. How important were the following factors for your allocation?

D	Question 8	Theory / Concept	Author	Argument
(a)	Too uneven capital allocation diminishes divisional managers' motivation.	Socialism	Brusco, Panunzi (2005)	Motivation for providing high effort cannot be retained in a strong form of winner-picking.
(b)	Capital allocation conveys information about the (future) role of the division as part of the firm.	Socialism	Hoang, Ruckes (2015); Almazan, Chen, and Titman (2017)	Headquarters has informational advantages regarding strategic intentions, possible spillovers, and political developments, among others. These advantages result from top managers' activities beyond the realm of the firm, e.g. board memberships, activities in professional associations, or the use of personal contact networks. Capital allocation can convey this private information to internal and external stakeholders.
(c)	A more even capital allocation stimulates divisional managers' motivation to generate new investment ideas.	Socialism	Inderst, Laux (2005)	The incentives for generating new investment opportunities are reduced in a strong form of winner-picking.
(d)	A more even capital allocation helps to retain divisional managers.	Socialism	Scharfstein, Stein (2000)	One of several implications of Scharfstein and Stein (2000). Weaker divisions' managers are given more compensation because they have stronger incentives to rent-seek (=increase outside options in the job market). Because the CEO is himself an agent of outside investors, he prefers to pay this added compensation in the form of capital because this may be less personally costly.
(e)	A more even capital allocation avoids opportunistic investment behavior within divisions.	Socialism	Rajan, Servaes, Zingales (2000)	Divisional managers invest in defensive projects that protect them from the redistribution of surplus to other divisions.
(f)	A more even capital allocation frequently strengthens divisions in mature industries.	Socialism	Goel, Nanda, Narayanan, 2004; also: Hellwig, Laux, and Müller (2002)	Goel, Nanda, and Narayanan (2004): Career concerns model à la Holmström (1982). Divisions whose cash flows are more informative about managerial talent (mature businesses) are subsidized at the expense of less informative ones (young and emerging businesses). Hellwig (2000, 2001): "Old", established divisions happen to wield the most influence in the organization.

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(g) A more even capital allocation strengthens our monetary performance incentive scheme.	Socialism	Bernardo, Luo, Wang (2006)	Socialism is can be part of an incentive mechanism to elicit private information from divisional managers about investment proposals in the budgeting process.
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## **D. Additional Univariate Analyses**

Table D.1

## The Organization of Internal Capital Allocation: Headquarters and Investment Decisions

Survey responses

## Panel A

Questions	Obs.	% Yes	% No
(1) Does headquarters have the decision-making authority regarding major investments?	112	97.3	2.7
(2) Is approval from headquarters required beyond a certain size of investment?	109	97.2	2.8

## Panel B

	% Yes	Size		Lines of business		Diversification		Capital constrained		Debt ratio		Agency Cost	
		small	large	few	many	related	unrelated	no	yes	low	high	low	high
(1)	97.3	95.7	98.5	96.7	98.0	96.8	98.0	96.2	100.0	95.3	100.0	95.1	100.0
(2)	97.2	95.5	98.5	96.6	98.0	98.4	95.8	97.3	97.1	98.4	97.9	98.2	97.7

## Panel B (continued)

	% Yes	Equity		Managerial ownership		Rating		Age		Tenure		Education	
		public	private	low	high	high	low	young	mature	short	long	MBA, Dr.	others
(1)	97.3	97.8	94.7	96.1	100.0	100.0	100.0	96.7	98.0	96.4	98.2	96.0	100.0
(2)	97.2	100.0	83.3***	98.6	94.4	95.2	100.0	94.9	100.0	98.1	96.4	100.0	91.9**

Ratings are based on a two-point (yes/no) scale.

Panel A reports summary statistics for the responses from all responding firms. We report the percentage of respondents that answer yes and no.

Panel B splits the sample by various characteristics and compares the proportion of respondents that answered yes across subsamples using chi-square tests (and for small expected frequencies Fisher's exact tests). See Table A.1 for column/variable definitions and data sources. \*\*\*, \*\*, or \* denote statistical significance of differences in proportions across groups at the 1 %, 5 % and 10 % level, respectively.

Table D.2

## The Organization of Internal Capital Allocation: Headquarters and Investment Decisions

Survey responses

## Panel A

Question	Obs.	% Yes	% No
(1) Does divisional management provide financial information such as cash flow forecasts or NPV calculations as part of their investment proposals?	109	98.2	1.8

## Panel B

	% Yes	Size		Lines of business		Diversification		Capital constrained		Debt ratio		Agency Cost	
		small	large	few	many	related	unrelated	no	yes	low	high	low	high
(1)	98.2	97.7	98.5	100.0	96.0	98.4	97.9	97.3	100.0	98.4	97.9	100.0	95.3*

## Panel B (continued)

	% Yes	Equity		Managerial ownership		Rating		Age		Tenure		Education	
		public	private	low	high	high	low	young	mature	short	long	MBA, Dr.	others
(1)	98.2	97.8	100.0	97.3	100.0	95.2	96.7	98.3	98.0	96.3	100.0	98.6	97.3

Ratings are based on a two-point (yes/no) scale.

Panel A reports summary statistics for the responses from all responding firms. We report the percentage of respondents that answer yes and no.

Panel B splits the sample by various characteristics and compares the proportion of respondents that answered yes across subsamples using chi-square tests (and for small expected frequencies Fisher's exact tests). See Table A.1 for column/variable definitions and data sources. \*\*\*, \*\*, or \* denote statistical significance of differences in proportions across groups at the 1 %, 5 % and 10 % level, respectively.

Table D.3

## The Organization of Internal Capital Allocation: Headquarters and Investment Decisions

Survey responses

## Panel A

Question	Obs.	Mean	% higher than actual outcomes	% lower than actual outcomes
(1) On average, the forecasts provided in investment proposals are...	108	2.5	50.9	12.0

## Panel B

	% higher than actual outcomes	Size		Lines of business		Diversification		Capital constrained		Debt ratio		Agency Cost	
		small	large	few	many	related	unrelated	no	yes	low	high	low	high
(1)	50.9	59.1	45.3	55.9	44.9	50.8	51.1	48.6	55.9	56.7	43.8	50.0	52.4

## Panel B (continued)

	% higher than actual outcomes	Equity		Managerial ownership		Rating		Age		Tenure		Education	
		public	private	low	high	high	low	young	mature	short	long	MBA, Dr.	others
(1)	50.9	52.2	44.4	51.4	50.0	52.4	48.3	48.3	54.0	60.4	41.8*	48.6	55.6

Ratings are based on a five-point Likert scale from 1 (substantially higher than actual outcomes) to 5 (substantially lower than actual outcomes).

Panel A reports summary statistics for the responses from all responding firms. We report the mean score, the percentage of respondents that answered 1 (substantially higher than actual outcomes) and 2 (higher than actual outcomes), and the percentage of respondents that answered 4 (lower than actual outcomes) and 5 (substantially lower than actual outcomes).

Panel B splits the sample by various characteristics and compares the proportion of respondents that answered 1 (substantially higher than actual outcomes) and 2 (higher than actual outcomes) across subsamples using chi-square tests (and for small expected frequencies Fisher's exact tests). See Table A.1 for column/variable definitions and data sources. \*\*\*, \*\*, or \* denote statistical significance of differences in proportions across groups at the 1 %, 5 % and 10 % level, respectively.

Table D.4

## Capital Investment in Internal Capital Markets: Headquarters and Allocation of Capital

Survey responses

## Panel A

Question	Obs.	% Yes	% No
(1) When capital markets are operating normally, is your company capital constrained? In other words: Does your financing capacity limit your ability to pursue attractive investment projects.	115	30.4	69.6
(2) Does your company's top management impose a limit on total investments of the firm by a predetermined, fixed budget?	115	55.7	44.3
(3) Is the capital allocation to a division restricted by the division's own generated cash flow?	115	26.1	73.9

## Panel B

	% Yes	Size		Lines of business		Diversification		Capital constrained		Debt ratio		Agency Cost	
		small	large	few	many	related	unrelated	no	yes	low	high	low	high
(1)	30.4	47.9	17.9***	30.2	30.8	32.3	28.0	0.0	100.0	24.6	38.0	30.0	43.1**
(2)	55.7	50.0	59.7	58.7	51.9	58.5	52.0	50.0	68.6*	49.2	64.0	56.5	54.5
(3)	26.1	25.0	26.9	19.0	34.6*	24.6	28.0	20.0	40.0**	24.6	28.0	17.7	40.9***

## Panel B (continued)

	% Yes	Equity		Managerial ownership		Rating		Age		Tenure		Education	
		public	private	low	high	high	low	young	mature	short	long	MBA, Dr.	others
(1)	30.4	28.4	40.0	25.6	40.5	31.8	22.6	30.2	30.8	29.3	31.6	29.9	31.6
(2)	55.7	57.9	45.0	50.0	67.6*	59.1	51.6	57.1	53.8	56.9	54.4	53.2	60.5
(3)	26.1	28.4	15.0	23.1	32.4	9.1	38.7**	30.2	21.2	24.1	28.1	27.3	23.7

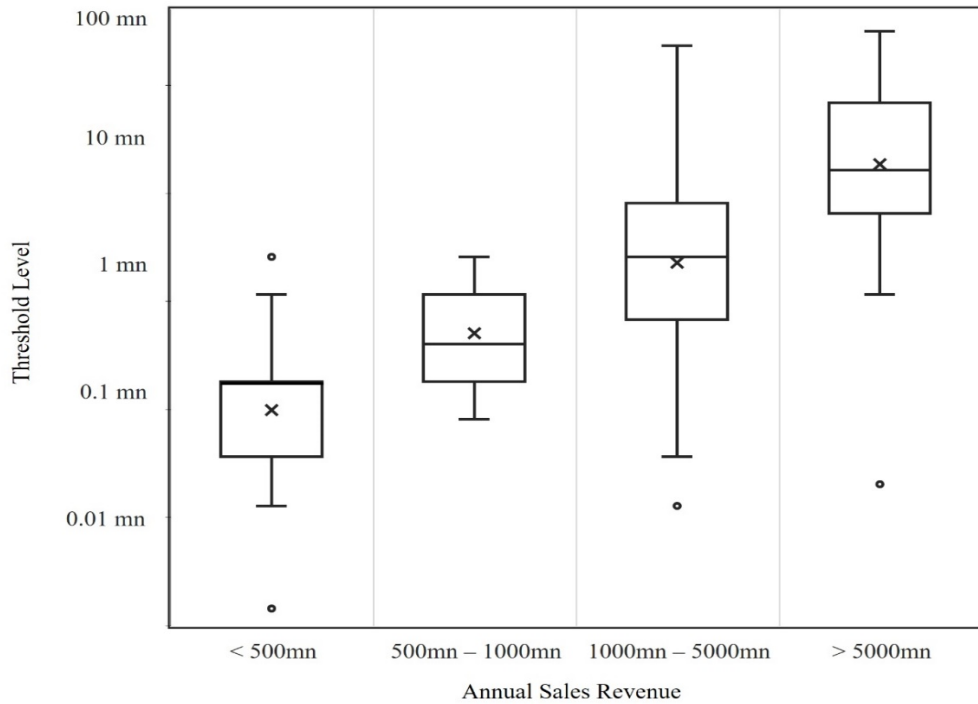
Ratings are based on a two-point (yes/no) scale.

Panel A reports summary statistics for the responses from all responding firms. We report the percentage of respondents that answer yes and no.

Panel B splits the sample by various characteristics and compares the proportion of respondents that answered yes across subsamples using chi-square tests (and for small expected frequencies Fisher's exact tests). See Table A.1 for column/variable definitions and data sources. \*\*\*, \*\*, or \* denote statistical significance of differences in proportions across groups at the 1 %, 5 % and 10 % level, respectively.

## **E. Multivariate Regressions and Alternative Tests**





**Fig. E.1: Investment Thresholds and Annual Sales Revenue.** Figure E.1 summarizes the distribution of investment threshold levels for different size categories of firm capital expenditures (in boxplot form). The horizontal axis displays four size categories of annual firm capital expenditures (in Euro) in increasing order. The vertical axis displays the threshold level (on a logarithmic scale) above which an investment requires approval by headquarters. Each box presents the middle 50% of the distribution of threshold levels, i.e., the middle half of the distribution between the first and third quartile, by size group. The middle line of the box represents the median, and the cross symbol is the mean. The whiskers that extend above and below each box represent the range of data points. Outliers (following convention: data points outside  $1.5 \times \text{IQR}$  of the first and third quartile) are plotted as individual points.

**Table E.1, Questionnaire Section B, Question 3 (see Table 10 in main paper)**

How important are the following effects of diversification for your company? Please answer compared to the situation where your divisions were stand-alone companies and had to raise funds by themselves.

Dependent Variable	Lower Cost of Capital	Higher Debt Capacity	Better Raising Equity	Less Precautionary Cash	Less Precautionary Cash	Avoid External Financing	Lower Taxes for Investors
Sample Model	Logit	Logit	Logit	Logit	Logit	Logit	Logit
Size	0.348 (0.72) 7,18%	-0.382 (-0.80) -8,29%	-0.196 (-0.44) -4,67%	-0.418 (-0.93) -9,91%	-0.380 (-0.43) -7,90%	0.524 (0.98) 9,00%	-0.265 (-0.26) -1,18%
Lines of Businesses	0.069 (0.15) 1,40%	0.760* (1.69) 16,75%	0.551 (1.29) 13,26%	0.023 (0.05) 0,55%	-0.308 (-0.43) -6,22%	0.830* (1.68) 14,96%	0.947 (0.95) 4,28%
Unrelated Diversification	-0.319 (-0.71) -6,54%	0.135 (0.31) 2,96%	-0.265 (-0.64) -6,31%	0.350 (0.84) 8,29%	1.622** (2.01) 32,67%	0.466 (0.97) 8,31%	-1.426 (-1.20) -5,42%
Capital Constraints	-0.435 (-0.89) -9,55%	-0.693 (-1.34) -15,28%	-0.558 (-1.14) -13,16%	-0.306 (-0.63) -7,09%	-0.080 (-0.09) -1,61%	-1.043 (-1.60) -16,76%	-0.495 (-0.39) -1,95%
Leverage	0.589 (0.47) 11,76%	0.908** (2.02) 20,11%	0.494 (1.17) 11,91%	0.083 (0.20) 1,95%	0.781 (1.04) 16,05%	-0.460 (-0.92) -7,97%	-0.126 (-0.13) -0,54%
Agency Index	-0.318 (-0.70) -6,80%	0.253 (0.57) 5,40%	0.015 (0.04) 0,36%	0.122 (0.29) 2,89%	0.083 (0.11) 1,68%	-0.025 (-0.05) -0,44%	-0.949 (-0.80) -2,79%
Credit Rating	-	-	-	-	1.439* (1.81) 29,14%	-	-
Observations	106	106	106	106	47	106	106
Pseudo R2	0,030	0,066	0,028	0,013	0,131	0,111	0,083

The table reports results from logistic regressions of survey responses on firm characteristics. The dependent variables in the regressions are survey responses recoded into dichotomous variables (0/1): Likert scores of 4 or 5 are recoded as 1, and scores of 1, 2, or 3 are recoded as 0. The independent variables in the regressions are the variables introduced in Section 2 (see Table A.1 for their definitions and data sources). We report coefficients, t-statistics (in parentheses), and economic significance. Economic significance is the average change in probability for the change from zero to one for an independent variable. \*\*\*, \*\*, and \* denote statistical significance at the 1 %, 5 % and 10 % level, respectively.

**Table E.2, Questionnaire Section B, Question 5 (see Table 2 in main paper)**

If another corporate manager made the following statements, how strongly would you agree or disagree with each of them when you think about divisional management in your company?

Dependent Variable	More Entrepreneurial	Work harder	Capital Market Orientation	Superior Information	Influencing Activities	Influencing Activities	Empire Building
Sample Model	Logit	Logit	Logit	Logit	Logit	Logit	Logit
Size	0.521 (1.07) 10,83%	0.005 (0.01) 0,05%	0.723 (1.53) 15,74%	0.379 (0.78) 7,52%	0.160 (0.35) 3,59%	0.106 (0.22) 2,19%	0.157 (0.34) 3,63%
Lines of Businesses	-0.868* (-1.89) -18,57%	-0.153 (-0.23) -1,50%	-0.486 (-1.10) -10,66%	-0.049 (-0.10) -0,96%	-0.738* (-1.67) -16,62%	-1.004** (-2.11) -20,40%	0.645 (1.50) 15,11%
Unrelated Diversification	0.606 (1.37) 13,02%	-0.011 (-0.02) -0,11%	-0.739* (-1.72) -16,55%	0.797* (1.68) 15,40%	1.042** (2.36) 23,62%	1.109** (2.39) 23,08%	0.048 (0.11) 1,11%
Capital Constraints	1.528*** (2.99) 34,51%	-0.461 (-0.61) -4,25%	0.846* (1.65) 17,68%	-0.487 (-0.97) -9,91%	0.797 (1.61) 17,65%	0.650 (1.29) 13,46%	0.525 (1.08) 12,08%
Leverage	-0.118 (-0.27) -2,52%	0.767 (1.19) 7,78%	0.028 (0.06) 0,60%	0.472 (1.01) 9,10%	-0.022 (-0.05) -0,49%	-0.221 (-0.49) -4,57%	0.654 (1.54) 15,30%
Empire Building	-	-	-	-	-	1.327*** (2.92) 23,93%	-
Observations	106	106	106	106	106	106	106
Pseudo R2	0,088	0,023	0,062	0,047	0,063	0,063	0,049

The table reports results from logistic regressions of survey responses on firm characteristics. The dependent variables in the regressions are survey responses recoded into dichotomous variables (0/1): Likert scores of 4 or 5 are recoded as 1, and scores of 1, 2, or 3 are recoded as 0. The independent variables are the variables introduced in Section 2 (see Table A.1 for their definitions and data sources). We report coefficients, t-statistics (in parentheses), and economic significance. Economic significance is the average change in probability for the change from zero to one for an independent variable. \*\*\*, \*\*, and \* denote statistical significance at the 1 %, 5 % and 10 % level, respectively.

**Table E.3, Questionnaire Section C, Questions 8, 10 (see Tables 4 and 6 in main paper)**

(C8) What percentage of this total amount does not require explicit approval by the headquarters (e.g., because it is part of an initial divisional budget)?

(C10) From your personal experience: On average, the forecasts provided in investment proposals are ...substantially higher / ...in accordance / ...substantially lower than actual outcomes

Dependent Variable	Division Budget (%)	% higher than actual outcomes
Sample Model	OLS	Logit
Size	0.128** (2.22) –	-0.629 (-1.35) -15.07%
Lines of Businesses	-0.025 (-0.45) –	-0.181 (-0.41) -4.30%
Unrelated Diversification	-0.027 (-0.50) –	-0.080 (-0.19) -1,91%
Capital Constraints	0.012 (0.19) –	0.314 (0.64) 7,47%
Leverage	-0.104* (-1.93) –	-0.700 (-1.60) -16,60%
Agency Index	-0.105* (-1.95) –	0.098 (0.22) 2,31%
Observations	97	100
R2 / Pseudo R2	0.165	0.039

The table reports results from OLS/logistic regressions of survey responses on firm characteristics. In the OLS regression, the dependent variable is the reported percentage of capital expenditures in an average year that does not require headquarters' approval. In the logit regression, the dependent variables are survey responses recoded into dichotomous variables (0/1): Likert scores of 4 or 5 are recoded as 1, and scores of 1, 2, or 3 are recoded as 0. The independent variables in the regressions are the variables introduced in Section 2 (see Table D for their definitions and data sources). We report coefficients, t-statistics (in parentheses), and economic significance (for logit regressions only). Economic significance is the average change in probability for the change from zero to one for an independent variable. \*\*\*, \*\*, and \* denote statistical significance at the 1 %, 5 % and 10 % level, respectively.

**Table E.4, Questionnaire Section C, Question 11 (see Table 5 in main paper)**

How important are the following business practices in your company to ensure that divisional managers provide truthful forecasts and do not overstate the attractiveness of investment projects? If you use these practices for other reasons and not for truthful reporting, please check "Not Important".

Dependent Variable	Performance-based Pay	Discount Cash Flows	Management Rotation	Excess Hurdle Rates	Information-sensitive Contracts	Industry Information	Verifiable Proposals	Minimum Level of Budget	Post-Audits
Sample Model	Logit	Logit	Logit	Logit	Logit	Logit	Logit	Logit	Logit
Size	0.245 (0.47) 4,62%	-0.773 (-1.42) -13,12%	-0.285 (-0.44) -3,33%	1.066** (2.22) 24,39%	-0.982* (-1.67) -14,19%	-0.391 (-0.74) -7,03%	-0.576 (-1.09) -11,36%	0.255 (0.50) 5,06%	0.196 (0.40) 4,09%
Lines of Businesses	-0.901* (-1.80) -17,09%	0.599 (1.13) 9,94%	0.852 (1.35) 10,12%	-0.051 (-0.11) -1,09%	0.829 (1.40) 11,45%	0.652 (1.28) 11,68%	0.463 (0.96) 9,30%	-0.204 (-0.43) -4,07%	1.486*** (3.10) 32,90%
Unrelated Diversification	0.570 (1.14) 10,44%	-0.069 (-0.13) -1,12%	-0.941 (-1.44) -10,26%	-0.277 (-0.61) -5,96%	0.136 (0.24) 1,85%	-0.276 (-0.55) -4,81%	-0.239 (-0.52) -4,86%	-0.226 (-0.48) -4,47%	-0.063 (-0.14) -1,30%
Capital Constraints	-0.212 (-0.39) -4,00%	-1.072 (-1.65) -15,53%	-0.029 (-0.04) -0,34%	-0.761 (-1.53) -17,26%	-1.058 (-1.55) -12,83%	-0.622 (-1.06) -10,29%	-0.750 (-1.39) -15,77%	-1.271** (-2.12) -23,25%	-1.028* (-1.84) -20,55%
Leverage	0.143 (0.30) 2,66%	-0.172 (-0.33) -2,79%	0.135 (0.22) 1,56%	0.374 (0.82) 7,91%	-0.104 (-0.18) -1,40%	0.057 (0.12) 1,01%	0.026 (0.06) 0,53%	-0.103 (-0.22) -2,06%	0.641 (1.39) 13,32%
Agency Index	1.145** (2.17) 16,66%	-0.078 (-0.15) -1,25%	0.414 (0.67) 5,44%	-0.675 (-1.51) -14,53%	0.976* (1.69) 16,75%	0.362 (0.72) 6,94%	0.813* (1.68) 13,80%	0.701 (1.49) 15,09%	0.560 (1.19) 11,70%
Observations	101	101	101	101	101	101	101	101	101
Pseudo R2	0,083	0,050	0,049	0,101	0,076	0,025	0,040	0,069	0,122

The table reports results from logistic regressions of survey responses on firm characteristics. The dependent variables in the regressions are survey responses recoded into dichotomous variables (0/1): Likert scores of 4 or 5 are recoded as 1, and scores of 1, 2, or 3 are recoded as 0. The independent variables in the regressions are the variables introduced in Section 2 (see Table A.1 for their definitions and data sources). We report coefficients, t-statistics (in parentheses), and economic significance. Economic significance is the average change in probability for the change from zero to one for an independent variable. \*\*\*, \*\*, and \* denote statistical significance at the 1 %, 5 % and 10 % level, respectively.

**Table E.5, Questionnaire Section D, Question 1,2,3 (see Table D.4)**

- (1) When capital markets are operating normally, is your company capital constrained? In other words: Does your financing capacity limit your ability to pursue attractive investment projects.
- (2) Does your company's top management impose a limit on total investments of the firm by a predetermined, fixed budget?
- (3) Is the capital allocation to a division restricted by the division's own generated cash flow?

Dependent Variable	Capital Constraints	Limit of Investment	Restricted by Cash Flow
Sample Model	Logit	Logit	Logit
Size	-1.658*** (-3.23) -30,92%	0.950** (1.97) 20,69%	-0.002 (0.00) -0,04%
Lines of Businesses	0.700 (1.36) 11,76%	-0.319 (-0.72) -7,07%	0.823* (1.65) 14,79%
Unrelated Diversification	-0.471 (-0.95) -7,87%	-0.218 (-0.51) -4,86%	0.240 (0.50) 4,21%
Capital Constraints	- - -	1.362** (2.56) 29,29%	0.674 (1.25) 12,66%
Leverage	0.520 (1.08) 9,09%	0.593 (1.35) 13,24%	-0.082 (-0.17) -1,43%
Agency Index	1.137** (2.32) 21,32%	-0.474 (-1.06) -10,60%	1.137** (2.31) 22,97%
Observations	106	106	106
Pseudo R2	0,166	0,077	0,102

The table reports results from logistic regressions of survey responses on firm characteristics. The dependent variables in the regressions are equal to 1 (yes) or zero (no). The independent variables in the regressions are the variables introduced in Section 2 (see Table A.1 for their definitions and data sources). We report coefficients, t-statistics (in parentheses), and economic significance. Economic significance is the average change in probability for the change from zero to one for an independent variable. \*\*\*, \*\*, and \* denote statistical significance at the 1 %, 5 % and 10 % level, respectively.

**Table E.6, Questionnaire Section D, Question 5 (see Table 6 in main paper)**

How important are the following financial criteria for your capital allocation decisions?

Dependent Variable	Net Present Value	Internal Rate of Return	Hurdle Rate	Payback Period	Payback Period	Payback Period	Sensitivity Analysis	Real-Option Valuation
Sample Model	Logit	Logit	Logit	Logit	Logit	Logit	Logit	Logit
Size	0,471	-0,319	0,623	-0,791	-0,857*	-1,609	0,429	0,426
	0,98	(-0,62)	(1,29)	(-1,61)	(-1,78)	(-1,35)	-0,91	(0,46)
	9,80%	-6,10%	12,98%	-16,31%	-18,30%	-34,70%	9,34%	2,45%
Lines of Businesses	0,266	0,014	0,635	-0,262	0,011	0,627	0,482	0,539
	0,58	(0,03)	1,40	(-0,58)	(0,03)	(0,73)	(1,06)	(0,63)
	5,38%	0,27%	13,39%	-5,48%	0,20%	15,30%	10,21%	3,30%
Unrelated Diversification	-0,176	-0,843*	-0,275	1,329***	–	2,356**	-0,627	-0,119
	(-0,39)	(-1,84)	(-0,61)	(2,85)	–	(2,50)	(-1,43)	(-0,14)
	-3,59%	-16,92%	-5,64%	28,14%	–	51,90%	-13,55%	-0,72%
Capital Constraints	0,04	-0,532	-1,034*	-0,338	-0,324	-2,923**	-0,116	-0,239
	-0,08	(-0,99)	(-1,82)	(-0,66)	(-0,64)	(-2,34)	(-0,23)	(-0,24)
	0,81%	-10,65%	-20,62%	-7,12%	-7,20%	-59,30%	-2,50%	-1,39%
Leverage	-0,415	0,145	0,065	-0,379	-0,481	-0,571	-0,385	-0,031
	(-0,91)	(0,31)	(0,14)	(-0,84)	(-1,09)	(-0,66)	(-0,87)	(-0,04)
	-8,54%	2,80%	1,35%	-7,96%	-10,60%	-14,10%	-8,29%	-0,19%
Agency Index	0,566	0,384	-0,223	0,205	0,239	0,711	0,351	0,803
	1,2	(0,80)	(-0,49)	(0,45)	(0,54)	(0,74)	(0,77)	(0,95)
	10,18%	6,82%	-4,49%	4,17%	5,10%	17,50%	7,04%	6,81%
Information Asymmetry	–	–	–	–	0,934**	–	–	–
	–	–	–	–	(2,03)	–	–	–
	–	–	–	–	17,50%	–	–	–
Credit Rating	–	–	–	–	–	-1,574*	–	–
	–	–	–	–	–	(-1,82)	–	–
	–	–	–	–	–	37,40%	–	–
Observations	106	106	106	106	106	47	106	106
Pseudo R2	0,031	0,040	0,081	0,089	0,056	0,389	0,041	0,033

The table reports results from logistic regressions of survey responses on firm characteristics. The dependent variables in the regressions are survey responses recoded into dichotomous variables (0/1): Likert scores of 4 or 5 are recoded as 1, and scores of 1, 2, or 3 are recoded as 0. The independent variables in the regressions are the variables introduced in Section 2 (see Table A.1 for their definitions and data sources). We report coefficients, t-statistics (in parentheses), and economic significance. Economic significance is the average change in probability for the change from zero to one for an independent variable. \*\*\*, \*\*, and \* denote statistical significance at the 1 %, 5 % and 10 % level, respectively.

**Table E.7, Questionnaire Section D, Question 6 (see Table 7 in main paper)**

How important are the following factors that go beyond pure financial criteria for your capital allocation decision?

Dependent Variable	Div. Managers' Abilities	Previous Experience	Strategic Information	Execute Projects	Current Market Trends
Sample Model	Logit	Logit	Logit	Logit	Logit
Size	-0.928 (-1.46) -12,35%	-0.735 (-1.51) -15,74%	0.876 (1.50) 12,79%	-0.922 (-1.51) -13,74%	0.377 (0.83) 8,86%
Lines of Businesses	-0.819 (-1.44) -11,60%	0.348 (0.77) 7,40%	0.019 (0.03) 0,26%	0.212 (0.40) 3,32%	-0.387 (-0.91) -9,19%
Unrelated Diversification	1.078* (1.84) 14,59%	-0.523 (-1.18) -11,16%	-0.552 (-1.01) -7,82%	-0.410 (-0.81) -6,58%	-0.781* (-1.88) -18,95%
Capital Constraints	-1.571** (-2.46) -24,80%	-1.162** (-2.15) -23,46%	-0.537 (-0.89) -7,94%	-1.435** (-2.40) -25,96%	-0.049 (-0.10) -1,15%
Leverage	0.164 (0.30) 2,29%	-0.294 (-0.66) -6,28%	-0.324 (-0.59) -4,57%	-0.191 (-0.37) -3,04%	0.292 (0.69) 6,87%
Agency Index	1.323** (2.05) 13,37%	1.410*** (3.02) 29,61%	1.242** (1.98) 12,09%	0.277 (0.52) 4,06%	-0.182 (-0.43) -4,29%
Observations	106	106	106	106	106
Pseudo R2	0,144	0,093	0,091	0,066	0,042

The table reports results from logistic regressions of survey responses on firm characteristics. The dependent variables in the regressions are survey responses recoded into dichotomous variables (0/1): Likert scores of 4 or 5 are recoded as 1, and scores of 1, 2, or 3 are recoded as 0. The independent variables in the regressions are the variables introduced in Section 2 (see Table A.1 for their definitions and data sources). We report coefficients, t-statistics (in parentheses), and economic significance. Economic significance is the average change in probability for the change from zero to one for an independent variable. \*\*\*, \*\*, and \* denote statistical significance at the 1 %, 5 % and 10 % level, respectively.



**Table E.8, Questionnaire Section D, Questions 4, 7 (see Table 8 in main paper)**

(4) Diversified firms may use the ability to move funds from divisions that are generating strong cash flow to divisions with less cash flow but strong investment opportunities. How frequently do you use this ability in order to achieve the highest capital productivity?

(7) How frequently do you allocate financial resources more evenly across divisions than pure financial criteria (e.g. NPV) suggest?

Dependent Variable	Winner Picking	Socialism
Sample Model	Logit	Logit
Size	1.328** (2.07) 15,66%	-0.133 (-0.29) -3,08%
Lines of Businesses	0.136 (0.21) 1,46%	0.720* (1.66) 16,95%
Unrelated Diversification	0.482 (0.77) 5,12%	-0.296 (-0.70) -6,87%
Capital Constraints	1.295* (1.70) 12,41%	-0.460 (-0.92) -10,53%
Leverage	0.407 (0.65) 4,36%	0.795* (1.86) 18,92%
Agency Index	-1.168* (-1.89) -17,16%	0.116 (0.27) 2,70%
Observations	106	106
Pseudo R2	0,115	0,048

The table reports results from logistic regressions of survey responses on firm characteristics. The dependent variables in the regressions are survey responses recoded into dichotomous variables (0/1): Likert scores of 3, 4 or 5 are recoded as 1, and scores of 1 or 2 are recoded as 0. The independent variables in the regressions are the variables introduced in Section 2 (see Table A.1 for their definitions and data sources). We report coefficients, t-statistics (in parentheses), and economic significance. Economic significance is the average change in probability for the change from zero to one for an independent variable. \*\*\*, \*\*, and \* denote statistical significance at the 1 %, 5 % and 10 % level, respectively.

**Table E.9, Questionnaire Section D, Question 8 (see Table 9 in main paper)**

Please think about situations where you have decided to allocate capital more evenly than pure financial criteria suggested. How important were the following factors for your allocation?

Dependent Variable	Manager Motivation	Future Role of Division	New Investment Ideas	Retain Managers	Opportunism	Mature Industries	Incentive Scheme
Sample Model	Logit	Logit	Logit	Logit	Logit	Logit	Logit
Size	-0.494 (-0.48) -4,62%	0.038 (0.05) 0,77%	1.244 (1.08) 12,43%	0.094 (0.09) 1,04%	0.163 (0.19) 2,17%	-0.834 (-1.00) -11,47%	0.218 (0.16) 1,32%
Lines of Businesses	1.154 (1.03) 10,83%	0.937 (1.31) 19,44%	0.256 (0.25) 2,80%	0.247 (0.25) 2,78%	1.563* (1.65) 21,50%	1.774* (1.76) 23,75%	– – –
Unrelated Diversification	-0.177 (-0.17) -1.61%	-0.333 (-0.48) -6.69%	1.184 (1.22) 13,37%	-0.776 (-0.77) -8.25%	0.528 (0.64) 7.23%	0.408 (0.49) 5.41%	0.990 (0.75) 6,26%
Capital Constraints	0.294 (0.27) 2.77%	1.362 (1.58) 29,90%	-0.614 (-0.54) -6.26%	1.078 (0.99) 13,44%	-0.737 (-0.68) -9,20%	-1.438 (-1.32) -16,47%	1.131 (0.66) 8,45%
Leverage	0.294 (0.27) 2.69%	-0.761 (-1.00) -14,98%	0.904 (0.88) 10,15%	-0.540 (-0.52) -5,85%	0.373 (0.43) 5,04%	0.121 (0.14) 1,58%	-0.814 (-0.54) -4,66%
Agency Index	1.152 (1.03) 14,86%	0.289 (0.37) 6,00%	1.276 (1.20) 18,62%	1.102 (1.03) 16,23%	0.001 (0.00) 0,02%	1.315 (1.31) 21,85%	-0.842 (-0.53) -3,74%
Observations	49	49	49	49	49	49	49
Pseudo R2	0,094	0,104	0,092	0,121	0,102	0,116	0,072

The table reports results from logistic regressions of survey responses on firm characteristics for the subsample of firms that indicate that they frequently engage in socialism (Section D, Q4; 3=sometimes, 4= rarely, 5=always) following the definition in Section 4.2.1. The dependent variables in the regressions are survey responses recoded into dichotomous variables (0/1): Likert scores of 4 or 5 are recoded as 1, and scores of 1, 2, or 3 are recoded as 0. The independent variables in the regressions are the variables introduced in Section 2 (see Table A.1 for their definitions and data sources). We report coefficients, t-statistics (in parentheses), and economic significance. Economic significance is the average change in probability for the change from zero to one for an independent variable. \*\*\*, \*\*, and \* denote statistical significance at the 1 %, 5 % and 10 % level, respectively

## **F. Limitations of the Survey Method**

## F.1 Limitations of the Survey Method (Continued, see Section 2.4)

Overall, we believe that any sort of reporting bias (intended or unintended) is likely to be low.

First, whether a firm uses investment decisions rules such as NPV (Section 4.1.) seems uncontroversial and rather free of bias or noise. The responses on the number and nature of investment proposals (Section 3.3.1) appear to be equally uncontroversial.

Second, our measure of agency problems (between headquarters and divisional management, Section 3.1) was purposefully designed to proxy only for the behavior of managers below the level of the CFO in the corporate hierarchy (and not to proxy for the CFO's own – possibly self-interested – behavior that he/she may want to disguise).

Third, it also appears unlikely that CFOs give biased answers about concrete facts, such as the “hard” information on investment thresholds (Section 3.2) – if anything, CFOs unwilling to disclose their firms' thresholds would refrain from answering that question at all or even discontinue filling out the survey completely.

Fourth, the measures for eliciting truthful reporting (Section 3.3.2) can also be used for purposes other than getting division managers to provide truthful forecasts (see Footnote 18). Therefore, to minimize noise, our questionnaire contained an explicit qualifying statement: “If you use these practices for other reasons and not for truthful reporting, please check ‘Not Important’.” Nonetheless, we cannot completely rule out that there may be a slight overrepresentation of the results.

Fifth, when responding to questions about the financing effects of internal capital markets (Section 4.2.2), CFOs may portray a slightly overly optimistic view of the financial benefits of being diversified. They may want to cast a positive light on their employer as a diversified firm and themselves as a high-ranking officer in the firm whose task it is to lever any organizational benefits with financial markets. While we cannot rule out a somewhat optimistic response behavior, it appears unlikely that this changes the relative order of magnitude across the different answer alternatives – which is the crucial aspect of the results in this section.

Sixth, admittedly, CFOs could have an incentive to underrepresent the practice of “socialism” (Section 4.2.1). To pre-empt such bias in our responses, our wording was carefully crafted during several rounds of our pre-testing phase. To the extent that CFOs nevertheless underrepresented

the practice of socialism, our results would underestimate the prevalence of socialistic capital allocation and such practices may be even more widespread than our results suggest.

## G. References

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