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SUCCESS FACTOR FUNCTIONAL FAMILIARITY – AN ANALYSIS OF GERMAN MDAX COMPANIES

The purpose of this paper is to consider the German stock market and develop a method for company valuation that complements the methods used to date. The paper elaborates on the novel construct of functional familiarity, consisting of board size, board fluctuation, diversity management, long-term incentive plans (LTIP) and research and development intensity, in relation to company performance. Company reports of MDAX-listed companies were collected and examined for the years 2013 to 2019. Based on the empirical investigation in the form of regression analyses, the statistically significant influence of the executive board size and board fluctuation, as well as of the LTIP, on the development of the share price could be demonstrated. The results indicate that the evaluation tool of functional familiarity in its current constellation identified three factors that should at least lead to a critical view of the stakeholder.

Keywords: *Functional familiarity, trust, executive board, board size, fluctuation, diversity management, long-term incentive plan (LTIP), research and development (R&D) intensity, MDAX*

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1. INTRODUCTION

Today's intense competition demands the exploitation of any optimization and resource potential that can be found internally in a company. The general competitive situation not only increases the pressure to cut costs and innovate, but also to be able to differentiate oneself from the competition (Dunning, 2014). The basis for today's companies is the effective and sustainable use of all available company resources and the exploitation of its own performance potential (Czinkota & Ronkainen, 2005). For some time now, competition has no longer been taking place only at the product or service level (Bogdanova et al., 2016). Furthermore, competition is no longer limited by national borders. Markets and companies are internationalized, if not globalized (Czinkota & Ronkainen, 2005). In this context, qualified employees and their skills have been identified as decisive, differentiating factors and necessary prerequisites for the future viability of organizations (Becker & Huselid, 1998; Docquier & Machado, 2015). As recently as 25 years ago, employees were still seen primarily as a cost factor. However, Pfeffer (1994) recognized 25 years ago the value of the organization, the employees and their cooperation, which prompted many organizations to invest in organizational restructuring. Employee retention and loyalty are essential for companies today, as these two factors can generate long-term competitive advantages (Huselid, 1995; Datta et al., 2005). Moreover, high employee turnover rates are not only damaging to a company's image and indicate low employee satisfaction, but also cause high costs for the organization (Barrick & Zimmerman, 2005). Reflecting on these points, all these aspects can also serve as an important influencing factor for the executive board, the members and the resulting ground-breaking decisions for the company and its success.

In recent years, the K+S Group (formerly Potash Salt and Salt AG) from Germany has primarily gained the attention of the media as a result of the above-average frequency with which it has dismissed its board members and replaced them with new ones, with the old board members receiving millions in severance payments (Smolka, 2017). However, empirical evidence indicates that a longer period of cooperation has a positive effect on mutual trust (Vanneste et al., 2014) and that trust has a positive influence on the performance of teams (De Jong et al., 2016). In a generally positive market environment, the Group also lost 40.91% of its enterprise value between 2013 and 2017 (Bloomberg, 2020). This raises the question for equity investors as to whether there is an opportunity to assess the familiarity of the executive board as a success factor for the company and thus avoid losses before they occur. This makes it clear that trust in the management can play an important role from the perspective of investors. Moreover, it indicates increasing pressure from external and internal stakeholders on the executive board

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and its decisions (Judge, 1992). This has led to discussions about the characteristics of a board, such as size, origin, compensation and other factors (Bennedsen et al., 2008; Del Monte & Papagni, 2003; Ozkan, 2011; Lausten, 2002) that affect coordination and communication, create internal problems and reduce the effectiveness (and performance) of the board, followed by the company (Lipton & Lorsch, 1992; Jensen, 1993). However, it is often forgotten to consider the management, which ultimately makes the decisions about the economic development of a company.

Furthermore, a brief look at the German stock market gives reasons for choosing the target market to be investigated. The MDAX index reflects the performance of 60 German companies and companies operating predominantly in Germany. The MDAX, especially in contrast to the DAX, is little or not at all researched. So, this points to a gap in the research (Business Source Premier – EBSCO Discovery Service, 2019). Due to the lower market capitalization of MDAX listed companies, they receive less attention in the press, among international investors and in scientific studies than, for example, companies from indices such as DAX30, S&P500 and MSCI World. However, the fact that should not be ignored is that, in direct comparison, the MDAX performs much better than the DAX, which is the most important German share index and lists 30 companies and is therefore potentially very interesting for investors (Rottwilm, 2019).

Thus, this paper responds to the above facts by investigating the relationship between the functional familiarity (represented by relevant variables) and the business success of the sample of firms listed on the MDAX.

2. FUNCTIONAL FAMILIARITY

In order to understand the concept of functional familiarity, it makes sense first to define the concept of trust. Numerous definitions of this term can be found in the literature (Hosmer, 1995; McKnight & Chervany, 1996; Glaeser et al., 2000; Butler et al., 2016). Trust can serve as a link between two or more systems of an organization and offers the possibility of security within relationships. The opposite of trust is always mistrust. The level of trust can also be seen as a reflection of communication. Therefore, it is of great relevance constantly to work on communication within an organization in order to create the greatest possible transparency. Trust is not only necessary in relation to other persons, but it also requires self-confidence in order to be able to build a relationship of trust (Frey, 2011). However, even intradisciplinarily there is no uniform view, so that a clear overview of the current state of research on the topic of trust is complicated (Möllering, 2007). Trust acquires a functional character and becomes indispensable for the

functionality of social systems, as interpersonal and system trust will always occur in interdependent relationships (Simpson, 2007). In everyday working life, trust is required to be able to solve tasks and accomplish projects together. The most important trust is in terms of competence, attitude and integrity. Familiarity can be distinguished from trust. Familiarity arises before trust and is thus its prerequisite. Familiarity is based on the past, while trust is an expectation directed towards the future and thus an attitude towards other people or organizations (Luhmann, 2014). In order to generate sustainable corporate success, however, a high degree of functional trust is also necessary. Specifically, it is assumed that the members of the organization are idiosyncratic but reconciliatory at the same time. In addition, they trust each other, but also control each other, and they are honest and emotional with each other (Henning & Pasternak, 2014). In summary, it can be said that functional familiarity can be defined as functional trust among each other, directed towards the future and conditioned by the familiarity experienced in the past. Functional familiarity within a team is a given when the common purpose is sustainable, and the members of the board develop respect for each other over a certain period of time, with reliability and constructive-critical openness (Jerusalem, 2019). Common values, beliefs, ways of thinking and standards must exist so that board members form their own positive culture.
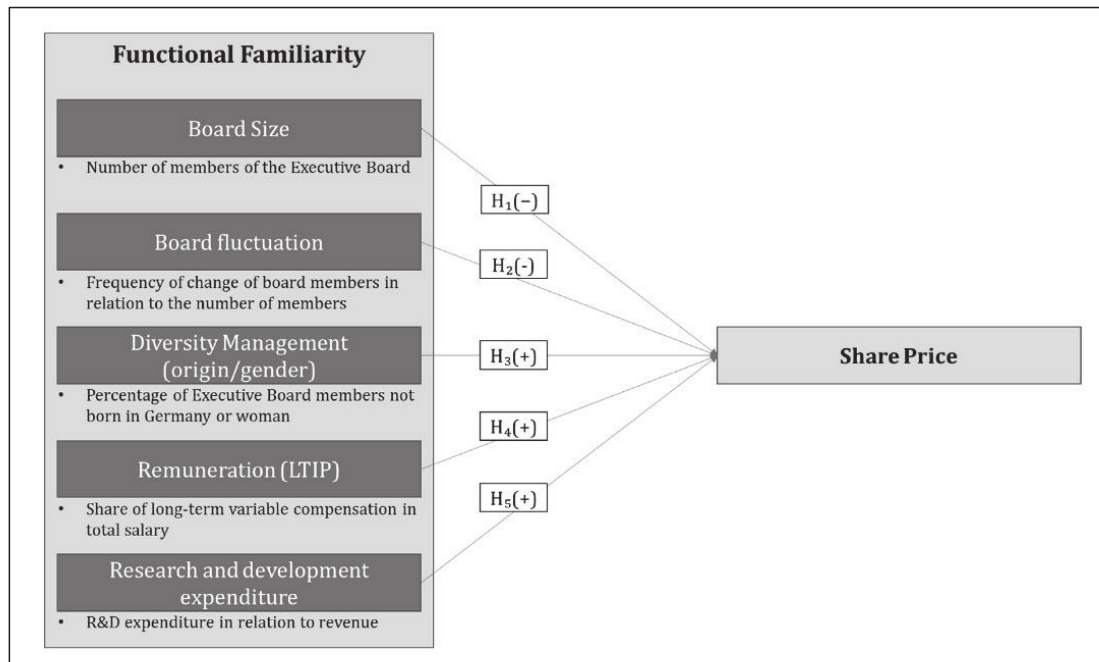
In the context of this research study, it is assumed that companies whose board members have functional familiarity achieve higher economic success, as measured by the share price. The independent variables board size, board fluctuation, diversity management, long-term incentive plans, and research and development intensity.

3. RESEARCH MODEL AND HYPOTHESIS

The research should provide information about the empirical effectiveness and validity of the variable model of functional familiarity. Therefore, a systematic literature review (SLR) was conducted in advance of this study (Jerusalem, 2021). The results of the SLR, served as a basis for the further development of the variable model and deriving the hypotheses.

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Figure 1.

HYPOTHESIS MODEL FUNCTIONAL FAMILIARITY

For this study, the independent variables are board size, board fluctuation, the diversity management of the board in terms of origin and gender, the remuneration of the members in terms of the percentage share of the long-term incentive plan in total compensation, and R&D expense measured as R&D intensity. The development of the share price serves as the dependent variable. The relevant determinants of functional familiarity were selected based on the theory, previous studies and available data. In addition, the variables are considered to create or influence familiarity in a hypothetical sense.

Regarding to this model, the following hypotheses have been formulated (see **Figure 1**):

- H1: The board size (BS) of the executive board has a negative effect on the growth of the share price (SP)
- H2: The higher fluctuation of the executive board (BF) has a negative effect on the growth of the share price (SP).
- H3: The higher diversity management (origin and gender) of the executive board (DF/DI) has a positive effect on the growth of the share price (SP)

- H4: The higher long-term incentive plans (LTIPs) of the executive board members have a positive effect on the growth of the share price (SP)
- H5: Higher research and development intensity (RD) has a positive effect on the growth of the share price (SP)

The equation of the model can be formulated as followed:

$$Share\,Price\,Growth_i = \beta_0 + \beta_1 BS.g[T. < 5]_i + \beta_2 BS.g[T. > 7]_i + \beta_3 BF_i$$
$$+ \beta_4 DF_i + \beta_5 DI_i + \beta_6 LTIP_i + \beta_7 RD_i + e_i$$

where $BS.g[T. < 5]_i$ and $BS.g[T. > 7]_i$ represents the executive board size of the *i-th* firm, BF_i represents board fluctuation rate, DF_i denotes the quote of female members in the executive board, DI_i represents the quota of foreign members in the execute board, $LTIP_i$ denotes the share of long term incentive plans on total compensation, RD_i represents the R&D intensity, and e_i represents the error variable.

4. METHODOLOGY

4.1. Instrumentation

The present work is a secondary analysis, as the data collection is based on already existing documents, for example the annual reports of companies. As a norm, most of the data collected are mandatory information from the companies in the study. The collected data for the study is in most cases unified in the annual or financial reports of the companies (Castle, 2003). In addition to several advantages, secondary research also has disadvantages, which will be discussed briefly. Obsolete data or even no data at all may be available. The sharpness of detail or accuracy of fit of the data is also often doubtful. Another aspect is the quality and accessibility of data. For this research, it can be stated that these disadvantages do not apply. The reporting obligation ensures that these data were available and accessible. The accuracy of fit can also be influenced by collecting the variables. As these are annual reports of listed companies, it must be assumed that the data are valid and of sufficient quality (Hox & Boeije, 2005).

By collecting this type of secondary data, the question of a qualitative or quantitative approach for this study becomes obsolete. This study is therefore classified as quantitative research. The hypotheses were deductively derived using the current literature and were subsequently evaluated using statistical methods. Moreover, the method is exploratory, as the MDAX has been little explored and

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therefore knowledge and current research are limited. In addition, a new theoretical model was investigated (Sullivan & Sargeant, 2011). The empirical study is a longitudinal analysis with cross-sectional elements (Lausten, 2000). The research approach was closely aligned with the current literature, as a previous literature review indicated that this research approach had frequently been used in previous studies and found to be valid (Jerusalem, 2021).

4.2. Operationalization, sample and data collection method

The variables considered in this study were chosen in consideration of and following already validated studies. Therefore, no explicit adjustment of the variables for the viability of the study was necessary. Due to the fact that the variables were already tested and used in other studies, a high degree of reliability can be assumed. The individual variables are described below. The share price on the reporting date was used to measure the success or performance of a company. The share price reflects the traded value of the company on the stock exchange and provides information about positive or negative developments (Strauß, 2008). The price per share was always retrieved at the end of the year, respectively on the reference date 31.12. The reflected stock prices were corrected for stock splits and dividend distributions, so that consistent data emerged (Renneboog, 2000). The value included in this research reflects *the share price growth*, which indicates the positive or negative development compared to the previous year (Guest, 2009). The variable is referred to as "SP" in the context of empirical studies.

The *executive board size* is determined by the number of individual members. Executive and non-executive members were counted equally (Judge & Zeithaml, 1992). Only those who were still members of the executive board on 31 December are relevant (Larmou & Vafeas, 2010). Furthermore, in the course of the empirical investigation, grouping was used for the variable in order to specify it further. The group classification was based on results of the literature review (Bennedsen et al., 2008). The variable is referred to as "BS" in the context of empirical studies.

The *board fluctuation rate* can be calculated based on this number of members. As this is a retrospective figure, it was operationalized by the number of members in the year of observation and in the previous year. Note that it is not the number of members that is decisive, but the individual named members. The reasons for fluctuation are not relevant for the study (Rachpradit et al., 2012). The variable is referred to as "BF" in the context of empirical studies.

The diversity management of the executive board was operationalized by the origin and gender of its members (Miller & Triana, 2009; Kochan et al., 2003). The

data collection regarding the gender characteristic was carried out by counting the non-male, ergo female members (Carter et al., 2010). The variable is referred to as "DF" in the context of empirical studies. The origin is generally identified by the place of birth. The *quota of foreign members* was then calculated by dividing the number of foreign members by the total number of members of the executive board. The variable is referred to as "DI" in the context of empirical studies.

Compensation of the executive board comprises several aspects at once, such as fixed or variable compensation. In the case of variable remuneration, a distinction must also be made between short-term and long-term remuneration (Ndayasiba & Ahmed, 2015). For this study, only long-term compensation in relation to long-term incentive plans (LTIPs) is relevant for the operationalization of compensation. The variable is referred to as "LTIP" in the context of empirical studies.

The *R&D intensity* was calculated by dividing R&D costs by revenue (Ho, Keh & Ong, 2005). The variable is referred to as "RD" in the context of empirical studies.

The data were collected for the years 2013 to 2019. The survey was carried out manually by downloading the annual reports from the companies' homepages for each year, which is not necessarily mandatory, but decisive is the company's own final report for the respective year (Liang et al., 2013). In addition to the annual reports, other sources, such as a company homepage, press release or internet research must also be mentioned (Carter et al., 2010). It should be noted that it is generally assumed that the annual financial statements are closed by 31.12. Irrespective of this, there are some companies whose fiscal year does not run from 01.01 to 31.12, but, for example, from 01.03.X to 01.03.X+1 of the following year. The annual reports were used in the same manner, leaving aside the potential economic influences in this period after 31.12 (Morekwa Nyamondo & Temesgen, 2013). The data collection for the share price therefore always took place on the same day. The analysis of the years 2013 to 2019 indicated that a total of 45 companies were listed continuously over the seven-year period. This figure is composed of companies moving up and down the MDAX, mergers, bankruptcies and new companies added to the index as a result of the structural changes listed (Eberhart et al., 2004; Renneboog, 2000). Accordingly, the study refers to 45 companies and a total of 360 financial years. The number of 45 companies reflects 75% of the 60 companies listed today. This is a valid basis for a representative study for the MDAX.

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4.3. Data analysis

Statistical analysis of the data was performed using IBM SPSS Statistics (version 25) and R (version 4.0.2) statistical software. The sum scores and averages of the scales were calculated for further processing and evaluated using descriptive statistical methods to generate a deeper understanding of the data set and potentially interpret hypothesis testing results more accurately. Since the variables are scaled metrically, Pearson's correlation coefficient was used (Ho et al., 2005). Regardless of the test for the normal distribution, the law of large numbers (LLN) was applied, and a linear relationship was assumed (Yao & Gao, 2016), that is, linear regression remains a statistically sound technique in studies with large sample sizes. The goal of further analysis was to model a relationship between two or more variables. The effect of the independent variable, the predictor variable, on the dependent variable, the criterion variable, was investigated (Schneider et al., 2010). According to the scale characteristics of the target variable (share price), a linear model was chosen. For further investigation, a hierarchical/multi-level procedure was chosen, since the measurement runs over several points in time and the individual companies differ in terms of share price. Therefore, linear mixed-effects regression (LMER) was used. A relevant measure for testing and comparing the quality of selected regression models is the interruption coefficient R2 (R^2). In addition, significance is used to test whether the explanation of the variance of the dependent variable is significant. Statistically, especially the significance levels with an error probability of 10%, 5% and 1% (p = 0.1 p = 0.05 and p = 0.01) are used (Hopkins, 2000). Moreover, the median of the neighboring values is used to replace missing data. Furthermore, during the empirical investigations, a variable was further specified by dividing it into groups. The group classification was based on results of the current literature review, that is, the effects of three study groups < 5 members; 5–7 members; and > 7 members for the board size were investigated (Bennedsen et al., 2008).

5. RESULTS

5.1. Descriptive statistics

Table 1 lists the mean values, standard deviations, and minimum and maximum values of all data collected for the companies over the entire period from 2013 to 2019. Considering the mean values, one has to distinguish between the

reflected values in total numbers and percentages. Accordingly, the mean value for the board size over the observation period is approximately four members (m = 4.08). The mean value of the share price expressed in euro is €53.00 per share. The variables share price growth, board fluctuation, diversity female, diversity international, LTIP and R&D are to be understood as percentages. Consequently, the growth of the share price has a mean value of 16.2% (m = 0.162), the board fluctuation of 9.7% (m = 0.097), the share of women of 5.7% (m = 0.057), the share of international members of 23% (m = 0.23), the share of LTIP of 26.1% (m = 0.261) and the research and development intensity of 5.8% (m = 0.058).

Table 1.

OVERVIEW OF MEAN, SD, MIN., MAX.

Item	n	m
Share Price in Euro (mean)	310	53.0 (SD 70.2, range 2.6 to 717.0)
Share Price Growth (mean)	310	0.162 (SD 0.341, range -0.710 to 1.790)
Board Size (mean)	305	4.08 (SD 1.79, range 2.00 to 13.00)
Board Fluctuation (mean)	304	0.097 (SD 0.163, range 0.000 to 1.000)
Diversity Female (mean)	305	0.057 (SD 0.105, range 0.000 to 0.500)
Diversity International (mean)	305	0.230 (SD 0.261, range 0.000 to 1.000)
LTIP (mean)	283	0.261 (SD 0.194, range -0.030 to 0.910)
Research&Development (mean)	306	0.058 (SD 0.203, range 0.000 to 1.920)

Looking at the minimum and maximum values of the survey, it becomes clear that there are great differences between the prices per share between the different companies (min. = 2.6; max. = 717). Also, the growth indicates a range from -71% up to +179% (min. = -0.710; max. = 1.79). Furthermore, the data indicate that there is no executive board smaller than two members and the maximum is 13 members. The fluctuation indicates a range of up to 100%. Since there is no negative fluctuation in this study, the minimum is 0 (min. = 0; max. = 1.0). The same values are found for the proportion of international members (min. = 0; max = 1.0). The female quota also indicates no negative values (min. = 0) and has a maximum value of 50% (max. = 0.5). Research and development costs varied from 0% to 192% (min. = 0; max. = 1.92), that is, for the maximum value the research and development costs represented almost double the volume of revenues. The maximum sample size is N = 310, because five values are missing in relation to the share price for 2012 and therefore no growth could be calculated for 2013.

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Table 2 presents the different correlations between the variables and is used primarily to check the interaction effects between the variables. Correlations with r < 0.1 can be considered trivial. The correlations with 0.1 < r < 0.3 are considered small. The share price and board size have a slightly negative correlation, but not statistically significant (r = -0.05). A similar result can be seen in the share price and board fluctuation (r = -0.09) and the share of women (r = -0.09). A slightly positive correlation can be seen between share price and internationalism (r = 0.03), as well as R&D intensity (r = 0.08), but both are not statistically significant. The examination of share price and LTIP indicates a significant positive correlation (r = 0.16).

Board size in relation to fluctuation has a slightly positive correlation (r = 0.1). In addition, there is a significant positive correlation between board size and share of women (r = 0.23) and internationalism (r = 0.16). By contrast, there is a slightly negative correlation between board size and LTIP (r = -0.11) and R&D (r = -0.3), but both are not statistically significant. Moreover, there is a slightly positive correlation between board fluctuation and share of women (r = 0.02), as well as R&D intensity (r = 0.04). By contrast, there is a negative correlation between board fluctuation and internationality (r = -0.01), as well as LTIP (r = -0.1), both not statistically significant.

Table 2.

CORRELATION

Source	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Share Price Growth	1	-.05	-.09	-.09	.03	.16**	.08
(2) Board Size		1	.01	.23***	.16**	-.11	-.03
(3) Board Fluctuation			1	.02	-.01	-.10	.04
(4) Diversity Female				1	-.03	-.12*	.00
(5) Diversity International					1	.14*	.07
(6) LTIP						1	.13*
(7) Research&Development							1

* = p < 0.05; ** = p < 0.01; *** = p < 0.001.

The share of women and internationalism indicate a slightly negative correlation (r = -0.03). Furthermore, the share of women and LTIP tend to indicate a significant negative correlation (r = -0.12). The relation between share of women and R&D indicates no correlation. The internationalism and LTIP (r = 0.14), as well as

R&D intensity (r = 0.07) indicate a positive correlation. Morover, the correlation between internationalism and LTIP tends to be significant. The results between LTIP and R&D also indicate a tendency towards a significant positive correlation (r = 0.13).

5.2. Regression analysis

The results of the linear mixed effect models have been presented in table (see **Table 3**). During the research two different models were formulated and tested by linear regression. The models are defined as lmer.1 and lmer.2. The present analysis describes the short-term influence on the change of the share price (SP) (Lag0 = change in the same year). The focus of the analysis is primarily on the effects between the variables and emphasize whether a positive or negative effect is recognizable. This is examined by the coefficient B, which indicates the change in the dependent variable when the independent variable is increased by one unit (Green & Salkind, 2012). Furthermore, these effects were proven by statistical significance. Therefore, the *p-value* was used.

The tabular representation can be found in **Table 3** (column lmer.1). The board size now indicates different strong effects because of the grouping. The clusters [2–7] and [>7] indicate a positive effect (lmer.1 BS.g[T.<5]: b = 0.192; BS.g[T.>7]: b = 0.307). By contrast, the group [5–7] indicates a negative effect (lmer.1 (Intercept): b = -0.0711). If we look at the board fluctuation and the female ratio, these again reflect a negative effect (lmer.1 BF: b = -0.134; DF: b = 0.229). By contrast, the internationalism, LTIP and R&D intensity variables indicate a positive effect (lmer.1 DI: b = 0.0165; LTIP: b = 0.179; RD: b = 0.0744). The described effects can be confirmed for the grouping [T.<5] and [T.<7] by statistical significance (lmer.1 BS.g [T.<5]: p = 0.020; BS.g [T.>7]: p = 0.057). Both significance values indi-cate p < α = 0.1, where the grouping [T.<5] has a p < α = 0.05. The effects of the other variables cannot be conclusively assessed (lmer.1 BF: p = 0.315; DF: p = 0.295; DI: p = 0.851; LTIP: p = 0.113; RD: p = 0.512).

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Table 3.

LINEAR MIXED-EFFECTS MODELS (LMER.1 AND LMER.2)

Souce	lmer.1			lmer.2		
	b	**conf**	**p**	**b**	**conf**	**p**
(Intercept)	-0.0711	[0.15, -0.293]	.537	-0.00761	[0.182, -0.197]	.938
BS.g[T.<5]	0.192	[0.349, 0.0343]	.020	0.168	[0.306, 0.0304]	.018
BS.g[T.>7]	0.307	[0.618, -0.00402]	.057	0.323	[0.576, 0.0689]	.014
BF	-0.134	[0.127, -0.395]	.315	-0.219	[-0.018, -0.421]	.034
DF	-0.229	[0.197, -0.656]	.295	-0.264	[0.103, -0.631]	.162
DI	0.0165	[0.187, -0.154]	.851	-0.0173	[0.139, -0.174]	.829
LTIP	0.179	[0.4, -0.041]	.113	0.174	[0.367, -0.0188]	.078
RD	0.0744	[0.295, -0.147]	.512	0.104	[0.302, -0.0936]	.305
sd_ (Intercept). Company	0.0825		NA	0.094		NA
sd_ (Intercept). year	0.189		NA	0.171		NA
sd_ Observation. Residual	0.278		NA	0.277		NA
R-Squared	R2m=.05 R2c=.39			R2m=.06 R2c=.37		
AIC	127.3			166.8		
BIC	164.5			207.9		
RMSE	0.26			0.26		
Obs.	218			310		

lmer.1= removed missing data, lmer.2=replaced missing data

The model of lmer.2, which is based on the design of lmer.1 has been extended by replacing the missing values by the median and is resulting in a sample size of N = 310. Due to the large sample, the effect of the size of the board of executives changes minimally. The clusters [<5] and [>7] continue to indicate a positive effect (lmer.2 BS.g [T.<5]: b = 0.168; BS.g [T.>7]: b = 0.323). By contrast, group [5-7] indicates a negative effect (lmer.2 (Intercept): b = -0.0761). In addition, the fluctuation of the executive board and the proportion of women indicate a negative effect (lmer.2 BF: b = -0.219; DF: b = -0.264), which has increased slightly in

contrast to lmer.2. In contrast to lmer.1, internationalism also indicates a negative effect (lmer.2 DI: b = -0.264). Also, the variables LTIP and R&D intensity indicate a positive effect (lmer.2 LTIP: b = 0.174; RD: b = 0.104).

The adjustments to the model result in the fact that the described effects for the groupings [2-7] and [<7] can be confirmed by statistical significance (lmer.2 BS.g [T.2-7]: p = 0.018; BS.g [T.>7]: p = 0.014) and the significance values have improved. In addition, the effect of the fluctuation can be confirmed with significance (lmer.2 BF: p = 0.034). All three significance values indicate $p < \alpha = 0.05$. In addition, LTIP also indicates a significance value of $p < \alpha = 0.1$ and can thus be confirmed (lmer.2 LTIP: p = 0.078). The effects of the other variables cannot be assessed conclusively, although the significance values have also improved here (lmer.2 DF: p = 0.162; DI: p = 0.829; RD: p = 0.305).

Tables 3 also presents the comparison of the two models and indicate the quality measures of the model (lmer.1 R-Squared: R2m = .05, R2c = .39; lmer.2 R-Squared: R2m = .06, R2c = .37). Considering the model quality of lmer.2, it is sufficiently good with R2m = .06, R2c = .37.

5.3. Summary of the Results

Using lmer.2, the groupings of board size (BS.g) [T.<5] and [T.>7] again have a positive effect on the share price (SP). Board fluctuation (BF) has a negative effect on the share price growth (SP). This effect is seen across both estimated models; however, it is statistically supported only in model lmer.2. The long-term variable compensation (LTIP) has a positive effect on the share price (SP). This is also con-firmed by both estimated models (only in lmer.1 the result is not confirmed statistically). The effects listed above were all confirmed together with the significance test in model lmer.2. These results lead to the conclusion that hypotheses 2 and 4 are statistically supported based on model lmer.2 using the given research data sample. Hypothesis 1 could not be empirically supported. In addition, other effects could be identified, but these did not demonstrate statistical significance. These include the share of women (DF), which has a negative effect on the share price. This effect was found across both estimated models. The effect of the degree of internationalism in the executive board (DI) in relation to the share price (SP) was not found as clear, since the models do not indicate the same direction of the effect in all cases. Based on these results, neither the assumed effects for H3 nor the statistical significance can be confirmed. Research and development costs (RD) indicate a positive effect on the share price (SP) in both estimated models, but without statistical significance. Therefore, hypothesis 5 was not statistically

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supported based on the given data sample in this analysis. Considering the model quality of lmer.2, it is sufficiently good, with R2m = .06, R2c = .37. The summarized results are interpreted and discussed in the following chapter.

6. DISCUSSION

Considering the overall construct of functional familiarity, it can be seen that not all variables (board size, board fluctuation, diversity management, LTIP and R&D intensity) could be confirmed on the basis of significance levels. Thus, partial aspects cannot be conclusively assessed based on the available research and sample, and further research is needed.

The expectation of the overall construct is that trust has a positive effect on the performance of board members who, according to upper echelons theory, make decisions based on their personal characteristics. This affects a company's performance and can also be empirically demonstrated. In their study, De Jong and Elfring (2010) demonstrated a significantly positive effect of internal trust within teams on their performance in 72 cases investigated (De Jong & Elfring, 2010). Furthermore, Lee et al. (2010) indicated that trust among members promotes the exchange of knowledge within a team and the team thus achieves better performance (Lee et al., 2010). In the meta-analysis by De Jong et al. (2016), they also demonstrated a positive effect of trust on the performance of a team (De Jong et al., 2016). Overall, the empirical study indicated that all independent variables had already been examined in similar constructs, but none of the studies drew any conclusions about trust among board members, although the review indicated that trust within a team has a positive effect on team performance (Lee et al., 2010; De Jong & Elfring, 2010; De Jong et al., 2016).

Different assumptions can be made based on the discussion and the results. Executive boards with a lower number of members have a positive effect on a company's performance. It can be assumed that there is also a higher level of trust in a smaller board and that this is a positive determinant. Despite this, positive effects can also be seen in boards larger than seven. In this respect, no studies were conducted that indicate a negative influence of familiarity within larger boards.

The assumption that increased fluctuation in a board has a negative impact on a company's success was confirmed and leads to the assumption that exits and any resulting new members are not positive for familiarity. Since familiarity is determined by the past but also by the future, an exit will harm familiarity within the board.

With regard to diversity, it is difficult to draw clear conclusions due to the different visible effects. However, the discussion makes it clear that the structures within a company and the board of executives in particular must be in place so that diversity can develop positively and create familiarity. Here the aspects of openness or common values and positive culture play a key role.

The LTIPs create a common long-term goal as a variable incentive system. As a result, it can be assumed that within the board of directors one tries to achieve the common goals and together create a positive environment and familiarity.

The innovation capability operationalized by R&D intensity has descriptive positive effects and thus creates familiarity not only within the board but also in the entire organization and externally in the market. Innovation is an indicator for the future and thus creates a sustainable common purpose, as defined for functional familiarity.

7. CONCLUSION

The present results indicate that the research question can be answered partially, but not completely. Based on the empirical investigation in the form of regression analyses, the statistically significant influence on the development of the share price, both in terms of the executive board size and fluctuation, as well as in terms of the LTIP, could be demonstrated. Regarding the size of the executive board, the different group sizes of less than five and greater than seven should be considered as their effect was confirmed as positive. Greater fluctuation within the board has a negative effect on the share price growth. Regarding the LTIP, the influence on the share price indicates a positive effect. Furthermore, the descriptive, statistically insignificant effects in respect of diversity management and R&D intensity provided further insights within the scope of the study. In summary, a final evaluation of the model functional familiarity based on statistical significance was not possible. However, it can be determined that, considering the various components of functional familiarity, a company's success, in this example represented by the share price, can be affected and thus managed.

Further considering the average values, a fluctuation rate of almost 10% within the sample is evident. Thus, the recommended course of action for equity investors is to ensure low fluctuation of the management board and to avoid companies with a primarily higher executive board fluctuation. The LTIP accounts for more than 25% of total compensation, with the years 2018 and 2019 below this number. This may indicate, for example, that new compensation models are being implemented. Nevertheless, the average value of 25% can be taken as an indication.

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Basically, management and corporate performance are two core factors for a company. Essentially, they condition the organization in terms of growth, expansion, daily operations and strategic decisions (Drucker, 2004; Salgueiro, 2001). Hence, this study is of interest to the business world, science, upper management, society and consumers. Moreover, it was able to identify individual elements and to highlight their influence on performance excellence so that a novel construct arises that can provide added value to these target groups.

The results contribute to and expand various scientific discourses. One is the discussion about the effect of board size and the right size of the executive board for a company. Another is the internationally widespread, partly political discussion regarding diversity management. A female quota for boards is in some countries enforced by political measures. Here, the research study provides descriptive results in the form of average values in relation to the executive boards of MDAX companies, but also the visible effects of the variable on company performance.

Moreover, the results of this study can help investors, fund managers and other stock market participants to better evaluate the short- and long-term expectations of stock returns. The present study was able to demonstrate that multiple variables of the executive boards in the sample had a significant influence on the development of the share price. Thus, in future company valuations, special attention should be paid to those variables or lead to a critical view of the equity provider. The same applies, of course, to the individual company in question itself. Further research should be carried out to determine whether a larger sample can identify optimal sizes or a critical mass for each variable. Thus, the evaluation tool of functional familiarity could be elaborated much more precisely. In addition, it should be examined to what extent various industries differ regarding the components of functional familiarity.

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FUNKCIONALNO POZNAVANJE KAO FAKTOR USPJEHA –
ANALIZA NJEMAČKIH MDAX PODUZEĆA

Sažetak

Svrha ovog rada je razmotriti njemačko tržište dionica i razviti metodu za vrednovanje poduzeća koja nadopunjuje dosadašnje metode. U radu se razrađuje novi konstrukt funkcionalnog poznavanja, koji se sastoji od veličine odbora, fluktuacije odbora, upravljanja raznolikošću, dugoročnih planova poticaja (LTIP) i intenziteta istraživanja i razvoja, u odnosu na uspješnost poduzeća. Prikupljena su i ispitana izvješća poduzeća koje kotiraju na MDAX-u za razdoblje od 2013. do 2019. godine. Na temelju empirijskog istraživanja u obliku regresijske analize, mogao se pokazati statistički značajan utjecaj veličine izvršnog odbora i fluktuacije odbora, kao i LTIP-a, na razvoj cijene dionice. Rezultati pokazuju da je alat za evaluaciju funkcionalnog poznavanja u svojoj trenutnoj konstelaciji identificirao tri čimbenika koji bi barem trebali dovesti do kritičkog razmatranja dioničara.

Ključne riječi: funkcionalno poznavanje, povjerenje, izvršni odbor, veličina odbora, fluktuacija, upravljanje raznolikošću, dugoročni plan poticaja (LTIP), intenzitet istraživanja i razvoja (R&D), MDAX