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Internationalization Strategies in the German Dairy Industry and their Influence on the Economic Performance of Firms

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ABSTRACT

Growing milk production, stagnating domestic consumption and ongoing liberalization of the worldwide milk market have led to increasing exports of milk and milk products out of Germany. This situation heightens competition amongst German dairies for market share on foreign markets. The German dairy industry, which comprises of some international corporations and many medium sized companies, including both cooperatives and privately owned companies, therefore has to find strategies with which to compete successfully on international markets. This study analyzes the German dairy industry comparing different internationalization strategies and their influence on the firms' economic success. 18 German dairy companies have been analyzed. We identified different internationalization strategies with reference to Perlmutter's EPRG model. To measure economic success, we analyzed annual reports from the dairy companies observed over the years 2010 to 2017 and so calculated different key figures. The influence of different internationalization strategies on economic success is analyzed by a Hausman Taylor estimation where the EBIT-margin is the dependent variable in our model, representing economic success. We found that German dairy industry companies do pursue different internationalisation strategies and that these have different influences on the companies' economic success.

Keywords: *dairy industry; internationalization strategy; economic performance; dairy sector*.

1 Introduction

The dairy industry has been facing a process of rapid internationalization due to trade liberalization and regional imbalances on the world milk market (Guillouzo and Ruffio, 2005; Heyder et al., 2011; Vitaliano, 2016). As a consequence, international trade flows between net exporters, such as New Zealand, the United States and the European Union, and net importers, such as China, the Middle East and Africa, have been increasing. At the organizational level, this development has resulted in growing export activity on the part of dairy companies located in net export regions like the United States and the European Union (Vitaliano, 2016). This situation can be illustrated by a look at the German dairy sector, which has faced constant increases in milk production over the course of the last decade. During the same time period, domestic demand has remained more or less at a stalemate, leading to a growing milk surplus. This surplus had to be exported, and German dairies were increasingly forced to look for market opportunities abrod (Heyder et al., 2011).

The relevance of exports is even greater when one considers the physical amounts being exported. In 2016, German dairy companies processed 33.8 million tonnes of milk, including 2.5 million tonnes of raw milk imports from neighboring countries. Of this, 16.6 million tonnes of milk equivalent were exported as cheese, whole or skimmed milk powder and other products, which corresponds to 49.1 % of processed milk (MIV, 2017). Internationalization has therefore become the foremost driver of industry development (Theuvsen et al., 2010). Companies employ different internationalization strategies with which to compete for market share in foreign markets. These internationalization strategies differ from simple export from the country of origin to foreign markets to multinational companies with manufacturing plants and offices all over the world. Dutch and Scandinavian dairies lead in internationalization. Due to their limited domestic market size and high milk production volumes, they were forced to look for marketing opportunities abroad much earlier than German dairies (Theuvsen and Ebneth, 2005; Heyder et al., 2011).

Despite numerous studies in the literature which have investigated internationalization in the dairy sector, there is a research gap; what was the influence of the different internationalization strategies employed by firms on their economic performance? (Guillouzo and Ruffio, 2005; Heyder et al., 2011; Theuvsen and Ebneth 2005). This study will fill this gap by analyzing the influence of different internationalization strategies on the economic performance of firms in the German dairy sector.

To analyze the effects of different internationalization strategies on financial performance, we examined 15 leading German dairies as well as two foreign dairies which are operating in Germany. Our sample included cooperatives as well as privately operated dairies. The data used was derived from the annual reports and annual financial statements of the companies under analysis for the years 2010 to 2016. To analyze the influence of different internationalization strategies on the economic performance of firms the different internationalization strategies of German dairies are analyzed, referring to the EPRG model. To measure the influence of the different internationalization strategies on the economic performance of the considered firms, we used a random effects model to analyze our panel data.

2 Theoretical Background

In the literature, internationalization is defined as the transnational transactions of an organization (Fayerweather, 1989). The internationalization of the German dairy sector has been analyzed in previous studies. Theuvsen and Ebneth (2005) analyzed the degree of internalization in cooperatives in the German dairy and meat sector using different uni- and multidimensional key figures. Heyder et al. (2011) analyzed the effects of internationalization on economic success in European dairy and meat cooperatives using financial report based key figures while defining internationalization by the Degree of Internationalization (DOI). To measure economic success, they used the variables return on assets (ROA) and return on sales (ROS). Internationalization was measured using the DOI as a multidimensional key figure calculated on foreign sales to total sales and the network spread index (NSI). They found that the degree of internationalization has a significant positive influence on the firm's economic success. Widely used key figures for measuring economic performance are Return on Assets (ROA), Return on Equity (ROE) and EBIT margin (Qian, 2002, Vermeulen and Barkema, 2002; Thomas and Eden, 2004; Heyder et al., 2011; Chaddad and Mondelli, 2013).

However, these studies did not define or distinguish between different internationalization strategies. According to Johnson et al. (2016), an internationalization strategy can be defined as the long-term alignment of a firm competing on foreign markets with respect to resources and market shares. The competitive advantage of internationalization results from two opposing effects: advantages resulting f

rom local adaptation and differentiation, and advantages resulting from global standardization (Johnson et al., 2016). With regard to these two dimensions, one can differentiate between four different internationalization strategies in the EPRG model, which was introduced by Perlmutter (1969). He differentiated between ethnocentric, polycentric and geocentric concepts. Later, this model was extended through the introduction of a regiocentric concept (Wind et al., 1973).

The international strategy (ethnocentric) is also described as an export strategy (Johnson et al., 2016). Subsidiaries, if there are any, are guided by the parent company and seen as additions to international business or as generators of short term profits (Magaziner and Reich, 1985). This strategy can be successfully implemented if there is a competitive advantage in the home country that cannot be achieved in the target countries for the exports (Grant and Nippa, 2006). With multinational strategy (polycentric), subsidiaries can be led by foreign executives and are less strictly coordinated by the parent company. Thus, national strategies can be implemented and greater efficiency achieved through better adaptation to local demand and preferences. However, economies of scope and synergies resulting from internationalization can be restricted when implementing this strategy (Scholl, 1989).

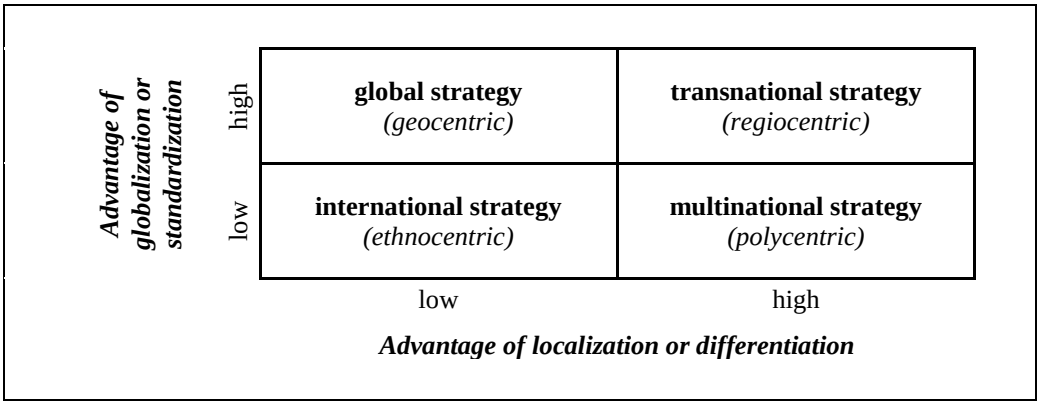

Figure 1. EPRG model

(Source: Authors depiction based on Holtbrügge and Welge, 2015)

Global strategy (geocentric) focuses on economies of scope. This strategy is also known as *global rationalization*. Firms try to formalize and standardize structures, processes and resources, while decision making competences are centralized in the parent company. Technology is also transferred from the parent company to its subsidiaries. The advantages that result from realizing economies of scope in this strategy counter the disadvantages of a lack in adaptation to local demand and preferences (Negandhi and Welge, 1984). None of the strategies described so far can combine the advantages of local adaptation and differentiation, on the one hand, with standardization and economies of scale, on the other. The transnational strategy (regiocentric) combines these two advantages of internationalization. Advantages from differentiation and standardization are analyzed for each business activity. The company's global alignment and the simultaneous country- or region-specific treatment of markets combines the advantages of the multinational and global strategies (Scholl, 1989). However, in reality, there is not always such a sharp distinction between the different approaches. As a result, firms often develop regional strategies and, in doing so, combine the global and multinational strategies (Johnson et al., 2016). In our study we will refer to Perlmutter's EPRG model (1969) to define and distinguish the different internationalization strategies employed by the firms considered.

3 Data and Methods

This study is restricted to firm level data. All data used derive from the firms' annual reports. These were either collected from the companies' websites or in the German Bundesanzeiger[1]. As far as possible, annual reports from 2010 to 2017 were collected for 18 dairies. 16 of the dairies are headquartered in Germany, while two dairies are not originally from Germany. However, these two companies process considerable quantities of milk in Germany and have, over time, emerged as major players in the German milk market. As a result, they were also included in this study.

[1] The German Bundesanzeiger publishes the annual financial reports of German corporations (www.bundesanzeiger.de)

To analyze the influence of different internationalization strategies on firm' economic performance, we first defined the internationalization strategy for each of the firms considered, referring to Perlmutter's EPRG model (1969). Different relative and absolute, unidimensional and multidimensional key figures were used to analyze the firms' financial performance and development of their international businesses in relation to their varying internationalization strategies.

To measure the influence of the different strategies on the firms' economic success, a profitability measure has to be defined. A widely used profitability measure is profit margin or return on sales (Qian, 1994; Capar and Katobe, 2003; Li, 2007; Heyder et al., 2011). However, we use Earnings Before Interest and Taxes (EBIT) as as the most appropriate profitability measure because two dairies are headquartered in foreign countries and therefore do not refer to the German accounting standards in their annual reports. Different taxes and levels of taxes might therefore bias the results, if we were to take them into account. EBIT is a widely used performance indicator because it separates the firm management's financing decisions from its fundamental earning potential (Kean and Baumann, 2003; Heyder et al., 2011). To make the data of different sized companies comparable we use the EBIT margin (EM) as the variable to measure the firms' economic performance. It is calculated as the ratio of EBIT and turnover.

$$EBIT\ margin = \frac{\text{EBIT}}{\text{Turnover}}$$

To measure the influence of the different internationalization strategies on economic performance we implemented the dummy variable "Internationalization Strategy". We coded this with "0" if the company pursues the "international strategy" and with "1" if the company pursues the multinational strategy. To isolate the relationship and influence of the different internationalization strategies on the firm's economic performance, it is important to control for other variables that are likely to affect economic performance (Qian, 2002). To isolate the influence of the different internationalization strategies on firms' performance we added proxy variables for the firms' size, debt level, product price, number of brands, as well as dummy variables for the organizational form and for the products the firms are producing.

Our first control variable is size. We therefore use the overall turnover of the firm considered. We use firm size as an independent variable in the model as a surrogate for competitiveness and the firm's advantage within the industry (Qian, 2002; Heyder et al., 2011). As a second control variable we use the debt level, specifically the "Gearing Ratio" which is calculated as the ratio of debt capital to the firm's equity (HURDLE 1974). For comparison we use liabilities to credit institutes as long term debts. It is a proxy for the ability of a firm to meet long term interest and principal payments on debt. However, it is also a measure for the firm's financial risk, which increases with a higher gearing ratio (Qian 2002). As a third control variable we implemented the FAO Food Price Index for dairy products, as we expect that profitability will increase *ceteris paribus* with increasing product prices. To control for the influence of the firms' organizations we implement the dummy variable "Legal Form" in the model. It differs between "private" (code = 1) and "cooperative" (code = 0) to control for the influence of organizational form on economic performance. This is important, especially in the German dairy industry, which is characterized on the one hand by a large dairy cooperative and, on the other hand, by many medium sized cooperative and private dairies (Theuvsen and Ebneth, 2005). Thus dairies are often linked with poorer economic performance, compared to privately owned competitors. This is due to conflicting goals between the dairy and its members, lack of management competences and so on (Anderson and Henehan, 2005). In order to check the influence of the companies' product portfolio on their profitability, dummy variables for the product categories "fresh milk", "fresh milk products", "dried milk products", "cheese" and "butter" were included in the model.

Lack of any, or in large parts very incomplete data on the quantity of milk consumed and processed as well as other intermediate products, plus there being no complete and comparable data on output quantities, made it impossible to investigate the effects of different productivity ratios on companies' economic success, even if there are clear indications in the literature of their influence (Helpman et al., 2003).

To analyze our unbalanced micro panel data we use the Stata 15 software. As we have endogeneity between the dependent variable and the variable "internationalization strategy", we use the Hausman-Taylor estimator to analyze our data. Due to heteroscedasticity and autocorrelation in the data, we also have clustered standard errors that are robust against them.

$$\mathbf{Y}_{it} = \mathbf{X1}_{it}\boldsymbol{\beta}_1 + \mathbf{X2}_{it}\boldsymbol{\beta}_2 + \mathbf{Z1}_i\boldsymbol{\gamma}_1 + \mathbf{Z2}_i\boldsymbol{\gamma}_2 + \boldsymbol{\alpha}_i + \boldsymbol{\varepsilon}_{it}$$

Thereby Y_{it} is the dependent variable of Firm i at Time t. $X1_{it}$ are time-varying and $Z1_i$ are time-invariant variables as they correlate with α_i, but not with ε_{it} (BALTAGI et al. 2002). Thereby α_i denotes the time-invariant term of the error term, while ε_{it} denotes the remainder component of the error term which is uncorrelated over time (Verbeek, 2004).

4 Results

4.1 Internationalization strategies in the German dairy industry

Referring to Perlmutter's EPRG model (1969), we can identify three different internationalization strategies followed by the firms in this study. Ten of the firms—the majority—employ the International Strategy (Table 1).

Seven are cooperatives, and the other three are privately owned. All ten firms are characterized by the fact that they have processing facilities only in Germany. Some of these firms do have subsidiaries in foreign countries. The number of countries in which they operate subsidiaries ranges from 1 (frischli, Omira, Uelzana, Rücker Wismar) to 10 (DMK) in 2017. These subsidiaries are only engaged in marketing and distribution but do not process milk. On average the firms in this group had subsidiaries in 3 countries including Germany.

Table 1.
Overview of analysed firms

Strategy/Firms name	Country of origin	Legal Form	No. of countries with subsidiaries (2017)*	No. of brands (2017)	FSI (2017)
International strategy					
Ammerland	Germany	cooperative	5	1	40.8%
Bayernland	Germany	cooperative	2	2	43.0%
BMI	Germany	cooperative	3	6	44.2%
DMK	Germany	cooperative	10	11	43.1%
frischli	Germany	private	1	6	18.4%
Goldsteig	Germany	cooperative	2	2	32.9%
Käserei Champignon	Germany	private	5	10	40.0%
Omira	Germany	cooperative	1[1]	6[1]	37.2%[1]
Rücker Aurich	Germany	private	2	1	47.7%
Rücker Wismar	Germany	private	1	1	0.0%
Uelzena	Germany	cooperative	1	8	19.5%
ø			3.0	4.9	33.3%
Global strategy					
Hochwald	Germany	cooperative	5	15	45.6%
Zott	Germany	private	10	16	56.5%
ø			7.5	15.5	51.1%
Multinational strategy					
Arla	Denmark	cooperative	44	30	75.3%
Ehrmann	Germany	private	8	16	49.7%
FrieslandCampina	Netherlands	cooperative	30	46	76.6%
Hochland	Germany	private	8	6	58.1%
Meggle	Germany	private	20	1	50.3%
ø			22.0	19.8	62.0%

** including Germany [1]2016*

(Source*:* Ammerland, 2018; Bayernland, 2018; BMI, 2018; DMK, 2018; frischli, 2018; Goldsteig, 2018; Käserei Champignon, 2018; OMIRA, 2018; Rücker, 2018; Uelzena, 2018; Hochwald, 2018; Zott, 2018; Arla, 2018; Ehrmann, 2018; FrieslandCampina, 2018; Hochland, 2018; Meggle, 2018)

Therefore, foreign sales only result from export activities out of Germany. On average the dairies employing the International Strategy had 4.9 brands in 2016, but the number varies from 1 to 11. The foreign sales index (FSI), measured as foreign sales to total sales, was 33.3 % on average in 2017 in this group; it ranges from 0 % at Rücker Wismar to 47.7 % at Rücker Aurich. Two of the firms in the study, one cooperative and one privately owned company, have implemented a global strategy. These firms operate processing facilities in neighboring countries outside Germany. On average these firms have subsidiaries in 7.5 countries. Although some national brands are used in foreign countries, the relevant firms have introduced special brands for their foreign markets. On average these firms have 15.5 national and international brands to adapt to market demands. The short distance from Germany to the neighboring countries ensures comprehensive control for the parent company where decision making competences are retained. In 2017 the average FSI in this group was 51.1 %, whereby the FSI of Zott (56.5 %) was higher than that of Hochwald (45.6 %).

The third group, consisting of five firms, uses the Multinational Strategy. These firms have processing locations in several countries, some of which are far from their domestic market. On average the firms employing the Multinational Strategy had subsidiaries in 22 countries in 2017. These firms manage several brands for the markets they supply. On average this group of firms had 19.8 brands in 2017. The actual number of brands varies from Meggle's 1 to FrieslandCampina's 46. Of these five firms, two are cooperatives, and three are privately owned.

Two firms are not originally from Germany: FrieslandCampina is based in the Netherlands and Arla's home country is Denmark. It should be pointed out that these two firms are the only two cooperatives in the group employing a multinational strategy. The three firms headquartered in Germany that follow the Multinational Strategy—Ehrmann, Hochland and Meggle—are privately owned and based in the south of Germany. The average FSI in this group was 62%, with a range of 49.7% (Ehrmann) to 76.6 % (FrieslandCampina). Due to greater geographical distance and more complex firm structures, the management of these firms is nuanced – as can be seen for example at FrieslandCampina which, since 2016, has been managing its activities in China through a new business group "Consumer Products China" (FrieslandCampina 2016).

4.2 Empirical results

Table 2, below, shows the minimum, maximum and geometric average values of the firms' EBIT Margin (EM), Turnover (T) and Gearing Ratio (GR) considered in this study. Some data were not available. Data for DMK over the years 2010 and 2011 are not available because DMK was only founded in 2012. For Bayernland eG, consolidated financial statements are only available from 2013 onwards. In the preceding years, only the financial accounting information of the individual firms which merged into Bayernland eG is available, but these are not comparable to consolidated financial statements. Data for Omira are only available until 2016, as the dairy was taken over by the French Lactalis Group in 2017.

The small group of firms that employ a global strategy had an average maximum EBIT margin of 3.8% (Zott: 6.6%; Hochwald: 1.0%). The average minimum value of this margin is 0.9%. During the observed period the average EBIT margin in this group was 2.7%. Zott's average EBIT margin was 4.7% —noticeably higher than that of Hochwald (0.8%). The minimum average EBIT margin in the group that use a multinational strategy is -0.3%. The lowest minimum values can be observed at Rücker Wismar (-5.2%), Omira (-2.2%) and frischli (-1.7%). The average maximum EBIT margin for the group of companies pursuing the International Strategy was 2.6%. OMIRA and Bayernland both posted the lowest EBIT margins of 1.2%, while the maximum EBIT margin was highest at Käserei Champignon (4.7%) and BMI (3.8%). Over the entire period under review, the average EBIT margin for this group was 1.4%, with Omira showing the lowest margin at 0.2% on average and Käserei Champignon the highest at 3.1%. In the group of companies with a multinational strategy, the minimum average EBIT margin was 1.9%. The figures fluctuated between -0.2% for Ehrmann and 2.9% for Arla. The maximum EBIT margin for this group averaged 6.3%. Hochland achieved the highest maximum EBIT margin at 8.7%, both in the group of companies with a multinational strategy and across all the groups considered. Over the entire period under review, the average EBIT margin of the companies in the Multinational Strategy group was 3.9%, with Hochland achieving the highest average EBIT margin at 4.9% and Ehrmann the lowest at 3.2%.

One of the control variables taken into account in this study is the firms' overall turnover. The average minimum turnover of companies pursuing an international strategy is € 766.4 million, with Rücker Wismar Dairy posting the lowest minimum turnover of € 132.1 million. The maximum average turnover of the companies considered in this group is € 1.06 billion, where DMK is by far the largest company in the group with a maximum turnover of € 5.8 billion. Over the period under review, the average turnover for all companies in the group was € 896.4 million.

In this group of companies, the minimum average turnover was € 958.5 million, with Hochwald's turnover of almost € 1.6 billion being higher than that of Zott (€ 754.4 million). The maximum average turnover in this group is € 1.3 billion, with Hochwald's turnover (€ 1.4 billion) being significantly higher than that of Zott (€ 1 billion). The average turnover over the entire period is € 1.13 billion.

With an average turnover of € 4.5 billion over the entire period under review, the turnover of companies with a multinational strategy was significantly higher than that of the other groups under consideration. At € 10.8 billion, Hochland has the highest average turnover, both in this group and across all the groups considered. At € 710.6 million, Ehrmann's average turnover is the lowest in this group. Ehrmann also has the minimum turnover in this group (€ 582.6 million) and FrieslandCampina the maximum (€ 12.1 billion).

Table 2.
Development of EBIT margin (EM), turnover (T) and gearing ratio (GR) for dairy firms with different internationalization strategies

Strategy/Firms name	EM (Min.)	EM (Max.)	EM ø2010-2017	T (Min., m. €)	T (Max., m. €)	T ø2010-2017	GR (Min.)	GR (Max.)	GR ø 2010-2017
International strategy									
Ammerland	0.6%	1.8%	1.2%	489.9	889.5	672.9	117.6%	159.4%	137.4%
Bayernland[1]	0.5%	1.2%	0.9%	647.3	786.7	699.7	191.0%	231.9%	210.0%
BMI	0.7%	3.8%	2.3%	420.1	622.8	535.3	157.7%	469.3%	241.9%
DMK[2]	1.1%	2.1%	1.5%	4,438.5	5,795.6	5,089.8	166.9%	221.1%	186.2%
frischli	-1.7%	3.5%	1.1%	379.1	573.4	449.2	164.1%	223.5%	184.1%
Goldsteig	1.0%	2.8%	2.2%	379.1	573.4	444.4	169.9%	264.9%	202.3%
Käserei Champignon	-0.2%	4.7%	3.1%	302.6	373.8	345.5	171.0%	210.5%	191.7%
Omira[3]	-2.2%	1.2%	0.2%	420.1	637.0	548.3	130.9%	299.7%	186.1%
Rücker Aurich	0.1%	1.3%	0.7%	302.7	446.4	383.2	405.6%	680.9%	526.2%
Rücker Wismar	-5.2%	3.7%	0.8%	132.1	214.0	183.6	345.2%	1790.8%	657.3%
Uelzena	1.6%	2.3%	1.9%	379.8	703.0	508.4	156.0%	289.0%	232.5%
ø	**-0.3%**	**2.6%**	**1.4%**	**766.4**	**1056.0**	**896.4**	**200.8%**	**440.1%**	**268.7%**
Global strategy									
Hochwald	0.5%	1.0%	0.8%	1,162.5	1,589.6	1,386.9	175.7%	264.1%	221%
Zott	1.4%	6.6%	4.7%	754.4	1,001.4	879.0	198.4%	317.8%	244%
ø	**0.9%**	**3.8%**	**2.7%**	**958.5**	**1295.5**	**1,133.0**	**187.1%**	**290.9%**	**232.7%**
Multinational strategy									
Arla	2.9%	5.2%	3.7%	6,577.6	10,614.0	9,133.9	171.1%	298.2%	237.9%
Ehrmann	-0.2%	7.2%	3.2%	582.6	767.1	710.6	79.0%	168.9%	122.0%
FrieslandCampina	2.7%	5.1%	4.3%	8,972.0	12,110.0	10,756.1	157.2%	185.5%	169.0%
Hochland	2.0%	8.7%	4.9%	1,055.0	1,445.9	1,202.8	47.1%	55.5%	50.8%
Meggle	1.8%	5.3%	3.5%	725.3	1,095.7	929.1	149.8%	182.7%	165.7%
ø	**1.9%**	**6.3%**	**3.9%**	**3582.5**	**5206.6**	**4,546.5**	**120.9%**	**178.2%**	**149.1%**

[1] 2013-2017 [2] 2013-2017 [3] 2010-2016

(Source: Ammerland, 2018; Bayernland, 2018; BMI, 2018; DMK, 2018; frischli, 2018; Goldsteig, 2018; Käserei Champignon, 2018; OMIRA, 2018; Rücker, 2018; Uelzena, 2018; Hochwald, 2018; Zott, 2018; Arla, 2018; Ehrmann, 2018; FrieslandCampina, 2018; Hochland, 2018; Meggle, 2018)

With regard to companies' turnover, we find clear differences between the internationalization strategies pursued. The firms following the International Strategy show the lowest average turnover over the time period (€ 896.4 million) observed, followed by the firms employing the Global Strategy with an average turnover of € 1.1 billion over the observed period. The highest average turnover can be seen in the group of firms following the Multinational Strategy with an average turnover of €4.5 billion from 2010 to 2017.

Another control variable is the gearing ratio. For companies with an international strategy, the average gearing ratio over the period under review was 268.7%. At 137.4%, the Ammerland dairy had the lowest average EBIT margin and the lowest minimum gearing ratio in this group. At 657.3%, the Rücker Dairy in Wismar has the highest average gearing ratio in this group, as well as across all groups. The maximum value of 1790.8% is also the highest across all groups.

The companies pursuing a global strategy had an average gearing ratio of 232.7% over the period under review, with Hochwald (221.2%) and Zott (244.2%) being quite close to each other. Hochwald shows the minimum value in this group with 175.7%, Zott the maximum value in this group with 31.7%.

With an average gearing ratio of 149.1% over the observation period, the companies pursuing a multinational strategy achieved the lowest value of all comparison groups. With 50.8%, Hochland has the lowest average gearing ratio in this group, but also across all comparison groups. The minimum value of 47.1% is also the lowest across all companies considered. At 237.9%, Arla's average gearing ratio was highest in the group of companies with a multinational strategy. Moreover, Arla has the highest value in this group with 298.2%. The average minimum gearing ratio in this group is 120.9%, the maximum 178.2%.

Regarding the gearing ratios we find the highest values on average over the observed time in the group of firms following the International Strategy (268.7%), followed by the firms employing the Global Strategy (232.7%) and that employing the Multinational Strategy (149.1%).

4.3 Relationship between internationalization strategies and economic performance

Table 3 shows the correlation coefficients of the variables used in the model. As the results indicate there is not too strong a correlation between the coefficients to expect substantial problems with multicollinearity. This is also emphasized in the Variance Inflation Factor (VIF) statistic (c.f. Table 2 in the Appendix. Further descriptive statistics on the variables can be seen in Table 1 in the Appendix.

Table 3.
Correlation analysis

		1	2	3	4	5	6	7	8	9	10	11
1	EBIT-margin	1										
2	Intern. Strategy	,520**	1									
3	Legal Form	,191*	,175*	1								
4	Turnover	,302**	,540**	-,388**	1							
5	Gearing Ratio	-,143	-,289**	,163	-,113	1						
6	Dairy-Price-Index	-,078	,009	,013	-,004	-,022	1					
7	Fresh milk	-,040	-,156	-,506**	,409**	-,159	,011	1				
8	Fresh milk products	,004	,079	-,527**	,265**	-,329**	,041	,609**	1			
9	Cheese	,034	-,168*	-,389**	,158	,156	-,005	,016	-,211*	1		
10	Dried milk products	,004	-,190*	,038	-,145	-,135	,005	,108	,249**	-,219**	1	
11	Butter	-,128	,008	-,652**	,318**	-,006	-,012	,154	,332**	,438**	,299**	1

*p<0.05 **p<0.01

Table 4 shows the results of our random effects estimation. The results of our Hausman-Taylor estimation show a positive, highly significant influence of the multinational strategy on the economic success of firms analyzed in this study with a coefficient of 3.102 as shown in table 4. The gearing ratio has a positive significant effect on the firms' economic success. However, the coefficient of 0.001 shows that there is nearly no real impact on the firms economic performance due to a change in the gearing ratio. The production of cheese has a positive, highly significant influence on the EBIT-margin of the analyzed firms

as the coefficient of 2.881 indicates. In addition, the production of dried milk products also has a positive effect on the economic performance of the firms surveyed, as can be seen from the significant coefficient of 1.528. Against this the production of butter significantly influences the firms' economic performance in a negative way as can be seen at the coefficient of -2.157.

Our analysis shows no significant influence of organizational form on the companies' economic success. Nor does the size of the company have any statistically significant influence on the economic success of the 18 companies we examined over the period under review. The Dairy-Price-Index also has no statistically significant influence on the economic success of the companies.

Table 4.
Results of the Hausman Taylor estimation

EBITmargin	Coef.		Robust Std. Err.	P>z
TVexogenous				
Turnover	0.000		0.001	0.921
Gearing Ratio	0.001	**	0.001	0.048
Dairy-Price-Index	-0.008		0.007	0.268
Fresh milk	0.014		0.374	0.971
Fresh milk products	0.528		0.594	0.374
TIexogenous				
Legal form	-0.142		0.825	0.864
Cheese	2.881	***	0.823	0.000
Dried milk products	1.528	***	0.456	0.001
Butter	-2.157	***	0.747	0.004
TIendogenous				
Intern. Strategy	3.102	***	0.539	0.000
Constant	0.149		1.449	0.918

*p<0.1 **p<0.05 ***p<0.01

Wald chi2(10) = 507.21; Prob > chi2 = 0.0000; sigma_u = 0.5739; sigma_e = 1.2511; rho = 0.1738

Std. Err. Adjusted for 18 clusters in ID; TV = time varying variables; TI = time invariant variables

We have checked for the robustness of the result in further calculations. Even if, for example, we exclude the internationalization strategy as a control variable, as it correlates relatively strongly with sales at 0.54, we found no significant influence for company size on economic success.

Due to multicollinearity problems with turnover, we were unable to examine the influence of the FSI and the number of brands on corporate success. As with sales, however, we found no real effect on corporate success in further calculations if we used these variables as control variables for turnover.

5 Discussion

The analysis shows clear positive effects of the Multinational Strategy on the economic performance of the firms considered compared to the International Strategy. Higher performance in this case also includes a risk premium for investing abroad (Busse and Hefeker, 2007). This result is supported by Heyder et al. (2011) and Qian (2002) studies, which showed the positive influence of internationalization on firms' economic performance. The results of Helpman et al. (2003) also underline the results of the study. According to the study, only the most productive companies serve foreign markets through foreign direct investments and local subsidiaries. Although the data basis does not allow us to measure productivity directly, we can assume that the higher productivity of the companies is reflected in the higher EBIT margins.

With regard to key figures, the Global Strategy is, as observed above, "stuck in the middle" between the International and Multinational Strategies. This can be explained by the Process Model of Internationalization described by Meißner and Gerber (1980). In this model, internationalization is seen as

a multi-step process in which companies incrementally transfer capital and management from their country of origin to subsidiaries in foreign countries. Based on this theory, adopting a global strategy would be a step on the way from an international strategy to a multinational strategy, which is also reflected in key performance figures.

How can we explain the results and what do we learn from them? According to the theory of the management of multinational enterprises, a firm should use exports if doing so offers an advantage compared to its home country (Grant and Nippa, 2006); particularly as many export products, such as butter and milk powder, are undifferentiated and therefore compete through price margins which are likely to be low. Furthermore, more differentiated milk products, such as yoghurt, drinks and fresh cheese have limited export potential over great distances or have higher demands in regards to durability. Firms employing the Multinational Strategy are not limited by durability and thus seem better placed to fully exploit the potential of foreign markets. They can better adapt to local demand and conditions then build brands for local markets that will lead to higher turnovers (Harzing, 2000). We can see the highest number of brands at the firms employing the Multinational Strategy (Table 1) – underlining this result. This is also underlined by the results of Qian 2002 who showed the positive interactive effects of multi-nationality and product diversification on the economic performance.

An aspect that limits the implementation of a multinational strategy is its factor demands. These, of course, include a higher capital demand compared to other strategies, especially the International Strategy, which is based mainly on exports. However, there are also soft factors such as management competencies as well as the availability of sufficient marketing, distribution and sales resources (Grant and Nippa, 2006; Theuvsen et al.,

2010). Therefore, the sunk costs of foreign investments in subsidiaries are higher than those of simple exports, but the per unit costs are also lower than those of simple exports (Helpman et al., 2003). It is therefore not surprising that the Multinational Strategy is employed by the (on average) larger and economically more successful firms considered in this study. We have countered this endogeneity problem with the Hausman-Taylor estimator and the possibility of estimating endogenous variables contained therein. However, with regard to capital demands, it is surprising that the companies employing the Multinational Strategy have the lowest average gearing ratios, in contrast to the other groups. Referring to the literature, one would expect higher gearing ratios in this group of dairies due to higher capital demands. Furthermore, the high number of brands within this group would give an expectation of a higher gearing ratio, compared to others, as there are higher production, marketing and legal costs for branding (Onkvisit and Shaw, 1989).

Interestingly, the price index for dairy products has no significant positive impact on the economic situation of dairy companies. This does not seem comprehensible at first, since rising product prices would, ceteris paribus, lead to the assumption of higher revenues and greater economic success. However, dairies pass on a substantial part of the higher prices to their farmers in the form of higher prices for raw milk. Furthermore, for many products, contracts are often concluded with customers for a certain period of time. Assuming that a company still has to service old contracts over a period of poor prices but at the same time has to increase the payout prices to its suppliers in order to keep up with companies in its neighborhood, this can have a negative impact on economic success. The same applies, of course, the other way around, when prices for dairy products are falling, when contracts from times of high prices are still being served but the payout price is already falling at the same time.

Compared to other studies, however, we found no significant influence of the different legal forms for companies' economic success. Other studies (Ebneth, 2006, Anderson and Henehan 2005, Jürgens et al., 2015) point to the poorer economic performance of cooperatives compared to private companies and corporations. This is justified in the studies by corporate governance deficits (Ebneth, 2006, Anderson and Henehan, 2005) as well as the focus on less differentiated mass products with little added value (Jürgens et al., 2015). On the other hand, we can confirm the results of et al. 2015 to the effect that all German cooperative dairies, with the exception of Hochwald, focus on simple exports. The two cooperative dairies pursuing the Multinational Strategy are Arla and FrieslandCampina, which are the two cooperatives from abroad. This might be due to the small domestic market of these dairies. This alone does not explain why these dairies built up production plants worldwide and merged with foreign companies (Ebneth, 2006).

However, there are likely to be more factors that influence firms' economic performance. For example, product spectrum and competitive strategy have not been considered in this study and should be part of future analysis. In addition, the sample size is rather small due to non-availability of data. In the future, a larger data set in terms of observation time would allow analysis with other models such as a dynamic panel model. Indeed, the dairy companies headquartered in Germany considered in this study represent

60% of the total turnover of the German dairy industry and their foreign sales amount for 90.4% of the total foreign sales of the German dairy industry (Destatis, 2018). Future studies should be extended to other countries to check for the robustness of the results as far as data are available.

Nevertheless, internationalization and thus the right internationalization strategy will become more important. OECD and FAO forecasts predict 73% of future milk production growth in China and Asia up to 2025, while sales of fresh dairy products will increase versus concentrated products such as butter and cheese (OECD and FAO 2016). This development can further favor the Multinational Strategy through localization – a fact that can be seen in the German dairy market's exports. Although the member states of the European Union are by far the most important customers for German dairy products across all dairy products, there are clear differences between the individual product groups. For example, exports of concentrated milk products to the European Union amounted to 67.3%, while exports of fresh products like buttermilk, curdled milk and yoghurt to the European Union accounted for 91.8% (Trademap , 2018).

In addition to these "hard facts", the implementation of a multinational strategy can offer further advantage. By producing "locally", the criticism of food exports from industrialized countries can be avoided, especially in many developing countries. A prerequisite, however, is an appropriate degree of professionalism in existing milk production and, if necessary, support from politicians and administrations in these countries.

6 Conclusion

The study shows that there are significant differences regarding the influence of the different internationalization strategies on any firm's economic performance. The results show a positive influence of the Multinational Strategy on economic performance, compared to the other observed strategies. We can conclude therefore that dairy companies can gain economic advantages from localization and market adoption when internationalizing. Despite its higher requirements, especially in capital and management, the Multinational Strategy can pay off in the form of higher economic performance.

In the future, internationalization and thus the right internationalization strategy will become more important as OECD and FAO forecasts predict 73% of future milk production growth in China and Asia up to 2025, while sales of fresh dairy products will increase versus concentrated products such as butter and cheese (OECD and FAO, 2016). In addition, increasing requirements regarding animal husbandry and environmental protection lead to rising costs in domestic production. Although these additional costs on the domestic market can be partially offset by price premiums, e.g. for animal welfare standards, on the international, often price-oriented markets, this is by no means certain. Against this backdrop, German cooperative dairies in particular should review their internationalization strategy.

References

Ammerland (2011-2018). Annual Accounting of Ammerland *2010-2017*. Annual accounting report of the Molkerei Ammerland e.G., German Bundesanzeiger, URL: https://www.bundesanzeiger.de/ebanzwww/-wexsservlet. Date of download: 10th of March 2019.

Anderson, B.L., Henehan, B. (2005). What gives agricultural co-operatives a bad name? *International Journal of Cooperative Management*, **2**(2): 9-14.

Arla (2011-2018). Annual Report 2010-2017. Annual reports of Arla Foods amba, Viby J.

Bayernland (2011-2018). Annual Accounting of Bayernland 2010-2017. Annual accounting report of the Bayernland e.G., German Bundesanzeiger, URL: https://www.bundesanzeiger.de/ ebanzwww/wexsservlet. Date of download: 10th of March 2019.

Baltagi, B.H., Bresson, G., and Pirotte, A. (2002). Fixed effects, random effects or Hausman-Taylor? A pretest estimator. *Economics Letters*, **79**: 361-369.

BMI - Bayerische Milchindustrie eG (2011-2018). Annual Accounting of the BMI 2010-2017.Annual accounting report of the Bayerische Milchindustrie e.G., German Bundesanzeiger, URL: https://www.bundes-anzeiger.de/ebanzwww/wexsservlet. Date of download: 10th of March 2019.

Busse, M., Hefeker, C. (2007). Political risk, institutions and foreign direct investments. *European Journal of Political Economy*, **23**: 397-415.

Capar, N., Kotabe, M. (2003). The Relationship between International Diversification and Performance in Service Firms. *Journal of International Business Studies*, **34**(4): 345-355.

Chaddad, F.R., Mondelli, M.P. (2013). Sources of Firm Performance – Differences in the US Food Industry. *Journal of Agricultural Economics*, **64** (2): 382-404.

Destatis (2018). Employees and turnover in the manufacturing industry. Genesis-Online data-base of the Federal Office for Statistics, Wiesbaden.

DMK – Deutsches Milchkontor (2011-2018). Annual Accounting of the DMK 2010-2017. Annual accounting report of the Deutsche Milchkontor e.G., German Bundesanzeiger. URL: https://www.bundes-anzeiger.de/ebanzwww/wexsservlet. Date of download: 10th of March 2019.

Ebneth, O.J. (2006). Internationalisierung und Unternehmenserfolg, ein Vergleich europäischer Molkerei-genossenschaften. *Schriften der Gesellschaft für Wirtschafts- und Sozialwissenschaften des Landbaus e.V.*, **41**: 363-374.

Ehrmann (2011-2018). Annual Accounting of Ehrmann 2010-2017. Annual accounting reports of the Ehrmann AG, German Bundesanzeiger, URL: https://www.bundesanzeiger.de/ebanzwww/wexsservlet. Date of download: 10th of March 2019.

Fayerweather, J. (1989). Begriff der internationalen Unternehmung. Handwörterbuch- Export und internationale Unternehmung, Stuttgart Schäffer-Poeschel: 926-948.

FrieslandCampina (2011-2018). Annual Report 2010-2017. Annual reports of Royal FrieslandCampina N.V., Armersfoort.

frischli (2011-2018). Annual Accounting of frischli 2010-2017. Annual accounting report of the frischli Milchwerke GmbH, German Bundesanzeiger, URL: https://www.bundes-anzeiger.de/-ebanzwww/wexsservlet. Date of download: 10th of March 2019.

Goldsteig (2011-2018). Annual Accounting of Goldsteig 2010-2017. Annual accounting reports of the Goldsteig Käsereien Bayernwald GmbH, German Bundesanzeiger, URL: https://www.bundes-anzeiger.de-/ebanzwww/wexsservlet. Date of Download: 10th of March 2019.

Grant, R.M., Nippa, M. (2006). Strategisches Management. Munich, Pearson Studium.

Guillouzo, R., Ruffio, P. (2005). Internationalization of European dairy co-operatives. *International Journal of Cooperative Management*, **2**(2): 25-35.

Harzing, A.W. (2000). An empirical analysis and extension of the Bartlett and Ghoshal typology of multinational companies. *Journal of International Business Studies*, **31**(1): 101-120.

Helpman, E., Melitz, M.J., and Yeaple, S.R. (2003). Export versus FDI. Working Paper 9439, National Bureau of Economic Research, Cambridge, Massachusetts.

Heyder, M., Makus, C., and Theuvsen, L. (2011). Internationalization and Firm Performance in Agribusiness: Empirical Evidence from European Cooperatives. *International Journal on Food System Dynamics*, **2**(1): 77-93.

Hochland (2011-2018). Annual Accounting of Hochland 2010-2017. Annual accounting report of the Hochland SE, German Bundesanzeiger, URL: https://www.bundesanzeiger.de/ebanzwww/wexsservlet. Date of download: 10th of March 2019.

Hochwald (2011-2018). Annual Accounting of Hochwald 2010-2017. Annual accounting report of the Hochwald Milch e.G., German Bundesanzeiger, URL: https://www.bundesanzeiger.de/ebanzwww/wexsservlet. Date of download: 10th of March 2019.

Holtbrügge, D., Welge, M.K. (2015). International management theories, functions and case studies Vol. 6. Stuttgart, Schaefer-Poeschel.

Hurdle, G.J. (1974). Leverage risk, market structure and profitability. *The Revue of Economics and Statistics*, **54**(4): 478-485.

Johnson, G., Whittington, R., Andwin, D., and Regner, P. (2016). Strategisches Management – eine Einführung. Munich, Pearson Studium.

Jürgens, K., Fink-Kessler, A., Poppinga, O., and Wohlgemuth, M. (2015). Wertschöpfung von Molkereien. Summary report of a survey commissioned by the MEG Milch Board. e.V., Bureau of Agricultural Sociology and Agriculture.

Käserei Champignon (2011-2018). Annual Accounting of Käserei Champignon 2010-2017. Annual accounting report of the Käserei Champignon Hofmeister GmbH & Co. Kg, URL: https://www.bundesanzeiger.de-/ebanzwww/wexsservlet. Date of download: 10th of March 2019.

Kean, F.R., Baumann, H.D. (2003). Firm Size, Employees and Profitability in U.S. Manufacutring Industries. University of New Hampshire, Durham.

Li, L. (2007). Multinationality and performance: A synthetic review and research agenda. *International Journal of Management Reviews*, **9**(2): 117-139.

Magaziner, I.C., Reich, R.B. (1985). International Strategies. Strategic Management of Mulitinational Corporations: The Essentials. New York, John Wiley & Sons, pp , 4-9.

Meggle (2011-2018). Annual Accounting of Meggle 2010-2017. Annual accounting of the Meggle AG, German Bundesanzeiger, URL: https://www.bundesanzeiger.de/ebanzwww/wexsservlet. Date of download: 10th of March 2019.

Meißner, H.G., Gerber, S. (1980). Die Auslandsinvestitionen als Entscheidungsproblem. *Betriebswirtschaftliche Forschung und Praxis*: 217-228.

MIV (2017). Wohin die Milch fließt. Berlin, German Association of Dairy Industry.

OECD, FAO (2016). OECD-FAO Agricultural Outlook 2016-2025. Paris, OECD Publishing.

Onkvist, S., Shaw, J.J. (1989). The International Dimension of Branding: Strategic Considerations and Decisions. *International Marketing Review*, **6**(3): 22-36.

OMIRA (2011-2018). Annual Accounting of OMIRA 2010-2017. Annual accounting report of the OMIRA Oberland Milchverwertung Gesellschaft mit beschränkter Haftung, German Bundesanzeiger, URL: https://www.bundesanzeiger.de/ebanzwww/wexsservlet. Date of download: 10th of March 2019.

Negandhi, A.R., Welge, M.K. (1984). Beyond theory. Global rationalization strategies of American, German and Japanese multinational companies. Greenwich, JAI Press.

Perlmutter, H.V. (1969). The Tortuous Evolution of the Multinational Corporation. *Columbia Journal of World Business*, **4**: 9-18.

Qian, G. (2002). Multinationality, product diversification and profitability of emerging US small- and medium-sized enterprises. *Journal of Business Venturing*, **17**: 611-633.

Rücker Aurich (2011-2018). Annual Accounting of Rücker 2010-2017. Annual accounting report of the Rücker GmbH, German Bundesanzeiger, URL: https://www.bundesanzeiger.de/ebanzwww/wexsservlet. Date of download: 10th of March 2019.

Rücker Wismar (2011-2018). Annual Accounting of Ostsee-Molkerei Wismar 2010-2017. Annual accounting report of the Ostsee-Molkerei Wismar GmbH, German Bundesanzeiger, URL: https://www.bundes-anzeiger.de/ebanzwww/wexsservlet. Date of download: 10th of March 2019.

Scholl, R.F. (1989). Internationalisierungsstrategien. Handwörterbuch Export und internationale Unternehmung, Stuttgart, Schäffer-Poeschel: 983-1001.

Theuvsen, L., Ebneth, O. (2005). Internationalization of Cooperatives in the Agribusiness - Concepts of Measurement and their Application. Strategies for Cooperation, Aachen, Shaker: 395-419.

Theuvsen, L., Janze, C., and Heyder, M. (2010). Agribusiness in Germany 2010. On the Way to New Markets, Ernst & Young GmbH, Auditing Company.

Thomas, D.E., Eden, L. (2004). What is the shape of the multinationality-performance relationship? *Multinational Business Review*, **12**(1): 89-110.

Trademap (2018). List of importing markets of product groups 0401, 0402, 0403, 0404, 0405, 0406 exported by Germany. Trademap.org, date of Download: 20th of December 2018.

Uelzena (2011-2018). Annual Accounting of Uelzena 2010-2017. Annual accounting report of the Uelzena e.G., German Bundesanzeiger, URL: https://www.bundesanzeiger.de/ebanzwww/wexsservlet. Date of download: 10th of March 2019.

Verbeek, M. (2004). A Guide to Modern Econometrics. John Wiley & Sons Ltd.

Vermeulen, F., Barkema, H. (2002). Pace, Rhythm, and Scope: Process Dependence in Building a Profitable Multinational Corporation. *Strategic Management Journal*, **23**: 637-653.

Vitaliano, P. (2016). Global Dairy Trade: Where Are We, How Did We Get Here and Where Are We Going*?. International Food and Agribusiness Management Review,* **19**: 27-36.

Wind, Y., Douglas, S.P., and Perlmutter, H.V. (1973). Guideline for Developing International Strategies. Journal of Marketing, American Marketing Association, **37**(2): 14-23.

Zott (2011-2018). Annual Accounting of Zott 2010-2017. Annual accounting report of the Zott SE & Co. KG, German Bundesanzeiger, URL: https://www.bundesanzeiger.de/ebanzwww/wexsservlet. Date of Download: 10th of March 2018.

Appendix

Table 1.
Descriptive Statistics

Variable		Mean	Std. Dev.	Min	Max	Observations
ID	overall	9.54	5.28	1	18	N = 138
	between		5.34	1	18	n = 18
	within		0	9.54	9.54	T-bar = 7.67
Year	overall	4.57	2.27	1	8	N = 138
	between		0.44	4	6	n = 18
	within		2.24	1.07	8.07	T-bar = 7.67
EBIT-margin	overall	2.33	1.98	-5.2	8.7	N = 138
(%)	between		1.50	0.2	4.8625	n = 18
	within		1.323685	-3.70	6.28	T-bar = 7.67
Internationalization-	overall	0.29	0.46	0	1	N = 138
Strategy	between		0.46	0	1	n = 18
(dummy)	within		0.00	0.29	0.29	T-bar = 7.67
Organization	overall	0.46	0.50	0	1	N = 138
(dummy)	between		0.51	0	1	n = 18
	within		0	0.46	0.46	T-bar = 7.67
Turnover	overall	1927.85	3107.64	132.08	12110	N = 138
(million Euros)	between		3120.33	183.58	10756.13	n = 18
	within		429.95	-628.48	3407.93	T-bar = 7.67
Gearing Ratio	overall	229.82	180.05	47.1	1790.80	N = 137
(%)	between		141.32	50.85	657.27	n = 18
	within		117.64	-82.25	1363.35	T-bar = 7.67
Dairy-Price-Index	overall	201.18	30.24	153.77	242.75	N = 138
(index value)	between		1.69	196.13	201.60	n = 18
	within		30.21	153.35	247.80	T-bar = 7.67
Frischmilch	overall	0.52	0.50	0	1	N = 138
(dummy)	between		0.50	0	1	n = 18
	within		0.12	0.15	1.15	T-bar = 7.67
Frischmilchprodukte	overall	0.75	0.44	0	1	N = 138
(dummy)	between		0.43	0	1	n = 18
	within		0.12	0.12	1.12	T-bar = 7.67
Käse	overall	0.88	0.32	0	1	N = 138
(dummy)	between		0.32	0	1	n = 18
	within		0	0.88	0.88	T-bar = 7.67
Trockenprodukte	overall	0.73	0.44	0	1	N = 138
(dummy)	between		0.46	0	1	n = 18
	within		0.00	0.73	0.73	T-bar = 7.67
Butter	overall	0.59	0.49	0	1	N = 138
(dummy)	between		0.50	0	1	n = 18
	within		0.00	0.59	0.59	T-bar = 7.67

Table2.
VIF statistics

Variable	**VIF**	**1/VIF**
Legal form	4.91	0.204
Intern. Strategy	3.78	0.264
Butter	3.71	0.269
Turnover	3.38	0.296
Fresh milk products	3.00	0.334
Fresh milk	2.88	0.347
Dried milk products	2.12	0.473
Cheese	2.04	0.491
Gearing Ratio	1.53	0.654
Dairy-Price-Index	1.01	0.994
Mean VIF	2.83	