



Competitive strategies and financial relations in the meat manufacturing firms: Evidence from Greece

Christos Konstantinidis^{1*}

Maria Tsiouni²

Sofia Kourtesi³

Nikolaos Giovanis⁴

¹International Hellenic University,
School of Business Administration,
Serres, Greece.

²Email: chkons10@gmail.com

³Email: ng@ihu.gr

⁴International Hellenic University,
School of Agriculture, Thessaloniki,
Greece.

⁵Email: mtsiounis4@yahoo.gr

⁶International Hellenic University,
School of Economics, Serres, Greece.

⁷Email: sofia_kour@yahoo.com

Licensed:

This work is licensed under a Creative
Commons Attribution 4.0 License.

Keywords:

Competitiveness

Meat manufacturing firms

Strategy.

JEL Classification:

C3; D4; L66.

Received: 27 October 2022

Revised: 24 January 2023

Accepted: 3 February 2023

Published: 21 February 2023

(* Corresponding Author)

Funding: This study received no specific financial support.

Competing Interests: The authors declare that they have no competing interests.

Abstract

There are many different companies in the Greek meat industry, and most of them are small businesses. They can be divided into three main categories and all of them are referred to as meat manufacturing firms. The study of their main financial indexes is profitability, market share, and capital intensity. Capital intensity does not show stability in the turnover of these firms during the last years, while recovery points are seen after the covid 19 pandemic period increasing their competitiveness level. On the other hand, the competitiveness of these companies constitutes a crucial matter for all the firms as it is a guide for the selection of their proper strategy. As a result, the competitiveness estimation of these firms as a basic factor for the choice of the proper strategy acquires great importance and constitutes the aim of the present paper. Following the financial indexes methodology, the competitiveness estimation takes place with two equations using profitability and market share as dependent variables. The primary findings demonstrate how profitability, market share, and capital intensity affect the competitiveness of meat production enterprises, supporting the several strategies that these firms may choose to employ.

1. Introduction

There are various firms in the Greek meat-producing industry, most of which are small. Despite the low number of vertically integrated production units, the companies in question are vertically integrated and deal with all stages of animal rearing and slaughtering, as well as meat production, processing, and standardization, so there is intense competition between them. There are three main categories of complex meat-producing units: swine-breeding units, poultry-breeding units, and poultry-producing units (ICAP, 2022).

Several companies that have a significant market presence focus on processing and standardization. Consumer disposable income, eating habits, and even customs and traditions in a country can influence demand for the products in question and significantly shape market conditions, based on a report from the Foundation for Economic and Financial Research. Another important factor in determining demand is the occurrence of opportunistic or unforeseen events relating to the products' sensitive nature (for example, animal diseases).

Although the meat sector has fluctuated over the past few years, according to official financial data, its main financial indicators, such as sales, profitability, and capital structure, are showing signs of recovery after the COVID-19 pandemic, where the catering industry had limited activity for a considerable period (ICAP, 2022).

Thus, this study intends to determine the appropriate strategy for the meat-producing sector through financial indicators by assessing the competitiveness of meat-producing enterprises, identifying the factors that influence it, and determining the factors affecting the sector. Such a study seeks to connect significant constructs which influence the financial performance of firms positively by identifying its focalized variables. Based on the high market value and perceived emptiness in exploratory research, this research needs to focus on describing a significant construct in meat manufacturing firms.

This research contributes to the field in a variety of ways. Firstly, it illustrates how operations impact financial performance. The second step, it demonstrates the connection between competitive environments and operational performance. Third, it shows how the competitiveness of the industry affects financial performance. The results of our analysis will be followed by contextual conclusions based on significant results. The novelty of this study is that it examines the relationship between profitability, market share, financial factors, and competitiveness which incorporates them into a whole model for a specific period in Greece.

At first, the concept of competitiveness is provided by presenting a selection of works that examined competitiveness as well as the effects of various factors on it using various methods, followed by a review of the research methodology and determination of the equation would be estimated. Next, the results from this research are presented and at the end conclusions and discussion accompanied by the proposal for future research close the current work.

2. The Notion of Competition

Being competitive is a widely used term that has been extensively discussed in the literature (Fischer & Schornberg, 2007). The literature suggests that there are two basic techniques to gauge competitiveness. The first is primarily emphasized by Michael Porter and focuses on building a competitive advantage over rivals, whilst the second is based on the development of quantifiable economic indices. In this paper, using financial ratios, we choose the second approach. The empirical works that examine various facets of competitiveness are reviewed here.

A five-factor model of competitiveness as defined by Michael Porter in Porter's Five Diamonds (Porter, 1985) involves the threat of entry by a new competitor, the potential for substitute products, the ability of suppliers and buyers to negotiate, and the level of competition already in place. Chikán (2008) developed a model for assessing micro- and macro-economic competitiveness, concluding that Porter's forces are a useful tool for determining competitiveness and filling the gap between them. Based on a similar methodology to Chikán (2008), Cetindamar and Klitcioglou (2013) developed a common model at both the micro and macro levels that identify factors that affect competitiveness. According to the authors, managerial processes, competitive performance, and firm resources all affect competitiveness. A competitiveness yearbook is a useful tool at the national level. In another study, Chikán, Czakó, Kiss-Dobronyi, and Losonci (2022), connected the competitiveness of firms from a strategic management perspective and from the viewpoint of operations. Using a resource-based perspective on the company, popularly called RBV theories, and the measure of the Firm Competitiveness Index they studied the Hungarian manufacturing sector. The results demonstrate that dynamic production capabilities are positively correlated with firm-level competitiveness, but ordinary production capabilities are not significantly related.

Competitiveness is defined by Fischer and Schornberg (2007) as profitability, productivity, and market share. During the period 1995-2002, they studied the beverage industry in the United Kingdom, and they concluded that it was the most competitive industry and that the UK has the most competitive industry in the EU of 15 member states in terms of profitability, productivity, and market share. In addition, Reif, Ivancova, and Surmanova (2018) using financial indexes such as "raw materials exports", "agricultural raw materials imports", "food production index", and agriculture value added per worker", clustered the countries of the European Union EU and found significant differences in the specific indicators between the different EU countries.

As we return to the beverage industry, focusing specifically on the wine sector, the brand is found to be an important determinant of competitiveness (Scorrano, Fait, Maizza, & Vrontis, 2019). Similarly, for winemaking enterprises, ownership status, structure as well as communication techniques are important factors of competitiveness (Iaiana et al., 2019). Another factor contributing to a country's market competitiveness is its geographical location (Notta, Vlachvei, & Samathrakis, 2010). Between EU member countries, the competitiveness of the food and beverage sectors varied greatly between 2002 and 2007, mainly determined by geographic location. Food safety and quality determine competitiveness and the entire distribution network from the producer to the consumer (Mattas & Tsakiridou, 2010).

In the Italian food industry, productivity is an important determinant of competitiveness (Laureti & Viviani, 2011). According to Crescimanno, Galati, and Bal (2014), among nations like Spain, Turkey, and Italy, Turkey experienced the smallest drop in competitiveness since the economic crisis. Turkey also has the lowest per capita income. According to Harvey, Hubbard, Gorton, and Tocco (2017), innovation and its application as well as the production of different products stimulate competitiveness in the sector contrary to Crescimanno et al. (2014).

Using various commercial indicators as well as a competitive advantage to determine competitiveness and profitability in the food industry. [Wijnands, Van Berkum, and Verhoog \(2015\)](#) concluded that gaining a competitive advantage is the key to success. According to [Firlej, Kowalska, and Piwowar \(2017\)](#) adopting and implementing innovations, having a favorable trade balance, and exporting are all important aspects of gaining a competitive edge in the Polish food business. Moreover, the role of innovation was also studied on the point of consumer innovativeness at this time by [Sulkowski \(2017\)](#), who concluded that consumer innovativeness is a basic source for the creation of competitive advantage of firms. According to [Suchánek and Králová \(2019\)](#) the competitiveness of the food industry is determined by and stimulated by consumer satisfaction, adequate product information, and corporate compliance with existing rules.

The competitiveness of the Greek food and beverage industry is greatly impacted by human resource management and training ([Petropoulos, 2019](#)). The increase in exports has been viewed by [Ragimun and Widodo \(2019\)](#) as the most effective strategy to stimulate the competitiveness of the Indonesian food industry. On the other hand, [Bigliardi, Ferraro, Filippelli, and Galati \(2020\)](#) showed an increase in exports in the adoption of new technologies in food industry. During COVID 19 health crisis, the fluidity of the economy and the recent business environment has forced all participants (academics, entrepreneurs, managers) to find ways to set themselves out from the competition through innovation ([Vrontis & Christofi, 2021](#)).

According to [Tsoukatos, Psimarni-Voulgaris, Lemonakis, and Vassakis \(2017\)](#) implementing quality management programs strengthens the competitiveness of manufacturing companies in Greece more than developing research and development actions. Additionally, [Vrontis, Tardivo, Bresciani, and Viassone \(2018\)](#) created a global competitiveness index for Italian industrial firms. As a result of their research, they noted a high degree of heterogeneity among regions, emphasizing the fact that Italian manufacturing is largely dependent on a few regional systems that are extraordinarily competitive. Additionally, [Vrontis, Christofi, and Katsikeas \(2020\)](#) concluded that a variety of factors, including cause-related marketing, can contribute to international competitiveness in addition to factors like brand recognition and innovation [Zanotti, Reyes, and Fernandez \(2018\)](#) investigated the connection between the brewing industry's competitiveness and operational and financial performance. A confirmatory and exploratory factor analysis was selected as the method of study and then, structural equation modeling was applied. More than 12 European economies were represented by 214 brewery firms. The study found a strong correlation between financial performance and the industry's competitive framework, but not necessarily between financial performance and operational performance. A company's financial performance is not always correlated with its organizational structure.

[Kuźmiński, Jałowiec, Maślach, Wojtaszek, and Miciuła \(2020\)](#) analyzed the variables affecting the competitiveness of manufacturing firms. The size of the company, the degree of competition, the number of suppliers, the number of customers, the assessment of the dynamics of cooperation with suppliers and customers over the previous five years, and the characteristics of demand for the company's products were all taken into consideration. According to the findings, there are comparatively more competitive organizations than those who have maintained their relationships throughout the previous five years. Additionally, it indicates that those businesses that have worsened their relationships with suppliers recently are less competitive.

[Bargoni, Bertoldi, Giachino, and Giantoro \(2022\)](#) studied how the effect of covid-19 pandemic influenced the competitiveness of the supply chain of the Italian agro-food industry. From their results, the creation of four clusters and specifically the “cost fanatics”, “the brand focused”, “the sales centered” and “strategists” increase the value-added which the Italian agro-food industry can provide to their customers and as a result to improve its competitive advantage.

Moreover, according to the Theory of Industrial Organization and after its application in various research, the findings support the concept that profitability and market share can be considered composite competitiveness indices. Competitive firms are profitable while gaining market share. Through new investments, profitable firms can expand their fixed assets and increase their market share. Moreover, the size of the firms is a significant factor in the competitiveness. Large-scale operations achieve lower costs and can compete at lower prices in the market share ([Konstantinidis, Aggelopoulos, Tsiouni, & Rizopoulou, 2021](#)).

As a conclusion to this section and because this study involves a sector of the Greek food and beverage market, which seems to be competitive, after the COVID-19 pandemic, the following section determines the equation of competitiveness as well as evaluates its usefulness both in business and in academics.

3. Methodology

In the current work, competitiveness is defined as the firm's capacity for high profits and sustained market dominance ([Fischer & Schornberg, 2007](#)). Profitability and market share are two competitiveness indicators that emerge from [Fischer and Schornberg \(2007\)](#) definition and can be used to quantify it, by the definition of competitiveness given above. [Scherer and Ross \(1990\)](#) and other earlier works by ([Bhattacharya & Bloch, 2000](#); [Geroski & Jacquemin, 1988](#); [Levy, 1987](#)) claim that several variables that affect profitability and market share, as well as a company's entry conditions in an industry, establishes a long-run equilibrium level. Consequently, a partial adjustment method can be used to represent both profitability and market share ([McDonald, 1999](#)).

A partial adaption model's general structure is as follows:

$$Y_t^* = a_0 + a_1x_t + u_t \tag{1}$$

$$Y_t - Y_{t-1} = \lambda (y_t^* - y_{t-1}) \text{ with } 0 < \lambda < 1 \tag{2}$$

Where y is the relevant variable and y^* is y 's target level. Equation 3 is the result of changing y^* in Equation 2 to the following.

Where the Equation 3 presents the final form of the partial adjustment mechanism:

$$Y_t = a_0\lambda + (1 - k)y_{t-1} + \lambda a_1x_t + lu_t \tag{3}$$

According to earlier studies, profitability is affected by several variables, such as market share, capital intensity, and price elasticity (Notta, 2000; Susilo, Wahyudi, & Irene, 2020; Tong & Saladrignes, 2022; Vlachvei & Oustapassidis, 1998). Additionally, the profitability equation can be expressed as follows when the partial adjustment mechanism of profitability is taken into account:

$$PNP_t = a_0 + a_1MS_t + a_2PNP_{t-1} + a_3OPC_t + a_4GROWTH_t + a_5KS_t + u_t \tag{4}$$

Where:

PNP stands for intended net present value, MS for market share, OPC for operational costs, GROWTH for sustainable growth rate, KS for capital intensity, and u_t for the disruptive duration.

According to the research, a variety of factors, including profitability, age, loans, and capital intensity, have an impact on market share (Ameniya, 1984; Gómez & Céspedes-Lorente, 2004; Vlachvei & Oustapassidis, 1998; Yoo, 2005). As a result, the market share equation might take the following form:

$$MS_t = b_0 + b_1PNP_t + b_2MS_{t-1} + b_3AGE_t + b_4KS_t + b_5LEV_t + u_t \tag{5}$$

Where:

Market Share (MS), Profitability from New Product (PNP), Years of Operation (AGE), Capital Intensity (KS), Leverage (LEV), and Disruptive Term (UT).

For the estimation of the equations, according to the existing research, Notta (2000); Gómez and Céspedes-Lorente (2004); Fischer and Schornberg (2007) the following variables are used. The ratio of a company's annual net earnings to annual sales is used to determine its profitability (PNP). The sustainable growth rate is defined as the change in capital each year (GROWTH), market share (MS) is calculated as the ratio of the company's annual sales to the total industry sales, and debt ratio is calculated as the ratio of the company's total yearly loans to its total capital (LEV). The variables age and operational costs extracted from balance sheets and incorporated into the equations. Data from the Hellstat database was used to create financial ratios for all meat-processing businesses that released balance sheets between 2016 and 2020. Greece has made it compulsory for businesses to publish their balance sheets due to corporate governance regulations (Antoniadis & Ananikas, 2005). So, all the meat manufacturing firms in Greece, which published their annual balance sheets for the 2016-2020 period were selected and completed the sample of the current research.

Profitability and the range of market share are also dependent variables in the aforementioned equations. The values for market share vary from 0 to 1, whereas the values for profitability range from -1 to 1. The least squares method is viewed as inadequate and biased in certain situations (Ameniya, 1984). The estimating technique suggested is the Tobit method. Additionally, the Breusch-Pagane and Wooldridge methods are used to check the heteroskedasticity and autocorrelation errors in two equations (Drukker, 2003).

In light of the dependency of the two variables, the confined range of their values, and any potential endogeneity between them, the two equations are consequently evaluated concurrently as a system of equations. When we have a system of equations in these situations, the Tobit model takes the following form:

$$Y_i^* = x_i\beta + u_i, i = 1,2, \dots \dots n \tag{6}$$

$$Y_i = Li, \text{ if } y_i^* \leq Li, \tag{7}$$

$$Y_i = x_i\beta \text{ if } Li < y_i^* < ui, \tag{8}$$

$$Y_i = ui \text{ if } y_i^* \geq ui \tag{9}$$

Where:

Y_i^* is the dependent variable, x_i is the set of independent variables, β is the set of parameters that need to be estimated, and u_i is the errors brought on by the hypothesis (Yoo, 2005).

Using the control for autocorrelation (Wooldridge test), we can accept the null hypothesis that there is no autocorrelation for both the profitability and market share equations because the results show that $F(1.85) = 3.95$ and $\text{Prob} > F = 0.058$ for the profitability equation and $F(1.85) = 0.111$ and $\text{Prob} > F = 0.7402$ for the market share equation, respectively. Similar results are obtained for the heteroskedasticity test (Breusch-Pagane), which shows that for the profit equation, $x2(1) = 0.1257$ and $\text{Prob} > x2 = 0.3841$, and for the market share equation, $x2(1) = 0.356$ and $\text{Prob} > x2 = 0.4119$., these equations show that there is no heteroskedacity.

4. Results

The profitability equation Table 1 states that the profitability of the prior period has a positive and statistically significant influence on the profitability of the present period (coef = 0.870, p value = 0.000). Thus, meat-producing enterprises' profits in previous years tend to influence their future course. The profitability is positively affected by market share (coef.=1.658, p.value=0.007), which suggests that large-scale meat production companies possess a high degree of concentration thus, they effectively control a sizable portion of the market, and project more profitability than competitors of lesser size.

Profitability and sustainable growth rate have a statistically significant positive link (coef.=0.009, p.value=0.019). In other words, a 1% increase in sustainable growth will change into a 0.9% rise in profitability. In addition, because greater operational costs result in lower earnings, they have a negative and statistically significant effect on profitability (coef.=-0.026, p.value=0.043). If operational costs rise by 1%, profits will drop by 2.6%.

It is expected that a 1% increase in capital intensity will also result in an increase in profits as a result of the more efficient use of the available funds since a 1.1% increase in capital intensity will lead to a 1.1% increase in profitability for the meat production companies under study (coef=0.011, p=0.000).

Taking a closer look at the market share equation Table 1, it is evident that profitability is positively and statistically significant (coef. =0.002, p.value =0.000), which indicates that the meat-producing businesses in our sample use their profitable profits to expand their business in an effort to achieve economies of scale and, as a result, lower entry barriers for new businesses. If profits increase by 1%, the market share will increase by 0.2%.

Market share for the current period is positively impacted by the previous period's market share (coef.=1.019, p.value=0.000). As a result of the negative but statistically significant effect of years of operation on the market share (coef.=-5.81e-06, p.value=0.054), the younger companies that have been in business for a shorter period implement strategies and invest in order to grow more rapidly.

The market share of meat-producing enterprises appears not to be affected by the leverage ratio (coef.=0.002, p.value=0.229). Most likely, this is because our meat-producing enterprises do not obtain loans or do not leverage existing loans to expand.

Furthermore, the more intensive the use of available funds will be, as shown by the correlation coefficient (coef=0.064, p.value=0.054), that will increase the size of meat-producing companies, since it also has a favorable and statistically significant impact on profitability. Market share is anticipated to increase by 6.4% for every 1% increase in capital usage intensity.

Table 1. Empirical results of profitability (PNP) and market share (MS) equations for the meat industry.

Log likelihood: 2703.31		Wald chi2: 1049.97
		Prob>chi (2): 0.000
Variables	Profitability (PNP)	Market share (MS)
Profitability (PNP)		0.002 (0.000)***
Profitability (-1) (PNPLAG)	0.870 (0.000)***	
Market share (MS)	1.658 (0.007)***	
Growth rate (GR)	0.009 (0.019)**	
Operating costs (OPC)	-0.026 (0.043)**	
Capital intensity (KS)	0.011 (0.000)***	0.064 (0.054)*
Market share (-1) (MSLAG)		1.019 (0.000)***
Age of operating (AGE)		-5.81e-06 (0.054)*
Leverage ratio (LEV)		0.002 (0.929)

Note: Where *** Statistically significant at 1% significance level, ** Statistically significant at 5% significance level, * Statistically significant at 10% significance level.

5. Discussion

From the results obtained, it is evident that both market share in terms of sales and rate of sustainable growth influence profitability, verifying the Theory of Industrial Organization that the increase in sales results in higher profits for companies and leads to growth, a result that is related to other papers such as, Notta (2000); Bargoni et al. (2022); Fischer and Schornberg (2007). A positive and statistically significant effect of the profitability of the previous period on the equation of profitability also indicates the very important role that profitability plays from year to year, establishing a competitive advantage for these firms something which is also in line with Wijnands et al. (2015).

Market share is positively correlated with profitability and available funds, which supports the Theory of Industrial Organization and other works (Chikán et al., 2022; Notta, 2000) that indicate those companies which study invest profits as well as capital in strategies to promote concentration and create obstacles for smaller and emerging businesses to enter. In keeping with the Industrial Organization theory, operating costs negatively affect profitability, an element that is challenging to study due to the increase in energy prices as manufacturers' basic operating costs are increasing. A lack of significant effect of loans on market share can be linked to their sparse availability during the COVID-19 pandemic and to businesses' reluctance to plan further expansion while receiving extra funding in an unsteady economic climate and constitutes a result which is in contrast with previous studies (Petropoulos, 2019), may be due to the existence of instability due to the COVID-19 period.

As it can be seen from this study the Greek meat manufacturing firms occupy a key role, both from an academic and from a research standpoint, as well as at the level of policy-making, both for the Greek manufacturing sector and the entire Greek economy. As a result the competitiveness estimation, as well as the justification of the effect of certain economic factors on it, can play an important role in the selection of the proper strategy and as a consequence of their survival.

6. Conclusions

The structure of the Greek meat industry, as well as the impact of particular aspects like profitability, market share in terms of sales, capital structure, loans are analyzed in this paper. It focuses on the production of meat manufacturing businesses, can lead to a useful conclusion regarding the selection of the appropriate strategy for stimulating competitiveness, not just for the sector in question, but also for others with similar structures and structural features, an aspect that both academicians and politicians are particularly interested in this field.

So, the decisions and techniques which increase both profitability and market share as well as all the other factors which affect them. As it referred to the major goal of the firms of our study.

Even though we are focusing on a single sector that of meat, the structure of the sector and factors such as profitability, market share, and loans can provide safe conclusions for the manufacturing sector in Greece, as well as form the basis for studies in Europe with similar characteristics to Greece.

A proposal for the future occupation of the authors of this work is to examine how the largest and the smallest meat-producing enterprises can organize and create cooperative networks that aim to boost their competitiveness and market value by creating cooperative networks for the production, processing and distribution of their products.

References

- Ameniya, T. (1984). Tobit models: A survey. *Journal of Econometrics*, 24(1-2), 3-61. [https://doi.org/10.1016/0304-4076\(84\)90074-5](https://doi.org/10.1016/0304-4076(84)90074-5)
- Antoniadis, I., & Ananikas, L. (2005). Separating the roles of CEO and Chairman of the board. The case of the Greek listed firms. *Accounting and Finance in Transition*, 2, 225-237.
- Bargoni, A., Bertoldi, B., Giachino, C., & Giantoro, G. (2022). Competitive strategies in the agri-food industry in Italy during the COVID-19 pandemic: An application of K-means cluster analysis. *British Food Journal*, 124(12), 4782-4799. <https://doi.org/10.1108/bfj-07-2021-0738>
- Bhattacharya, M., & Bloch, H. (2000). The dynamics of industrial concentration in Australian manufacturing. *International Journal of Industrial Organization*, 18(8), 1181-1199. [https://doi.org/10.1016/s0167-7187\(99\)00005-3](https://doi.org/10.1016/s0167-7187(99)00005-3)
- Bigliardi, B., Ferraro, G., Filippelli, S., & Galati, F. (2020). Innovation models in food industry: A review of the literature. *Journal of Technology Management & Innovation*, 15(3), 97-107. <https://doi.org/10.4067/s0718-27242020000300097>
- Cetindamar, D., & Klitcioglou, H. (2013). Measuring the competitiveness of firm as an award system. *Competitiveness Review: An International Business Journal* 23(1), 7-22.
- Chikán, A. (2008). National and firm competitiveness: A general research model. *Competitiveness Review*, 18(1-2), 20-28. <https://doi.org/10.1108/10595420810874583>
- Chikán, A., Czakó, E., Kiss-Dobronyi, B., & Losonci, D. (2022). Firm competitiveness: A general model and a manufacturing application. *International Journal of Production Economics*, 243, 108316. <https://doi.org/10.1016/j.ijpe.2021.108316>
- Crescimanno, M., Galati, A., & Bal, T. (2014). The role of the economic crisis on the competitiveness of the agri-food sector in the main Mediterranean countries. *Agricultural Economics*, 60(2), 49-64. <https://doi.org/10.17221/59/2013-agricecon>

- Drukker, D. M. (2003). Testing for serial correlation in linear panel-data models. *The Stata Journal*, 3(2), 168-177. <https://doi.org/10.1177/1536867x0300300206>
- Firlej, K., Kowalska, A., & Piwowar, A. (2017). Competitiveness and innovation of the Polish food industry. *Agricultural Economics - Czech*, 63, 502-509.
- Fischer, C., & Schornberg, S. (2007). Assessing the competitiveness situation of EU food and drink manufacturing industries: An index-based approach. *Agribusiness: An International Journal*, 23(4), 473-495. <https://doi.org/10.1002/agr.20139>
- Geroski, P., & Jacquemin, A. (1988). The persistence of profits: An international comparison. *Economic Journal*, 98(391), 375-379. <https://doi.org/10.2307/2233373>
- Gómez, G.-E., & Céspedes-Lorente, J. (2004). The effect of quality- environmental investment on horticultural firms competitiveness. *Canadian Journal of Agricultural Economics*, 52(3), 371-386. <https://doi.org/10.1111/j.1744-7976.2004.tb00375.x>
- Harvey, D., Hubbard, C., Gorton, M., & Tocco, B. (2017). How competitive is the EU's agri-food sector? An introduction to a special feature on EU agri-food competitiveness. *Journal of Agricultural Economics*, 68(1), 199-205. <https://doi.org/10.1111/1477-9552.12215>
- Iaiana, L., Vrontis, D., Maizza, A., Fait, M., Scoranno, P., & Cavallo, F. (2019). Family businesses, corporate responsibility and websites. The strategies of Italian wine firms in talking to stakeholders. *British Food Journal*, 121(7), 1442-1466.
- ICAP. (2022). *Annual exhibition for the meat manufacturing firms in Greece*. Athens: ICAP.
- Konstantinidis, C., Aggelopoulos, S., Tsiouni, M., & Rizopoulou, E. (2021). Estimating competitiveness of Greek food and beverage industry: A comparison between Greek flour milling industry and Greek food and beverage industry. *EuroMed Journal of Business*, 17(4), 477-487. <https://doi.org/10.1108/emjb-02-2021-0016>
- Kuźmiński, Ł., Jałowicz, T., Maśloch, P., Wojtaszek, H., & Miciuła, I. (2020). Analysis of factors influencing the competitiveness of manufacturing companies. *European Research Studies Journal*, 23(2), 217-227. <https://doi.org/10.35808/ersj/1590>
- Laureti, T., & Viviani, A. (2011). Competitiveness and productivity: A case study of Italian firms. *Applied Economics*, 43(20), 2615-2625. <https://doi.org/10.1080/00036840903357439>
- Levy, D. (1987). The speed of the invisible hand. *International Journal of Industrial Organization*, 5(1), 79-92.
- Mattas, K., & Tsakiridou, E. (2010). Shedding fresh light on food industry's role: The recession's aftermath. *Trends in Food Science & Technology*, 21(4), 212-216. <https://doi.org/10.1016/j.tifs.2009.12.005>
- McDonald, J. T. (1999). The determinants of firm profitability in Australian manufacturing. *Economic Record*, 75(2), 115-126. <https://doi.org/10.1111/j.1475-4932.1999.tb02440.x>
- Notta, O. (2000). *The Effect of Advertising on the Competitiveness of the food and drink industry in Greece*. Phd Thesis, Aristotle University of Thessaloniki, School of Agricultural Sciences, Department of Agricultural Economics.
- Notta, O., Vlachvei, A., & Samathrakakis, V. (2010). Competitiveness –the case of Greek food manufacturing firms. *International Journal of Art and Science*, 3(7), 211-225. https://doi.org/10.1142/9781848165106_0026
- Petropoulos, D. P. (2019). Analysis of the food and beverage industry in Greece (2009-2017). *Advances in Management and Applied Economics*, 9(5), 25-34.
- Porter, M. (1985). *Competitive advantage. creating and sustaining superior performance*. New York: Simon and Schuster, Free Press.
- Ragimun, & Widodo, S. (2019). Strategy of food and beverage industry in Indonesia. *Journal of Economics and Behavioral Studies*, 11(4), 102-110.
- Reif, M., Ivanicova, Z., & Surmanova, K. (2018). Cluster analysis of selected world development indicators in the fields of agriculture and the food industry in European Union countries. *Agricultural Economics (Czech Republic)*, 64(5), 197-205.
- Scherer, F. M., & Ross, D. (1990). Industrial market structure and economic performance. In (pp. 111-112). Boston: Houghton Mifflin Company.
- Scoranno, P., Fait, M., Maizza, A., & Vrontis, D. (2019). Online branding strategy for wine tourism competitiveness. *International Journal of Wine Business Research*, 31(2), 30-50. <https://doi.org/10.1108/ijwbr-06-2017-0043>
- Suchánek, P., & Králová, M. (2019). Customer satisfaction, loyalty, knowledge and competitiveness in the food industry. *Economic Research*, 32(1), 1237-1255. <https://doi.org/10.1080/1331677x.2019.1627893>
- Sulkowski, L. (2017). Consumer innovativeness as a source of competitive advantage. *International Journal of Small and Medium Enterprises Sustainability*, 2(3), 22-50.
- Susilo, D., Wahyudi, S., & Irene. (2020). Profitability determinants of manufacturing firms in Indonesia. *International Journal of Economics and Business Administration*, 8(2), 53-64.
- Tong, Y., & Saladríguez, R. (2022). An analysis of factors affecting the profits of new firms in Spain: Evidence from the food industry. *Agricultural Economics*, 68(1), 28-38.
- Tsoukatos, E., Psimarni-Voulgaris, F., Lemonakis, C., & Vassakis, K. (2017). The impact of R&D and information technology on innovation performance of Greek SMEs. *Global Business and Economics Review*, 19(5), 521-535. <https://doi.org/10.1504/gber.2017.086602>
- Vlachvei, A., & Oustapassidis, K. (1998). Advertising, concentration and profitability in Greek food manufacturing industries. *Agricultural Economics*, 18(2), 191-198. [https://doi.org/10.1016/s0169-5150\(97\)00048-0](https://doi.org/10.1016/s0169-5150(97)00048-0)
- Vrontis, D., Tardivo, G., Bresciani, S., & Viassone, M. (2018). The competitiveness of the Italian manufacturing industry: An attempt of measurement. *Journal of the Knowledge Economy*, 9(4), 1087-1103. <https://doi.org/10.1007/s13132-016-0397-1>
- Vrontis, D., Christofi, M., & Katsikeas, C. S. (2020). An assessment of the literature on cause-related marketing: Implications for international competitiveness and marketing research. *International Marketing Review*, 37(5), 977-1012. <https://doi.org/10.1108/imr-07-2019-0202>

- Vrontis, D., & Christofi, M. (2021). R&D internationalization and innovation: A systematic review, integrative framework and future research directions. *Journal of Business Research*, 128, 812-823. <https://doi.org/10.1016/j.jbusres.2019.03.031>
- Wijnands, J., Van Berkum, S., & Verhoog, D. (2015). *Measuring competitiveness of agro-food industries: The Swiss case*. Retrieved from OECD Food, Agriculture and Fisheries Papers, No. 88, OECD Publishing, Paris:
- Yoo, S.-H. (2005). Analysing household bottled water and water purifier expenditures: Simultaneous equation bivariate Tobit model. *Applied Economics Letters*, 12(5), 297-301. <https://doi.org/10.1080/1350485042000293121>
- Zanotti, C., Reyes, F., & Fernandez, B. (2018). Relationship between competitiveness and operational and financial performance of firms: An exploratory study on the European brewing industry. *Intangible Capital*, 14(1), 1-17. <https://doi.org/10.3926/ic.1104>