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## **DIVIDEND PAYMENT POLICY ACROSS FOOD INDUSTRY COMPANIES – THE CASE OF EUROPEAN ECONOMIES**

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**Abstract:** The purpose of the paper is to examine the factors influencing the dividend payout policy. Our analysis is based on unbalanced panel data with 4 582 observations of companies from 35 countries over 20 years, 1999-2018. The study covers the companies that are listed on European stock exchange and also includes countries that are not in the EU. The factors that influence the dividend payment decision were identified. The advantage of a positive relationship between dividend payout is based mostly on the previous dividend payout decision. This shows the need to continue the undertaken dividend policy which reflects investors' expectations in this sector. Overall, the evidence supports that the productivity of a food sector companies' impact on the decision of dividend payment is even stronger than the level of profitability and size of a company. The debt level has a negative relationship with the dividend payout ratio. However, its impact was weak, mostly because of the low debt level in the case of food sector companies. Our evidence supports the agency and information asymmetry theory and contributes to international business research across intra-industry dividend policy characteristics.

**Keywords:** dividend policy, emerging economies, developed economies, panel tobit model, food sector.

## 1. Introduction

The dividend payment policy interacts with the financial and investment decisions of firms. However, the visible market trends demonstrate that a well-developed market refrains from dividend payout. Recent studies on dividends reported the situation of disappearing dividends [Fama, French 2001; Fatemi, Bildik 2012; Kuo, Philip, Zhang 2013; DeAngelo, DeAngelo, Stulz 2006; Von Eije, Megginson 2008]. Dividend companies are by nature not suitable for units that require significant financial investments, and their revenues depend heavily on individual projects (like IT companies) [Aivazian, Booth, Cleary 2003; Abor, Bokpin 2010; Khan et al. 2017]. Capital markets are not perfect, mostly because of differences in taxes, agency cost, transaction cost, liquidity, and the illiquidity of a stock exchange and inflation level. Furthermore, banks dominate the financial systems and control the funding channels on emerging markets on a larger scale than in developed markets [Jabbouri 2016]. These results might help investors gain a comprehensive understanding of dividend payment mechanisms across companies from the food sector in the case of emerging and developed capital markets.

The food sector is one of the most regulated, traditional, and extensive sectors characterized by its strategic importance in an economy, therefore it stands for national food security [Kufel-Gajda 2018]. The food manufacturing industry plays an essential role in global trade and the European food markets [Jaworski, Czerwonka, Mądra-Sawicka 2019], and it also has a significant role in creating gross domestic products in international exchange, satisfying local demand [Franc-Dąbrowska, Mądra-Sawicka, Ulrichs 2019]. The characteristics of food sector companies' performance are diverse according to their cash cycle and capital intensity. Thus the additional variable that was investigated across food processing companies was their productivity which is crucial for their further development and cash availability.

The purpose of the paper is to examine the internal firm's factors and dividend payout policy. This paper contributes to the latest literature related to intra-industry characteristics research on the determinants of dividend decisions as well as adds new evidence to the literature on dividend policy by showing that different dividend factors impact on the dividend payment decision. The study provides useful input for boards of directors to formulate dividend policy across food sector companies in Europe.

The authors correlated the dividend ratio with growth, size, and profitability similar to the method applied by Fama and French and in the study by Banerjee, Gatchev and Spindt [Banerjee, Gatchev, Spindt 2007; Fama, French 2001], as well as with debt [Lam, Sami, Zhou 2012; Mądra-Sawicka 2017], and with liquidity, as in Kaźmierska-Jóźwiak [2015]. The study also takes into account market ratio, market capitalization, price per earnings, and free cash flow values. However, these determinants are insignificant in this study and were not included in the literature review. Thus, the theoretical part of the survey covered only significant variables for the investigated sector.

The investigated effect of the study includes the distinguished internal factors with a one-year delay impact when a decision about the level of dividend payment is being made. The rest of the paper is organized as follows. Section 2 covers the literature on dividend payment decisions. Section 3 discusses the factors that impact on dividend payment decisions covered by the literature review. Section 4 includes methodology issue (data, sample, model specification), Section 5 discussion of the empirical result, and Section 6 concludes the paper.

## 2. Dividend payment decision – theoretical background

The dividend payment decision remains an up-to-date topic due to the fast changes in the financial markets and the different demands and expectations of investors. These companies' decisions are often investigated separately by taking into account various factors that influence companies decisions on the emerging and developed markets. This is a consequence of the risk level that plays a significant role in the firms' dividend policy and the firm-specific and market-driven risk measures. However, different market imperfections could affect a given firm's dividend policy, and these could be unique for every industry [David, Ginglinger 2016].

Dividend payout to a shareholder is a benefit, however for the company it is the real cost that decreases internal financing. Thus managers may be interested in retaining profit and keeping it for future investment purposes. This mechanism may have various effects related to the industry and the degree of development of financial markets and the presented theoretical issues.

Litner introduced dividend policy studies in 1956 [Lintner, 1956] based on American companies' data. Further research concerned the relation between investment and the dividend decision, and was initiated by Pruitt and Gitman in 1991, also on the sample of USA companies [Pruitt, Gitman 1991]. The dividend policy issue is based on most popular theories like catering, signaling, agency cost, and asymmetric information and behavioural theories. The theory of agency costs explain the payment of the dividend in the scope of strengthening control and management discipline and constitute the primary means of monitoring management results [Jeřak 2012].

The catering theory explains the demand-driven approach to dividend payouts by defining the role of the dividend policy as a tool for catering to investors' desires. According to Breuer, Rieger, and Soypak [2014], loss aversion and ambiguity aversion to dividend policies will play a crucial role in this process. This is supported by a study by Baker and Wurgler, who argue that those companies that do not pay dividends have a lower market value [Baker, Wurgler 2003]. In light of the signaling theory, dividend payouts may bring a wide range of benefits as they can signal the future profitability of a company [Kumar 1988]. Therefore dividend policy is a choice between retaining earnings and paying out cash or issuing shares to finance investments in the company's assets. Dividend payouts may also be examined from

behavioural theories. According to Shiller, the investors' behaviour and attitudes to the decision-making process are substantially influenced by societal norms [Shiller 1984]. This view is based on an assessment that investors are affected by uncertainty, which translates into a lack of appropriate judgment and a sense of objectivity while rating available financial evidence [Knight 1921]. From this point of view, the dividend policy is incoherent with the wealth maximization of the shareholders. It could, therefore, be explained by adding socioeconomic-behavioral factors to the strictly economic models [Frankfurter, Wood 2002]. Investors may influence the decision to pay out dividends if this is the wish of shareholders. This view is supported by Frankfurter and Lane, who conclude that dividend payouts could increase the attractiveness of equity issues. In such a scenario, a dividend payout to a shareholder will enhance the future stability of the company. When understood in this way, dividend payouts could be a method of calming investors [Frankfurter, Lane 1992]. The dividend decision is also explained by the agency cost theory, therefore different but level dividend determinants influence on reducing the agency cost like lower debt, firm size and growth, or the level of free cash flow [Jensen, Solberg, Zorn 1992; Jensen, Meckling 1976; Rozeff 1982].

The problem of the optimization of the dividend policy is considered from the main aim of the company and current expectations of shareholders. The shareholding structure can play a crucial role in the distribution of company profits. This issue was not considered in this study.

### **3. Dividend policy factors**

Several different internal and external firms' characteristics have been discussed in the literature. In the study, the discussed determinants cover the issue of firms' profitability, size, debt, productivity, and previous dividend pattern. The authors are aware that the result of the study may have been influenced by the macroeconomic conditions of doing business in a given country. However, this issue was not investigated in this study by the authors.

#### **3.1. Firms profitability**

Across many dividend payout motives, the relationship between profitability and dividend payout is the most often investigated factor. The essential condition for the dividend payout is the company's profits. Profitability is thus considered as the most influential factor of the firm's capacity to declare and pay dividends [Abor, Bokpin, 2010; Arnott, Asness 2003]. Thus according to different research, return on assets is negatively correlated with the dividend yield. However, higher profitability can be a reason to expect an increase in dividend payouts [Chen, Steiner 1999]. Furthermore, dividend growth becomes strongly predictable as it correlates with earnings yields [Møller, Sander 2017], which depend on the industry's characteristics. A positive

relationship was verified according to the fixed effect and random effect model, consistent with most literature studies [Singla, Samanta 2018].

The firm's profitability signals the ability of firms to pay a dividend and increase investors' motivation to purchase more shares [Bhattacharyya 2007; Ho 2003; Zakaria, Junyang 2016]. Furthermore, the increase in dividend level is a signal of a positive trend in future company profitability [Grullon, Michaely, Swaminathan 2012]. However, based on asymmetric information, the pecking order theory, and the signaling hypothesis, managers are reluctant to change the level of dividend payout or increase their level even if the profit performance is very high [Bostanci, Kadioglu, Sayilgan 2018]. Profitability is a variable that was tested mostly in the signaling models theory. However, the instability in profitability leads to dividend payment reduction [Aivazian et al. 2003; Al-Najjar 2009].

### **3.2. Firms debt level**

The debt level plays a crucial role in reducing agency costs [DeAngelo et al. 2006; Jensen, Meckling 1976]. Companies with expensive use of debt avoid paying dividends due to the already high financial risk. According to Patra the high level of debt influences lower dividend payment or its lack [Patra et al. 2012]. Firms for which external finance reflects relatively high costs will be more inclined to increase dividends [Leary, Michaely 2011]. However, according to different authors, the relation between debt and dividend payment may not be significant [Griffin 2010]. Companies with higher debts noted lower dividend payments, thus earnings need to be allocated to debt servicing [Al-Malkawi 2008; Denis, Osobov 2008; Fama, French 2001]. Other studies discovered a positive relationship between higher debt level and increasing dividend payment, but this relationship was insignificant [Gill, Biger, Tibrewala 2010].

### **3.3. Firms size**

The company size is one of the most used factors to assess the size and strategy of dividend payout. Larger companies have better access to capital markets and find it easier to raise funds with lower cost compared to smaller ones [Al-Malkawi, 2008]. Company size is positively correlated with dividend payouts [Coulton, Ruddock 2009; DeAngelo et al. 2006; Fama, French 2001]. These companies are more attractive for risk aversion investors [Mitton 2004]. The level of information asymmetry in the case of larger companies is lower due to greater amount of publicly available information. Often the larger the company, the higher profitability it can achieve, and managers are more inclined to distribute more dividends [Chen et al. 2014].

### **3.4. Firms productivity**

The productivity of the company refers to the balance between all factors of production. According to Heinkel's model, firms that noted lower productivity invest more and declare no dividend payout. Companies with a higher level of productivity invest less and declare dividends on the scale that takes into account investment needs [Bhattacharyya 2007]. Managers from companies with higher productivity distribute more of their available earnings or cash as dividends [Bhattacharyya, Mawani, Morrill 2008]. However, this issue of productivity is mostly assessed in the aspect of human resources management. In many studies, productivity is strongly dependent on profitability. Companies assessed as undervalued, with limited financial leverage, employ more productive assets, distribute relatively more cash through dividends, and share repurchases [Washer, Casey 2011].

### **3.5. Previous dividend payments**

The dividend payout pattern is still an unsolved puzzle. As dividends are taxed at a higher rate than capital gains, they become at some capital markets less valuable than capital gains. From this point of view, companies paying dividends are at a competitive disadvantage because they have higher equity costs than non-dividend companies [Fama, French 2001]. Lower market payout ratios are a result of shareholder tax optimization, higher cash retention, and meagre perspectives for further growth of companies.

On the contrary, dividend-paying companies are more attractive to investors who decide to choose a more mature firm [Fuller, Goldstein 2011]. Other perspectives assume that dividend payment is independent of its historical pattern, and are based mainly on current profitability [Jabbouri 2016], while another thesis refers to minimizing the firm's risk due to lower dividends payment.

## **4. Methodology**

### **4.1. Sample and data collection**

The study uses a firm-level panel data set comprising all publicly traded firms operating in developing and developed European food industry markets. The authors collected firm-level data (expressed in millions of EUR) from consolidated and individual financial statements from Eikon Thomson Reuters according to the NACE sector classification, and used a four-step level of selecting the data to enhance the data quality. In the first step, the authors selected countries that classified as European regions in the MSCI Emerging Markets index of Thomson Reuters. Then in the second step, the companies were selected according to database industry classification. The sample was checked according to duplicated data, eliminating

these observations for which primary data were missing. The investigated period was limited by several observations that enabled to establish panel models. The minimum series of data was five years, and the maximum period was 20 years. The database has 4 844 observations of companies from the following 35 countries: Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Macedonia, Montenegro, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Sweden, Spain, Switzerland, and the UK. The highest number of observations were noted for the UK (596), France (509), Greece (334), Poland (289), Bulgaria (259), and Croatia (241). The examined tobit model covers 4 582 observations due to the availability of all data. In the case of 51.1% of companies, dividend payments occurred during the investigated period.

## 4.2. Variables

The payout ratio distinguishes two lines of research on dividends. The potential factors based on prior literature include five determinants: size, debt, profitability, productivity, and previous dividend payout. Table 1 presents a description of the variables used.

**Table 1.** Variables definitions

Variables	Symbol	Description
Dividend payout ratio	DIV	Common dividend to income before extraordinary items
Size	SIZE	Natural logarithm of total sales
Debt	DEBT	The value of debt to total assets (%)
Profitability	ROA	Operating income to total assets (%)
Productivity	PROD	Total revenues to total assets

Source: own elaboration based on the Eikon data source methodology.

## 4.3. Hypotheses

Based on the implications of dividend theory models, the authors formulated the following testable hypotheses:

- H1: here is a positive correlation between dividend payout ratio and company size.
- H2: There is a negative correlation between dividend payout ratio and company debt level that the company noticed in the previous year.
- H3: There is a positive correlation between dividend payout ratio and profitability that the company noticed in the previous year.
- H4: There is a positive correlation between dividend payout ratio and productivity that the company noticed in the previous year.
- H5: There is a positive correlation between dividend payout ratio and the previous pattern of dividend payment.

**4.4. Methods**

To examine the determinants of dividend payments ratio, the authors used a panel regression model with a censored dependent variable. The results complement those of Kim, Jang [2010] who distinguished two steps of dividend policy decisions. Using cross-sectional time-series data allowed to examine issues that could not be studied in one-dimension data sets. Every individual effect covered all the time-invariant characteristics of every object (firm), which influenced the dependent variable, but which was not explicitly comprised in the vector of explanatory variables (usually because it was not observable).

Kim and Jang [2010] pointed out that different mechanisms are underlying the decision to pay dividends and the decision about the exact payment amount [Kim, Jang 2010]. Since the authors were interested in the description of the value of dividend, one should bear in mind the unique characteristics of the dividend payout ratio (a relatively large proportion of firms with a rather small dividend payout ratio and a considerable fraction of observations censored at exactly zero usually gives biased OLS estimates), the authors considered the tobit model [Tobin 1958].

When the dependent variable is censored, values in a certain range are all transformed into a single value. For these reasons, the study defined a new random variable  $y_{it}$  transformed from the original one,  $y_{it}^*$ , by  $y_{it}^*$ , by  $y_{it} = \begin{cases} y_{it}^* & \text{if } DIVIDEND > 0 \\ 0 & \text{if } DIVIDEND = 0 \end{cases}$ .

The dependent variable in the model is an unobservable latent variable  $y_{it}^*$ , which can be interpreted as a dividend payout. Hence, one can observe only two states of dividend payout:  $y_{it} = y_{it}^*$  if  $y_{it}^* > 0$  and  $y_{it} = 0$  if the  $i$ -th firm does not pay dividends in the year  $t$ . Consequently, the basic regression takes the form of a binary-choice panel model given by equation (1):

$$y_{it}^* = \beta x_{it} + \varepsilon_{it} \beta$$

$$y_{it} = \begin{cases} 0 & \text{if } y_{it}^* \leq 0 \\ y_{it}^* & \text{if } y_{it}^* > 0 \end{cases}$$

where: superscript  $i$  represents the  $i$ -th firm,  $t$  – denotes time ( $t = 1999, \dots 2018$ ),  $\beta$  – is the vector of  $K$  structural parameters ( $K \times 1$ ),  $\varepsilon_{it}$  – the vector of disturbance term,  $x_{it}$  – vector of explanatory variables.

Since the decision about the value of dividend payout ratio is based on last observed values the authors used only the lagged values of explanatory variables, therefore the vector  $x_{it}$  includes the following lagged values of series:

$$x_{it} = [DIV_{it-1}, DEBT_{it-1}, ROA_{it-1}, PROD_{it-1}, SIZE_{it-1}]'$$

In the case of censored data, the OLS estimator is inconsistent and biased; usually OLS estimates are smaller in absolute value than the Maximum Likelihood



Estimator (ML). The ML estimation of tobit model is explained in detail in e.g. Greene [2012].

## 5. Results

### 5.1. Descriptive statistics

Table 2 presents the statistics of the variables examined. Some of them show a relatively high level of standard deviation. However, as further analyses (model tests) have shown, outliers carry a large amount of information on the dividend phenomena. It is, therefore, not necessary to eliminate them from this particular study.

**Table 2.** Statistics of the examined variables

Variables	Obs.	Mean	Maximum	Minimum	Std. Dev.
DIV	4 863	0.37	0.56	0.00	5.75
SIZE	4 844	53.94	24.95	0.00	99.08
DEBT (%)	4 844	11.80	2.13	5.23	19.31
ROA (%)	4 844	1.82	16.37	-579.59	121.57
PROD	4 845	0.96	0.66	0.00	6.51

Source: own computations in STATA 15.

### 5.2. Random effects tobit model

Initially, tobit panel regression models with all the lagged values of explanatory variables were estimated to evaluate the size and statistical significance of all the potential causes of dividend payout and then the dividend level. The total number of observations was 4 582 and covered 327 companies. Table 3 presents the results of the estimation of the random effect tobit model. The Wald  $\chi^2$  test confirms that all the variables included in the model have a statistically significant influence on dividend payments.

The results indicate that the coefficients are significantly positive for the previous year: dividend payout ratio, productivity, size, and profitability. The negative relation was recorded for the lagged value of the debt level. From the factors that impact on dividend payout decision, the strongest influence was for the payout propensity, therefore if companies (with one year lag) were in a group of dividend payers or non-payer (0.756). The signal of keeping the dividend policy was an essential factor for investors. These results are consistent with the view of Fama and French [2001] and Franc-Dąbrowska et al. [2019].

The second important determinant was productivity with a one-year lag (0.0376), which can be sector-specific factor reveal in the case of manufacturing companies.

**Table 3.** Random effects tobit regression

Detailed	Coefficient	Std. Error	z	P> z	95% Confidence Interval	
DEBT <sub>t-1</sub>	-0.0006	0.0001	-3.82	0.0000	-0.0008	-0.0003
SIZE <sub>t-1</sub>	0.0271	0.0015	17.83	0.0000	0.0241	0.0300
PROD <sub>t-1</sub>	0.0376	0.0042	8.80	0.0000	0.0291	0.0459
ROA <sub>t-1</sub>	0.0028	0.0004	7.49	0.0000	0.0021	0.0035
DIV <sub>t-1</sub>	0.7565	0.0136	55.60	0.0000	0.7298	0.7832
cons	-0.4182	0.0186	-22.49	0.0000	-0.4547	-0.3817
Number of observations	4 582 (left-censored 2 205, uncensored 2 377)					
Number of groups	327					
Wald chi <sup>2</sup>	3 678.81 ( <i>p-value</i> 0.000)					
LR test of sigma <sub>u</sub> =0	chibar2(01) = 0.00 Prob >= chibar2 = 1.000					

Where: superscript *t*-1 indicates a one-year lag of the variable.

Source: own computations in STATA 15.

This factor was essential in the case of food companies that are quite diversified in terms of manufactured food products. The studied sample was characterized by a very diverse degree of processing that uses various production processes. This result is also supported by Bhattacharyya’s empirical results [2007].

The third factor that impacts on dividend policy decision was profitability (ROA). The authors find that dividend payout ratios have a predictive power in the case of profitability, but its effect is not so strong as the DIV pattern and productivity of the company. The positive relationship of this factor confirms the findings of Chen and Steiner [1999], Arnott et al. [2003], Abor and Bokpin [2010], Møller and Sander [2017], and Franc-Dąbrowska et al. [2019].

The size of the company has a stronger impact on dividend payout than the level of profitability (0.0271). Company size has a significant positive influence on dividend policy; this result is also confirmed in studies across other industries as well [Al-Malkawi 2008; Denis, Stepanyan 2011; Franc-Dąbrowska et al. 2019; Jensen, Meckling 1976].

The debt level was significantly affecting the dividend policy of food industry companies. Thus higher debt leads to lower dividend payments, however the impact of debt was not so strong as other factors (-0.0006). The relatively low level of debt explains its weak impact on dividend decisions. The results confirm the findings of Jensen and Meckling [1976]; DeAngelo et al. [2006], Patra et al. [2012], and Leary and Michaely [2011].

A positive influence on dividend payout was noticed for previous dividend payout decisions, company size, productivity, and profitability, and this result sup-

ports hypothesis H1, H3, H4, and H5. Companies from the food sector with a high leverage ratio are less likely to pay dividends. This result supports hypothesis H2.

The individual effects on companies are not statistically significant; all of the data variations are within companies.

## 6. Conclusion

This study addresses the issue of the informational content of dividends. The dividend payout determinants are essential drivers for investors across sectors and nations. This study provides some additional information to the debate on the relationship between dividends and fundamental factors that affect its level. A dividend payout decision was made if there was a continuation of dividend policy. The company has higher productivity and was bigger according to firms' size, higher level of profitability, and lower level of debt. The payment of dividends during 20 years was still a useful tool used by large and profitable companies in the food sector. Companies that decided to pay dividends try to stay in a group of dividend payers.

Companies with a lower debt ratio tend to distribute a higher level of dividends. On the other hand, a higher level of debt forces managers to keep internal charges cash flow which disagrees with the traditional pecking order framework. The dividend payments occur in companies as a signal of firms strength that is used to attract new investors, thus its response to agency and information asymmetry theories. The result of the study is in line with the agency cost theory.

The limitations of the study results are mainly the consequence of the limited number of sample observations and the irregularity of the decisions on dividend payment in the sector under study. In the study, the authors did not include the assumption that in more developed countries, the financial institutions are more mature, which affects shareholders' dividend preferences.

The study's results could be usefully complemented by further research, and by further investigation of the sample in the division of emerging and developed stock exchange market classification. The findings from this study could be useful for boards of directors and managers from the food industry.

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## **POLITYKA WYPŁATY DYWIDENDY W PRZEDSIĘBIORSTWACH PRZEMYSŁU SPOŻYWCZEGO NA PRZYKŁADZIE GOSPODAREK EUROPEJSKICH**

**Streszczenie:** Celem artykułu jest określenie czynników wpływających na politykę wypłaty dywidendy. Przeprowadzona analiza została oparta na niezbilansowanych danych panelowych obejmujących 4 582 obserwacji firm z 35 krajów w ciągu 20 lat (1999-2018). Badaniami objęto spółki notowane na europejskich rynkach kapitałowych. W badaniu zidentyfikowano czynniki wpływające na decyzję o wypłacie dywidendy. Determinantą wypłaty dywidendy w bieżącym okresie była głównie decyzja o dalszej kontynuacji jej wypłaty. Odzwierciedla to oczekiwania inwestorów w tym sektorze. Przeprowadzone badania ponadto potwierdziły, iż poziom produktywności badanych przedsiębiorstw sektora spożywczego wpływał na decyzję o wypłacie dywidendy silniej niż poziom rentowności i sama wielkość tych przedsiębiorstw. Wyższy poziom zadłużenia był czynnikiem ograniczającym poziom wypłaty dywidendy, zmienna ta nie miała jednak aż tak znaczącego wpływu. Wynika to z niskiego poziomu zadłużenia przedsiębiorstw sektora spożywczego. Uzyskane wyniki potwierdzają założenia teorii agencji i asymetrii informacji oraz wpisują się w nurt międzynarodowych badań w zakresie rynków kapitałowych dotyczących charakterystyki polityki dywidendowej w ujęciu branżowym.

**Słowa kluczowe:** polityka dywidendowa, gospodarki rozwijające się, gospodarki rozwinięte, model panelowy, sektor spożywczy.