# Financial evaluation and perception analysis of meat industry companies

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*Original scientific paper*

**SUMMARY**

*Meat industry is a leading sub-category of food industry with the largest share of generated revenue and salaried employees. In 2012 this sector included a total of 184 companies operating with a different degree of financial success and market share. The aim of the paper is to perform a multi-criteria comparison and rank the largest Croatian meat industry companies. For this purpose we used a multi-criteria decision making method, namely Analytical Hierarchy Process, which synthesized (a) financial results, (b) adjustment to changing market conditions in 2013, and (c) consumers' assessment of product quality and brands in the overall evaluation of companies concerned. Of the seven largest companies, the meat industry PIK Vrbovec received the highest rating and placed first. Meat industries Braća Pivac and Perutnina Ptuj - PIPO occupied the second and third place, respectively.*

***Keywords:*** *meat industry, business operation, comparison, analytic hierarchy process*

## INTRODUCTION

The food industry has traditionally been the most important branch of manufacturing industry in Croatia. For many years it held the largest share in the gross value added of total industrial output and employed the most workers. According to the Industrial Strategy of the Republic of Croatia 2014 - 2020 data (Ministry of Economy, 2014), the food industry employed about 20 % of industrial workers and accounted for 20 % of Croatian manufacturing industry total revenue. Its economic importance is reflected in the fact that it ensures the marketing of domestic agricultural products as well, and thus indirectly affects the development of agriculture and related activities.

Even in crisis business conditions present in Croatia since 2009, the food industry has managed to maintain the stability of business operation, and showed greater resilience to reduction in private consumption and general decline in economic activity than other branches of industry. Unlike the overall manufacturing industry, whose output value in the period from 2008 to 2012 decreased by 9 %, the food industry recorded a growth of 11 % (Aralica, 2014).

The meat sub-industry is, according to numerous indicators, the most significant component of the industrial food manufacturing and processing sector. According to the National Classification of Activities, in 2012 the meat industry in Croatia comprised of 184 registered companies that achieved revenue of about HRK 7.3 billion, which represents 22 % of food industry total revenue. With just under 8 thousand employees, the meat industry contributes 18 % of the total available work force in food industry (Ministry of Economy, 2014). Like in most European countries, large companies in this branch of Croatian food industry generated the majority of revenue share. According to the criteria of revenue, in 2012 three domestic meat industry companies generated a combined share of 58.3 % in the total revenue of analysed sector (2012 Financial statements for the following companies: PIK Vrbovec, Koka, Braća Pivac; Ministry of Economy, 2014).

Croatia's accession to the full European Union membership led to further liberalization of food markets which resulted in further deterioration of import-export balance, in which both livestock and meat sector play an important role. The biggest increase occurred in respect to fresh meat

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market, whose imports in the first year of membership increased by as much as 48 %, namely from USD 257 to 380 million (Babić, 2014). According to the Croatian Agricultural Agency data, in five months of 2014, pork production decreased by 7,000 tonnes, beef production decreased by 2,000 tonnes and poultry production decreased by just over 1,000 tonnes (Šajn Rak, 2014). This data adds to the negative foreign trade balance regarding fresh meat and offal, that were in 2013 imported in the amount of USD 313 million, while the export of such products at the same time amounted to only USD 41 million (Croatian Chamber of Commerce, 2014). Although it can be assumed that the increase in import was primarily caused by retail chains that place fresh meat on their shelves, the meat industry, which imported fresh meat to compensate for the closure of a large number of its own slaughterhouses, also played a significant role.

In 2010 Croatian slaughterhouses produced 65 thousand tonnes of meat, but in 2013 their production was reduced to mere 57 thousand tonnes (Žujo, 2013). Instead of slaughtering, the majority of large meat industries imported the necessary raw materials for meat products. The meat industry Danica closed its slaughterhouse in late 2012, and the meat industry Gavrilović dropped its fresh meat plant plan in 2013.

Significantly better import-export balance was achieved in the trade of meat products. According to the Croatian Chamber of Economy (2014), in 2013 a surplus in balance of trade was achieved. 15 thousand tonnes of meat were imported, yet 20 thousand tonnes were exported. This difference is even more pronounced in terms of monetary units, that is to say, the import amounted to USD 57 million, and the export amounted to USD 99 million. Such data indicates that meat industry companies are in the process of business restructuring that involves the rationalization of raw material supply and the specialization of products in the direction of processing instead of fresh meat placement. Although these processes cannot be considered a positive influence on the domestic production of livestock, they have positively impacted the business operation of most major meat industries, and are justified in practice by the calculation of operating indicators. Future good results of meat industry are further supported by the fact that compared to the European average, the level of meat consumption per capita in Croatia amounts to 74 %, thus raising the expectation of increased spending with economic development. According to the Croatian Bureau of Statistics data (2012), the average consumption of meat, excluding cured meats, in 2011 in Croatia amounted to 47.8 kg per capita, while the comparable amount in EU-27 equalled 64.7 kg per capita (EC, 2013). Research conducted by GfK EU3C in 2012 revealed that respondents from old EU Member States (EU12), by consuming meat 217 days a year on average, consume meat more often than respondents from less developed, new Member States, where meat is consumed 183 days a year on average.

## OBJECTIVE AND METHODS

The aim of this paper was to comparatively evaluate the largest domestic meat industry companies, based on the following three criteria: (a) financial results realized in 2013, (b) adjustment to changing market conditions after the accession of Croatia to the European Union, and (c) perceived quality of product and brand loyalty by consumers. For this purpose, Analytical Hierarchy Process (hereinafter: AHP) was used. This method is one of the most recognized and in recent years the most commonly used method for deciding and ranking, when a process, i.e. the ranking of choice or its alternatives, is based on several criteria that either vary in importance or are expressed using different scales. Solving complex problems during decision situations by this method is based on their decomposition in a hierarchical structure whose elements include goal criteria (sub-criteria) and alternatives (Begičević, 2008). In the process of ranking, using the Saaty scale, each element of the AHP model is assigned a numerical value (1 through 9) which indicates the extent to which a criterion and sub-criterion apply, i.e. to what extent an alternative meets certain criteria.

This paper used the following AHP model structure:

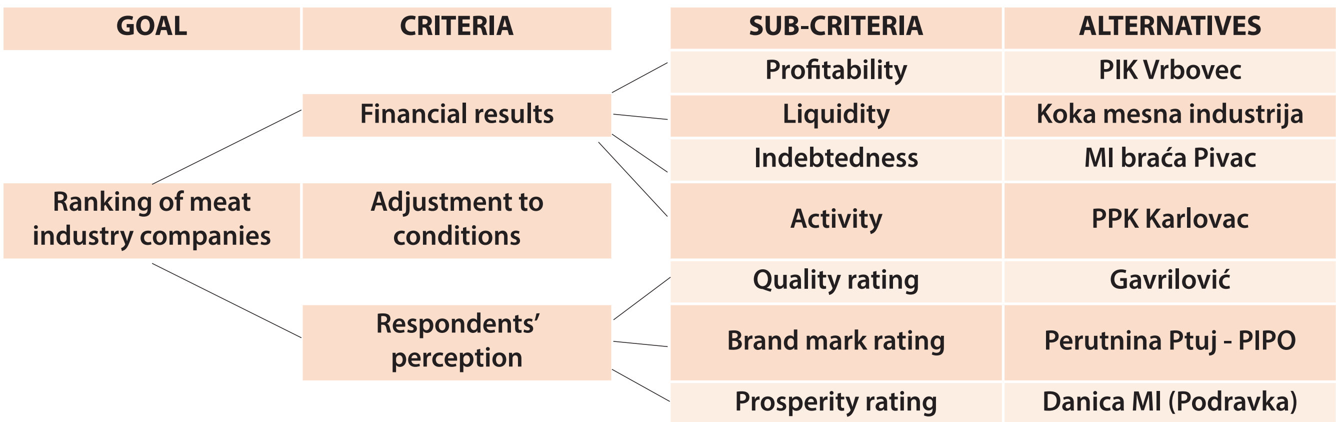


**Figure 1. AHP model of meat industry companies comparison.**

Financial sub-criteria were calculated according to available companies' financial statements for 2013 (Profit and Loss Statement, and Balance Sheet) downloaded from the Financial Agency website.

- Profitability, as an indicator of return on capital employed, was determined by calculating the return on assets (ROA), which is calculated by dividing company's annual earnings by its total assets. Profitability is the most important of all stated financial indicators and most likely to influence the overall financial evaluation (Hadelan, 2010). Higher value of this indicator is preferred, and a minimum acceptable value is considered the rate of return on risk-free investments (for example interest on savings in banks).
- Liquidity is an ability of a company to meet short-term obligations and current activities. In this paper, the liquidity was represented by the current ratio, which is calculated by the ratio of current assets to current liabilities. The desirable value of this indicator is higher than 1.5.
- Indebtedness determines to what extent is the company financed by external funds, i.e. the amount of assets financed from own versus external capital. The most common indicator of indebtedness, which was also used in this paper, is debt ratio which is defined as the ratio of total debt to total assets. The desirable value of this indicator is lower than 0.5.
- Activity indicates how efficiently are company's resources used in the business process. To demonstrate activity, the paper used the inventory turnover ratio calculated by the ratio of total revenue to total assets. The higher value of this indicator is preferred.

Another criterion in the comparison of companies was the adjustment to changing market conditions. The need for such criterion arose from the fact that the accession of Croatia to the European Union significantly changed business environment. Although a positive result of such integration presented the opportunity to export meat products to the EU countries, companies were from July 1, 2013, faced with the harsh conditions of placing goods on the market of CEFTA countries. It was important, in such environment, to at least maintain the level of revenue realized in 2012, when there were no customs or similar restrictions on the placement of goods on CEFTA markets. Adjusting to new market conditions in the business operation is determined by the change in realized gain (increased revenue = good adjustment, reduced revenue = poor adjustment).

The third criterion that the AHP assessment includes is the respondents' perception of product quality, brand mark loyalty and business prosperity of meat industry companies. The aforementioned data was collected by survey research, which included 84 subjects. The survey was conducted electronically, via e-mail and through social networks.

## RESULTS

We analysed financial data of the seven largest meat industry companies according to the business revenue realized in 2013. Analysed companies achieved about 86 % of total meat industry revenue in Croatia, moreover, the concentration of assets was even greater, and included 88 % of total assets pertaining to the sector. According to the total revenue realized in 2013, the largest domestic meat industry was PIK Vrbovec. Its revenue, amounting to slightly less than HRK 2 billion, was significantly higher than revenue of other analysed companies. In terms of revenue, the meat industry Danica, whose revenue amounted to about six times less than the revenue of PIK Vrbovec, was ranked the lowest. Compared to the year 2012, the cumulative revenue of the seven companies concerned increased by 1.5 %. In 2013 five companies achieved revenue growth. At the same time, revenue was reduced in meat industries Gavrilović and Danica. Concerned companies increased their net profit to a greater extent than their revenue. With a value of HRK 112 million, due profit was 19 % higher than the previous year. Despite the fact that, in terms of revenue, it was ranked far lower than the meat industry PIK Vrbovec, the meat industry Braća Pivac was, with the profit realized amounting to HRK 54 million, in terms of profit, the highest ranked company of 2013. Out of seven analysed companies, only the meat industry Danica was operating at a loss.

Based on financial statements, the following indicators were calculated:

**Table 1.** Financial indicators of largest meat industries in Croatia.

| Company | Profitability | Liquidity | Indebtedness | Activity |
|---|---|---|---|---|
| | ROA | KTL | KZ | KOI |
| **PIK Vrbovec** | 3,7% | 1,72 | 0,60 | 1,40 |
| **Koka** | 0,3% | 1,78 | 0,48 | 1,22 |
| **Braća Pivac** | 9,7% | 1,42 | 0,30 | 1,96 |
| **PPK Karlovac** | 3,3% | 1,44 | 0,45 | 3,23 |
| **Gavrilović** | 2,3% | 0,96 | 0,63 | 0,56 |
| **Perutnina Ptuj - PIPO** | 2,7% | 0,94 | 0,43 | 1,58 |
| **Danica (Podravka)** | -14,9% | 0,86 | 0,72 | 1,38 |

Source: author's calculations based on the financial reports of companies.

The most profitable meat industry company was the meat industry Braća Pivac with a return on assets of about 10 %, which at the same time placed Braća Pivac among the most profitable business subjects in Croatia. The meat industry Koka achieved an alarmingly low profitability, i.e. despite having five times more assets than its main competitor on the market of poultry meat, namely the meat industry Perutnina Ptuj, compared to Perutnina Ptuj, Koka generated modest profit and lower profitability. The profitability of most companies was at an acceptable level, which was higher than the risk-free rate of return on investments. Liquidity was at a satisfactory level only in the case of meat industries PIK Vrbovec and Koka, while all other companies might encounter problems with the settlement of current liabilities. In terms of indebtedness, the least favourable structure of asset financing was devised in meat industries Danica and Gavrilović, while the most favourable structure of asset financing was established in the meat industry Braća Pivac. The most active inventory turnover was recorded in the meat industry PPK Karlovac, whose inventory turnover was six times higher than the turnover of the meat industry Gavrilović.

As can be seen from the above, according to financial indicators, it is impossible to specify the rank of certain company, given that none of them ranked the best in all categories. Hence a multi-criteria ranking, which objectively synthesizes individual rating of each indicator in a single total rating, was needed.

The second ranking criterion for companies was adjustment to changing market conditions which was defined by the change in revenue in the year 2013 compared to the year 2012. Company results showed that they most readily welcomed due changes in business conditions and had not only maintained but also increased revenue in the first year after the accession of Croatia to the European Union. With the exception of the meat industry Gavrilović (-6.3 %) and the meat industry Danica (-24.5 %), all other analysed companies increased their revenue in 2013 compared to the previous year. The most significant growth of revenue was achieved by the meat industry PPK Karlovac, in the amount of of 6.9 %.

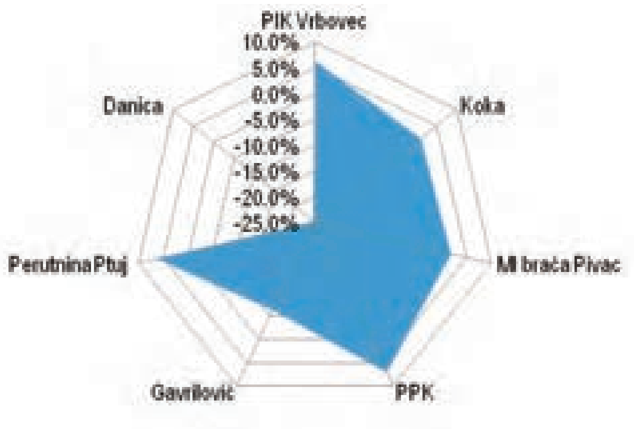


**Figure 2.** Change of revenue in meat industry (2012 - 2013).
Source: authors

The third criterion for evaluating companies concerned was the respondents' perception of product quality, brand mark loyalty and business prosperity of meat industry companies. Related data was collected by survey, in which 84 participants from nine Croatian counties took part. The relatively young average age of respondents, namely 29.1 years of age, was the result of the structure of respondents dominated by students, as well as by the way of collecting data, which was suited to younger population - by e-mail and social networks. Though such a sample cannot be considered sufficiently representative of the total Croatian population, the highest proportion of included respondents purchased meat industry products at least several times a week (38.1 %).

Respondents evaluated the quality of products manufactured by individual companies by rating them on a scale form 1 (poor quality) to 4 (excellent quality). The highest average rating of 2.98 was assigned to the meat industry PIK Vrbovec, while the lowest rating of the quality of products, among analysed companies was given to the products manufactured by the meat industry PPK Karlovac, with the average rating of 2.26.

In the second part of the survey, the participants evaluated the strength and recognition of brand names. In general, assigned rating positively correlated with the rating of product quality. A certain discrepancy recorded in the case of the meat industry Koka indicated that its commercial brand is stronger than the quality of its

**Table 2.** Research results of respondents' perception.

| Company | Product quality rating | | Brand mark rating | | Prosperity rating | |
|---|---|---|---|---|---|---|
| | Rating average | Rank | Rating average | Rank | Rating average | Rank |
| **PIK Vrbovec** | 2,98 | 1 | 3,45 | 1 | 81,0% | 1 |
| **Koka** | 2,38 | 6 | 2,38 | 4 | 26,2% | 4 |
| **Braća Pivac** | 2,46 | 5 | 2,24 | 6 | 35,7% | 3 |
| **PPK Karlovac** | 2,26 | 7 | 1,95 | 7 | 14,3% | 7 |
| **Gavrilović** | 2,7 | 3 | 3,39 | 2 | 64,3% | 2 |
| **Danica (Podravka)** | 2,73 | 2 | 2,95 | 3 | 26,2% | 4 |
| **Perutnina Ptuj - PIPO** | 2,56 | 4 | 2,33 | 5 | 26,2% | 4 |

Source: authors

products. According to this criterion, the meat industry PIK Vrbovec also occupied a high position, while the meat industry PPK Karlovac was ranked the lowest.

In rating the perceived prosperity, respondents chose three companies that they believed had good business prospects. As much as 81% of respondents categorized the meat industry PIK Vrbovec as a prospering company.

The aforementioned financial indicators and respondents' ratings were used to create an AHP model of meat industry companies comparison. The importance of applied criteria and sub-criteria, and their impact on the overall rating was determined by author's expert assessment. Slightly greater importance was attached to the financial results due to a higher degree of objectivity and comparability than the criteria of adjustment to new market conditions and the respondents' perception. Among financial indicators, profitability was given slightly greater importance compared to other indicators. In terms of the criterion respondents' perception, the sub-criterion of product quality rating was slightly more important than other criteria.

Overall rating of meat industry companies included all mentioned criteria and sub-criteria. Under such conditions, the meat industry PIK Vrbovec was, with the total lead of 0.207, proclaimed the best meat industry in Croatia. It earned the first position primarily thanks to the best rating according to the criterion of consumers' perception. The second place was occupied by the meat industry Braća Pivac (0.175) which is, although assigned somewhat lower consumer ratings, by far the most successful company according to financial indicators. The meat industry Perutnina Ptuj - PIPO, which received equally good ratings for all analysed criteria, was ranked third (0.170).

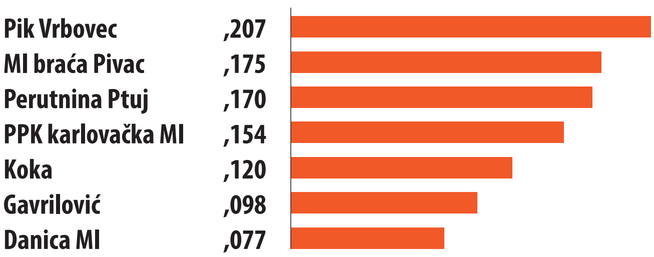


**Figure 3. The final ranking of meat industry companies (based on the Expert Choice software analysis).**
Source: authors.

Meat industry is, according to numerous indicators, the leading sub-category of food industry, with the largest share of total revenue and salaried employees. Unlike primary livestock production, dominated by negative trends in reducing the number of bred animals and slaughtered livestock, the meat industry is relatively successfully resisting the general economic contraction. Unfavourable fact that most companies in their strive to maintain competitive prices in the process of raw material procurement focus more towards import markets adversely affects the domestic agricultural production.

Financial analysis results of seven, in terms of revenue, largest meat industry companies in Croatia showed satisfactory financial effects reflected through acceptable levels of profitability, liquidity, indebtedness and activity. Only one of these seven companies in 2013 operated at a loss, while all other companies realized surplus revenue over expenditures. Considering the total financial effects, the most successful meat industry company in Croatia is the meat industry Braća Pivac. The return rate of about 10 % it achieved in 2013, at the same time places it among most profitable companies in Croatia.

The fact that in the first year after the accession of Croatia to the European Union the meat industry managed to weather all negative expectations influenced by the loss of markets in CEFTA countries is particularly commendable. Moreover, in 2013 companies' revenue increased by 1.5 % compared to the previous year. At the microeconomic level, the most significant growth of revenue of about 7 % was achieved by the meat industry PPK Karlovac.

Participants rated the quality of products, brand names and business prosperity of meat industry companies in a survey research. According to due criteria, the most successful company, with a convincing lead, was the meat industry PIK Vrbovec.

By applying the AHP method, all calculated and evaluated indicators were synthesized into a single rating that determined the overall rank of a company. The overall highest rating was given to the meat industry PIK Vrbovec (0.207), primarily due to exceptionally good respondents' ratings, but notwithstanding good financial indicators. Second place was awarded to the meat industry Braća Pivac (0.175), which achieved the best financial results, even though consumers ranked the quality of their products and brand marks only in the fifth and sixth place, respectively. The third place was occupied by the meat industry Perutnina Ptuj (0.170), as one of the two analysed companies specializing in poultry, with relatively uniform financial indicators and respondents' ratings.

By not only analysing business results of the most important representatives of meat industry but by also conducting research on consumers' perception, the position of individual companies, and what is more important, their weak and strong points that serve as guidelines for further development, were determined.

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***c) Book of abstracts:***
*Hadžiosmanović, M., L. Kozačinski, Ž. Cvrtila (2002): Shelf life of fresh poultry meat. Technology - food - nutrition - health, CEFOOD Congress, Ljubljana, September 22-25, 2002. Book of Abstracts, p. 99.*

***d) Book:***
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