

Strategic Risk Management in the Croatian Wine Industry upon EU accession

ŽELJKA BEDEK*, MARIO NJAVRO**

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1. Introduction

Since the time of ancient Greece, Croatia (Dalmatian islands) has been famous for its wine. Even though Slavic tribes, upon their arrival at the end of the VI until the VIII century, were into cattle breeding and farming and were not familiar with vine growing, the Croats, who arrived in this area and as far as the Adriatic Sea in the early VII century (and never gave up their language), accepted the culture of viticulture from the Romanised indigenous population. Christianization of Croats also had effects on the wine consumption. During the flow of history, grape production and wine making have become an inseparable part of Croatian culture and life. We might claim that vines determined “the fate” of Croats. It could be outstandingly illustrated with the events from the XIX and XX century. If we go by the amount of vine growing areas, the Croatian vine cultivation reaches its peak at the beginning of the XIX century, when wine was one of the most significant products in the international trade. In Croatia there were almost 200,000 ha of vineyards, half of which were in Dalmatia. With the appearance of phylloxera and its epidemic at the end of the XIX century, Croatian, the same as the European, grape growing was almost destroyed. Such

Abstract

The wine sector is a recognizable part of Croatian agriculture with a long and rich tradition. Autochthonous varieties give market identity, significance in tourism, agricultural income and rural employment. The goal of the paper is the qualitative analysis of the strategic risks of Croatian wine sector facing EU accession. This paper presents trends in the vineyards and grape and wine production of elapsed transitional period. Qualitative risk management model is used to display the influence of the key risk sources and the guidelines for the risk management. Research results indicate that the wine sector in Croatia is under high risks because of the internal weaknesses as well as due to the external threats. Financial stability is seriously endangered and expected decrease in wine prices will influence future deterioration.

Keywords: risk management, wine, Croatia, European Union.

Résumé

En Croatie, l'industrie vinicole, forte d'une longue et riche tradition, occupe une place importante dans le secteur agricole. Les variétés locales sont le déterminant de l'identité du produit sur le marché, de l'appréciation par les touristes, du revenu des agriculteurs et de l'emploi rural. Le présent travail a pour objectif une analyse qualitative des risques stratégiques que l'adhésion à l'Union européenne pourrait poser pour ce secteur. A cet effet, nous allons parcourir l'évolution des vignobles et de la production de raisin et vin au cours de la période de transition. Un modèle de gestion qualitative des risques est appliqué pour appréhender les principales sources de risque et proposer des lignes directrices pour la gestion des risques. Les résultats de la recherche indiquent que le secteur vinicole en Croatie est exposé à des risques importants à cause des faiblesses internes et des contraintes externes. La stabilité financière est sérieusement mise en péril et l'augmentation attendue des prix des vins contribuera à aggraver la situation à l'avenir.

Mots-clés : gestion des risques, vin, Croatie, Union européenne.

destruction of vineyards caused great wave of emigration of rural population, mostly from the south (Dalmatia) of Croatia, to overseas states, mostly to the American continent. Croatian wine sector as well as rural space hasn't recovered from those events yet (Skočić, 2009; Bratulić *et al.*, 2007; Fazinić and Milat, 1994; Sokolić, 2012).

Upon economic transition and homeland war during the nineties, Croatia recently became a Member Country of the European Union. Large EU and world market open a lot of opportunities for Croatian wine growers but there are a lot of challenges too. Viticulture and oenology experienced renaissance in the last fifteen years and a lot of small producers arise on

the market (Grgić *et al.*, 2010). Croatian consumers prefer quality wines, and there is an increasing trend in their consumption. Quality blends and varietal wines enjoy a proportional market position (Skočić *et al.*, 2009). Vine areas in Croatia were divided in two regions: Continental and Littoral. Each region is characterized by different geographical, geological, agricultural and economic traits. Croatia is actually a rare country where one could find such a variety of climate and terroir on such small area. In 2012, the Ordinance on Geographical Areas of Vine Growing (Official Gazette 74/12, 80/12, 48/13) comes into effect, dividing a geographical area of vine growing in the Republic of Croatia into three regions: the Eastern continental Croatia, the Western continental Croatia and the Croatian Littoral.

There is also a large value in autochthonous varieties that

* Croatian Centre for Agriculture, Food and Rural Affairs, Zagreb, Republic of Croatia.

** University of Zagreb, Faculty of Agriculture, Department of Management and Rural Entrepreneurship, Zagreb, Republic of Croatia.

give market identity, significance in tourism, agricultural income and rural employment. Development in terms of the number of hectares under vineyards has been reached in the second half of the last decade (2005-2010) when Croatian Government started with the support program for raising permanent crops (the so-called Operational Plan). About 7,000 hectares of new vineyards have been established.

In the Republic of Croatia, there were 32,485 ha of vineyards, grape production of 204,373 t and wine production of 1,410,000 hl in 2011. Annual average wine consumption per household member in Croatia was 10.10 litres (Croatian Bureau of Statistics, 2012). In 2012, wine export was of 58,196.26 hl, while import was of 148,731.63 hl (Croatian Centre for Agriculture, Food and Rural Affairs, 2012).

Family farms hold the highest share in vineyard areas. Family farms are a weak link in the wine sector. They are loaded with problems of economy of scale, management and marketing knowledge, wine technology, bargaining power against powerful retail chains, indebtedness, access to the capital, etc. The same applies to other types of organisation involved in wine business (companies and cooperatives).

In the constantly changing business with the risks from weather (climate change), market (price risk), institutions (changes in regulatory framework), changes in supply networks, consumer preferences and financial markets, the purpose of the paper is to describe wine business environment and provide strategic risk management guidelines for Croatian winemakers.

Starting from the hypothesis that wine producers use less efficient risk management strategies, the research tries to answer the question if the application of available strategies or different portfolios of risk management strategies improves business and financial efficiency and competitiveness in wine production in Croatia.

This paper tries to identify the main deficiency of Croatian wineries and the main external factors, namely risks that influence development, sustainability and competitiveness of the sector. Possible benefits for strategic risk management thanks to EU accession are presented.

In that process, authors used risk management approach. Risk management (RM) is the systematic application of the management policies, procedures and practices to the tasks of identifying, analysing, assessing, treating and monitoring risk (Hardaker *et al.*, 2004). Tools for risk management in agribusiness are distinguished in strategies concerning on-farm measures or risk-sharing strategies like hedging on future markets or insurance.

Risk and uncertainty have been intensively treated in farm management research and practice during the last decades. Nevertheless, it seems it had no significant influence or found much application in Croatia. It may be obsolete or irrelevant in the centrally planned economy (which we seriously doubt), but how could we explain the lack of interest in the risk management today? Also, risk manage-

ment experiences can benefit farmers in meeting the challenges of transition process and EU accession (Szep *et al.*, 2000).

Although risk is a key strategic issue, use of risk management in strategic decision making is still rare. Risk is typically still treated tactically and piecemeal...while an integrated risk management approach allows companies to consistently deliver superior performance while proactively managing risks (Clarke and Varma, 1999). One of the lessons many organizations learned from the global financial crisis is that they need to clearly link strategy and risk management and be able to identify and manage risk in a highly uncertain environment. Another is that they must focus risk management on creating value as well as protecting value.

2. Materials and Methods

Methods applied are divided into three groups. The first group refers to strategic management methods which are the basis for further conclusions, while two other groups include a financial and SWOT analysis used as supplementary tools in the process of risk analysis.

The introductory part of the results gives an overview of "wine statistics" for the period 2005-2011.

Strategic (risk) management tools

The following strategic (risk) management tools are applied: risk benchmarks, risk scorecard and strategic matrix. They are used in order to make a comparison between the situation of the wine sector in the Republic of Croatia and the European Union "wine countries".

– Risk benchmarks

Benchmarking entails measuring costs of value chain activities across an industry to determine "the best practices" among competing firms for the purpose of duplicating or improving upon those best practices (David, 2007). Applied in this paper, the benchmark risk matrix compares Croatian wine sector with the EU in terms of production risk, price risk, marketing risk and financial risk. Risk benchmark is based on secondary sources of data.

Average values and a coefficient of variability for Croatia were compared to EU or EU selected "wine countries" (Germany, Italy, France and Spain), and the result is the difference between those two values. Please note that rounded numbers were used where possible.

– Risk scorecard

Risk scorecard method tries to determine the relationship between risks, probability of occurrence and consequences for selected variables. The following terminology of Jaffee *et al.* (2010) in their work and of expected loss ranking matrix additionally to the probability of occurrence and consequences (potential severity of impact) have been rated.

Probability of the occurrence is rated with 1- 5, whereby the grade 1 is improbable, 2 remote, 3 possible, 4 probable and 5 highly probable. Consequences (potential severity of impact) are rated 1 – 5, whereby the grade 1 is negligible, 2 moderate, 3 considerable, 4 critical and 5 catastrophic.

– SWOT analysis

SWOT analysis is a useful technique for understanding companies' strengths and weaknesses, and for identifying both the opportunities and the threats the company faces. In the paper, SWOT is created based on experts' opinions collected through survey. The questionnaire was e-mailed to wine industry experts, 38 of them, and we have received 26 questionnaires filled in, which is actually the number of sent questionnaires i.e. 70% response rate. Industry experts were selected from diplomacy, public institutions, scientific institutions, advisors, wine producers and journalists. The survey encompassed four sets of questions concerning strength, weaknesses, opportunities and threats in the wine sector which included viti-wine technology along with management and marketing. Every variable of strengths, weaknesses, opportunities and threats has been measured in the Likert scale from 1 to 5.

Since a relatively large number of questions were asked for each of the segments of survey, questions were grouped upon data processing in order to present results more clearly, and the average value was found. Results were obtained by calculating the mean and the standard deviation and upon grouping the questions by average values of the results.

Financial analysis

The goal of financial analysis is to measure the company's past and projected performance in order to identify strengths and weaknesses and to develop more feasible financial plans for the future (Barry, 2000). The primary tools of the analysis are: 1) comparative financial statements, 2) index-number trend series, 3) common-size financial statements, and 4) specific financial performance measures.

Ratio is a measure which relates two pieces of financial information. Financial ratios are used in two separate ways: a) in comparison across periods of time, and b) inter-firm comparison. Financial ratios fall into four broad categories: liquidity ratios, profitability ratios, activity ratios and debt ratios. Profitability ratios used in the paper discover how efficiently and effectively assets have contributed to profits of the company and can be divided into two groups: profitability in relation to sales and profitability in relation to investments. Return on equity and return on assets are calculated as ratio between net income and equity in the case of the former and assets in the case of the latter.

RATIO	Calculation	Measuring
Return on total assets (ROA)	$\frac{\text{Net income}}{\text{Total assets}}$	After tax profits of assets (Return on investment)
Return on stockholders' equity (ROE)	$\frac{\text{Net income}}{\text{Total stockholders' equity}}$	After tax profits of stockholder's investment

Financial analysis was made for the average of business entities in Croatia for the 5-year-period (2007-2011). Concerning time period and the provisions of the Ordinance on

Geographical Areas of Vine Growing (Official Gazette 74/12, 80/12, 48/13), analyses were made for 12 wineries in the Continental and 11 wineries in the Croatian Littoral.

According to the National Programme of Assistance in the Wine Sector 2001-2013, issued by the Ministry of Agriculture and the Croatian Chamber of Commerce, 50 biggest wine producers were identified in wine trading in Croatia (Government of the Republic of Croatia, 2012).

The paper comprises the use of primary and secondary sources of data.

While the former have already been described, secondary data used in the paper refer to the published research, statistical data and publicly available data of professional associations and governmental bodies.

List of data set sources

Agricultural Extension Service – the Republic of Croatia
Croatian Bureau of Statistics- Statistical Yearbook of the Republic of Croatia 2006-2012
Croatian Chamber of Commerce
Croatian National Bank
Dubrovnik Neretva County - Development Strategy of Dubrovnik Neretva County VitiWine Industry
European Central Bank - Euribor
European Commission - InforEuro exchange rate
Eurostat
Food and Agriculture Organization of the United Nations (FAO);
FAO's Investment Centre Division
Ministry of Agriculture – the Republic of Croatia
The Brewers of Europe
The International Organisation of Vine and Wine (OIV)
Bisnode d.o.o. (www.boniteti.hr), available financial statements
Other publicly available statistics

3. Results

In the period 2005-2011, there is a 9% increase in vineyard area while the increase in the total utilized agricultural area was 10%. Compared to the year 2005, the production of grapes and wine has increased by 13%. In 2011, vineyard areas represent 2.4% out of the total utilised agricultural area (*Table 1*).

In the period 2004 to 2009, 7,309.82 hectares of vineyard were raised in total. According to the processed data, the peak of establishing vineyards was reached in 2006 with 1,473.59 ha. Sources of funding that were used in the raising of the new vineyard were state subsidies, counties and local governments' funds, CBRD (Croatian Bank for Reconstruction and Development) credit and companies sources of funding (Agricultural Extension Service, email information, 2012).

3.1. Risk Benchmark Matrix

The intention of Risk Benchmark Matrix (*Graph 1*) is to give an oversight of the situation in the Republic of Croatia and, where possible, the leading EU "wine countries" (France, Spain, Italy and Germany). A comparison was based on production and market risks, while financial risks were compared between Croatia and the entire EU.

Table 1 - Grape and Wine Statistics in Croatia 2005-2011.

Year	Utilised agricultural area (ha)	Vineyards (ha)	Total grape production (t)	Wine production (hl)	Quantities of food and beverages consumed in households, annual average per household member (l)
2005	1.210.790	29.670	181.021	1.248	10,75
2006	1.230.183	30.766	179.426	1.237	10,03
2007	1.201.756	32.454	197.979	1.365	10,75
2008	1.289.091	32.741	185.256	1.278	8,90
2009	1.299.582	34.380	206.437	1.424	9,20
2010	1.334.825	33.833	207.743	1.433	10,70
2011	1.326.083	32.485	204.373	1.409	10,10

Concerning production risk, vineyard areas are smaller in Croatia, the number of family farms lower and production costs considerably higher.

There are considerable differences between EU and Croatia in terms of the production capacities - vineyard areas, production and the number of holdings that are involved in this sector of production. Without any doubt, the numbers clearly favour EU observed states.

According to Eurostat (2012), in the category of specialist vineyards (calculated with standard output) and total number of holdings, in 2010, Croatia had 233,280 vineyard-oriented family farms and in EU, e.g. Germany had 299,130 family farms, Italy 1,620,880, France: 516,100 and Spain 989,800.

Concerning average production for the period 2007-2011, France had a production of 45,948,000 hl, Italy 46,312,000 hl, Spain 35,433,000 hl and Germany 9,104,000 hl. In Europe (2011), total wine production (except for juice and musts) was 176.4 Mhl (OIV, 2012) and 1,382,000 hl in

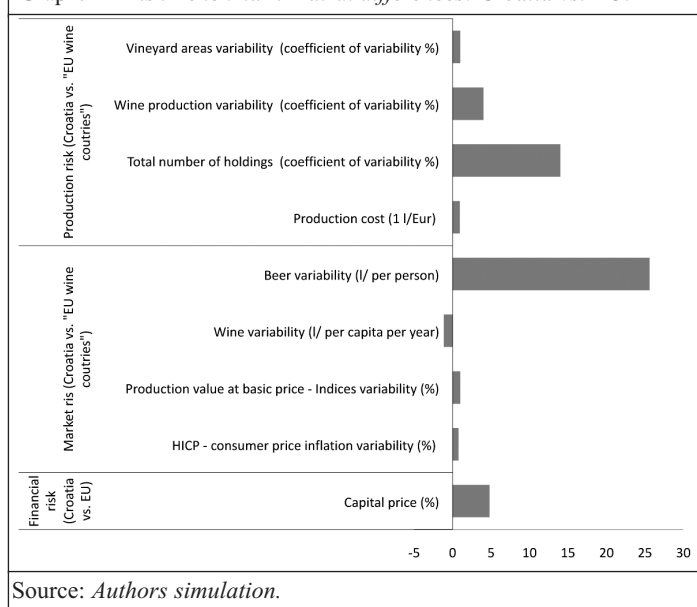
Croatia (Croatian Bureau of Statistics, 2012). According to the same source, grapes were produced on 33.000 ha in Croatia on average. For comparison, the production in selected EU states for example, in France at 806,000 ha, Italy at 776,000, Germany at 102,000 ha and Spain at 1,112,000 ha (OIV, 2008-2011).

Total production costs of wine (Radinović and Grgić, 2008) were 20 HRK per litre or about 2.60 EUR. For EU, on average, it is estimated that producing 1 litre of wine sold in a 75 cl glass bottle costs around 0.5–1.2 EUR/litre. Ageing wine in new barrels would increase this cost by EUR 1/litre. For the purpose of graph, an average value of 1,7 EUR/litre was taken (Food and Agriculture Organization of the United Nations, 2009). In order to evaluate production risk for EU and Croatia, the coefficient of variability was used. Results for Croatia show significantly prominent coefficient of variability.

As to the market risk, the real risk lies in the change in consumers' habits. In order to reduce values to common measure, the International Organisation of Vine and Wine (OIV) data were used. According to OIV (2012), average individual human consumption (based on total world population) of wine in Croatia for the period 2007-2011 is 33.84 l/per capita per year; for France 48.62, Italy 41.44, Spain 25.20, Germany 24.68 l/ per capita per year. In total, for EU states available in OIV report, wine consumption is 28.53 l/ per capita per year on average and for selected EU states the average is 34.99 l/ per capita per year. As opposed to beer consumption, the average in Croatia, for the period 2009-2011, is 79.43 l/ per capita, Germany 108.07 l/ per capita, Italy 28.33, France 30.23, Spain 49.07. The average for EU-27 is 73.27 l/ per capita and for selected states the average is 53.93 l/ per capita (The Brewers of Europe, 2012). Results of comparing beer vs. wine indicate that consumption of beer in selected states is 54% in total and in Croatia 135% higher than wine consumption.

Further in the part of the market risk, Harmonized Index of Consumer Prices (HICP) have been taken. Harmonised Indices of Consumer Prices (HICPs) are designed for inter-

Graph. 1 - Risk Benchmark Matrix differences: Croatia vs. EU.



Source: Authors simulation.

national comparisons of consumer price inflation. HICP is used for example by the European Central Bank for monitoring inflation in the Economic and Monetary Union and for the assessment of inflation convergence as required under Article 121 of the Treaty of Amsterdam (Eurostat, 2012). Annual average rate according to the Eurostat average 2007-2011 is 2.80% in Croatia. In selected EU states, HICP average value shows the following values: Germany: 1.80%; Spain: 2.36%, Italy: 2.16%, France: 1.78%.

For EU, the average annual inflation rate in the Eurozone (2.7%) rose in 2011 in relation to the previous year (1.6%) (Eurostat, 2012). Average of 2.80 for Croatia and 2.03 for EU indicates minimum difference of 0.77 in favour of EU.

Similar situation is with production value. Production value based on basic price for wine- indices, giving that basic year is 2005 (2005= 100) shows that the average of 2007-2011 for Germany is 90.72, Italy: 100.04, Spain: 115.04 and France: 111.86. For EU, the value is 118.6. (Eurostat, 2012). The average for observed states is 104.42 with coefficient of variability equal to 6% and for Croatia the average is 117.76 and coefficient of 7%. Results are clearly in favour of EU.

In the segment of the financial risk comparison, the result showed deviation in favour of the European Union capital price.

According to CNB Annual Reports exchange rate at the end of each year for the period 2007- 2011, the average value was 7.38 HRK/EUR. For 2011, EU daily nominal exchange rate had the range from 1.2% to 1.3% of the average exchange rate, which stood at 7.43 EUR/USD, as compared with the 2010 depreciation of 2.0%.

Given that viticulture is a long-term investment, for comparison the amount of interest on long-term loans is taken. The average for interest rates on long-term loans indexed in the period 2007- 2011 was 7.45% (Croatian National Bank, 2011). Quarterly rate of interest rates (European Central Bank - Euribor, % per year average) for the period 2010: 0.81%, 2011: 1.39%, 10 annual growth rates (% annual), end of period 2011: 2.65% (European Central Bank - Euribor, 2012). The difference of 4.9% between EU and Croatia is in favour of EU concerning lower capital price.

3.2. Financial Analyses of Wine Sector in Croatia

Analysing business results of wine sector in Croatia is a true challenge. In general, we could differentiate between three major groups of producers: cooperatives, wine companies (often

former state owned companies) and family farms or businesses. Economics of production is especially difficult to assess, because not all economic entities that are involved in wine market are obliged to report on financial situation. Results of comparison across periods of time and inter-firm comparison, particularly inter regional (Continental and Croatian Littoral) comparisons for cooperatives and large wine companies show mostly negative trend in the 5-year period (Table 2 and 3).

Table 2 - Horizontal Analysis of average values for Continental Croatia.

	2007	2008	2009	2010	2011
Return on Total Assets (ROA)	0,61	1,91	-7,26	-7,19	-1,36
Return on Equity (ROE)	-3,3	4,08	-25,31	-53,22	-12,09
Net Profit Margin	-0,86	3,19	-30,5	-24,56	-3,43
Coefficient of Current Liquidity	1,83	1,35	1,32	1,52	1,48
Debt Service Coverage Ratio of businesses	0,08	0,11	-0,05	-0,06	0,04
Financial Solvency	1,71	1,33	1,26	1,44	1,28

Source: Authors simulation based on the www.boniteti.hr.

Table 3 - Horizontal Analysis of average values for Croatian Littoral.

	2007	2008	2009	2010	2011
Return on Total Assets (ROA)	-2,88	-3,05	-3,5	-6,39	-9,22
Return on Equity (ROE)	-3,92	-9,32	-34,3	-3,4	-5,39
Net Profit Margin	-22,6	-23,04	-23,31	-39,35	-43,69
Coefficient of Current Liquidity	1,17	1,21	1,16	1,17	1,26
Debt Service Coverage Ratio of businesses	-0,05	-0,06	-0,04	-0,06	-0,09
Financial Solvency	1,17	1,22	1,17	1,17	1,26

Source: Authors simulation based on the www.boniteti.hr.

Return on assets (ROA) and return on equity (ROE) are negative in both continental and Croatian Littoral as well as net profit margin (Financial Agency). Those are results of their inefficiency in production and marketing, investment strategies and employment policies. For companies in Continental Croatia, negative trend begins in 2009 and continues but drops in the year 2011. As for companies in Croatian Littoral, that negative trend is constant throughout the period observed. The companies in both Continental and Croatian Littoral show a generally negative trend of net profit margin. The value for Debt Service Coverage Ratio, ideally, should be over 1. The companies in both Continental and Croatian Littoral show a negative cash flow. For financial solvency, a ratio greater than 20% is considered a financially healthy company. Unfortunately, that is not the case for an average of the observed companies in the Continental or for Croatian Littoral. Concerning Coefficient of Current Liquidity, the higher the current ratio, the more capable the company is to pay its obligations. A ratio under 1 suggests that the company would be unable to pay off its obligations if they came due at that point. Companies in Continental and Croatian Littoral show coefficient higher than 1.

We believe that their situation in most of the cases is not bright due to competition in Croatia and abroad (EU and wines from the "New World"), financial risks due to the high leverage (indebted) and over investments and lack of marketing strategies. Nevertheless, some percentages of family

owned wine cellars run very profitable business. In most of the cases that is because of clear strategic goals and logical diversification between wine making and (rural) tourism for example.

Certainly, in the analysis of data it should be borne in mind that in the observed period, the European and the global crisis reached its peak and therefore did not bypass any area of Croatia and wine companies as well. In response to the crisis, the Government seeks the introduction of various measures to minimize the effects of the crisis (Government of the Republic of Croatia, 2010).

3.3. SWOT Expert Survey Analyses

In the set of wine sector strengths, there were 9 questions and experts had to evaluate particular issues from 1 to 5 (1- the weakest, 5 - the strongest). Most of the examinees (50%) assessed the strong side of the sector, tourism, with the grade 5. The experts find tourism and top positions for grape growing (4.2) to be the strongest strength of the sector, followed by environmental conditions for wine producing (4.0), autochthonous grape wine (3.8) and tradition of viticulture (3.7). For the question of top positions for grape growing, minimum dissipation of expert replies (standard deviation of 0.83) was noted under strengths.

In the set of wine sector weaknesses, there were 18 questions and experts had to evaluate particular issues from 1 to 5 (1- the weakest to 5 -the strongest). The survey showed that examinees extracted the following weaknesses as the strongest ones: small plots (57.7%) and disorganization of growers (50%). The mean value indicates that experts find lack of wine marketing (4.2), disorganization of growers (4.2), small plots (4.2), uncompetitive prices (4.2), expensive and complex administration (4.0), as the major weaknesses of the sector. For the question of uncompetitive prices, minimum dissipation of expert replies (standard deviation of 0.78) was noted in the sector of weaknesses.

In the set of wine sector opportunities, there were 14 questions and experts had to evaluate particular issues from 1 to 5 (1- the most important to 5 - the least important). The survey showed that examinees extracted the development of agro-tourism and wine tourism (50%) as the most important one. The mean value indicates that experts find the new technology (2.0), development of agro-tourism and wine tourism (2.0) and increase in tourism demand (2.1), as the top 3 opportunities of the sector and new forms of sales-web sales (3.0), the importance of organic farming (3.0) and regulation of the wine market in the EU (2.8) as the top 3 the least important opportunities of the sector. For the question of regulation of the wine market in the EU, minimum dissipation of expert replies (standard deviation of 0.76) was noted in the sector of opportunities.

In the set of wine sector threats, there were 20 questions and experts had to evaluate particular issues from 1 to 5 (1- the most important to 5 - the least important).

The survey showed that examinees extracted the following threats as the most important ones: offering the same quality wines at lower prices (46.15%) and non-payment and insolvency (42.31%). The following mean value indicates that experts find the black market and the absence of inspection (2.1), offering the same quality wines at lower prices (2.2), non-payment and insolvency (2.2) as the top 3 opportunities, and changes in the structure and texture of the soil using heavy equipment (3.6), mass tourism, environment pollution (3.4), preferences of the market/other type of wine (3.3), as the least important threats of sector. For the question of changes in the structure and texture of soil using heavy equipment, minimum dissipation of expert replies (standard deviation of 0.76) was noted in sector of threats.

For the strengths of the wine sector, four segments were detected: natural resources, tourism, know-how and market. Weaknesses of wine sector were detected in five segments: state administration, human resources, market, technology and sources of funding. Also, for opportunities of wine sector, five segments were detected: new technology, tourism, EU - Rural Development, market, ecology and sustainable development and for threats of wine sector, five segments were detected: state administration, market, human resources, technology and mass tourism, environmental pollution.

Errore. L'origine riferimento non è stata trovata. displays SWOT expert survey analyses of the grouped results in wine sector. The survey made clear that tourism, natural resources and new technology are the main strengths and opportunities of the sector. Upon question grouping and calculating the average value, the results showed that state administration and human resources represent major weakness for sector. The results showed that state administration, mostly in terms of creating positive preconditions for production development, and market situation are the most important threats to the sector. As to the results of the standard devia-

Table 4 - SWOT Expert Survey Analyses of the Grouped Results.

Strengths	Average Mean	Average St. Deviation	Weaknesses	Average Mean	Average St. Deviation
Tourism	4.19	0.96	State Administration	4.00	0.94
Natural resources	3.87	0.96	Human Resources	3.76	0.89
Know how	3.52	0.87	Market	3.66	0.90
Market	3.44	0.94	Technology	3.40	1.02
			Sources of funding	2.85	1.12
Average St. Deviation	Average St. Deviation	Average St. Deviation	Average St. Deviation	Average St. Deviation	Average St. Deviation
New Technology	1.96	0.96	State Administration	2.41	1.14
Tourism	2.23	1.19	Market	2.59	1.20
EU - Rural Development	2.44	0.95	Human Resources	3.15	0.97
Market	2.62	1.01	Technology	3.22	0.91
Ecology and Sustainable Development	2.65	0.92	Mass tourism, environmental pollution	3.38	0.90

Source: Survey.

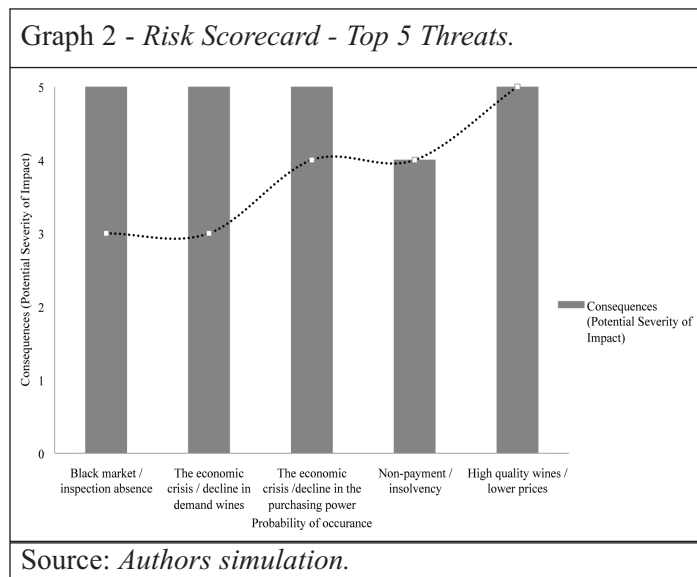
tion, it is possible to presume that experts have shown high level of compliance in their answers.

3.4. Risk Scorecard

Development of the risk scorecard graph combines expert survey data and expert assessment by authors.

Graph 2 connects the most important risks/threats indicated by the expert survey and measured on the scale from 1 to 5: black market and the absence of inspection, offering the same high quality wines at lower prices, non-payment and insolvency, the economic crisis and the decline in demand for wines, the economic crisis and the decline in the purchasing power of the local population, with probability of occurrence and consequences.

Concerning current trends in the wine industry, we believe that threats singled out by experts to be the most important ones have great influence on the sector.



Therefore, the above variables were given ranking in terms of probability of occurrence: 4 (probable) to 5 (highly probable). Subsequently, we believe that not resolving such highly influential threats for the sector could lead to severity of impact described as critical (4) to catastrophic (5) (Graph 2).

4. Discussion

Today, willy-nilly, Croatian producers found themselves in the European market, with signed access agreements and regulations, which are required to be complied with.

Due to the research results, the following conclusions can be drawn:

- Concerning the overall view of the SWOT categories, experts recognize tourism and natural resources as strengths but they also recognize potential risks and weaknesses of the sector in terms of the state administration, human resources and challenging market.
- Research provides insight into how challenging the conditions of production and marketing of Croatian wine producers are in relation to the EU wine makers.

- Risk benchmark indicates that all the numbers go in favour of EU in total and EU selected "wine countries". Croatian wine sector in agriculture is confronted with numerous problems caused both by external factors such as transition process, war damages, high food import level and an inefficient market system, high cost sources of financing (capital price) and by internal factors like an unfavourable farm structure, educational and age structure of farmers and their poor managerial skills. Risk measured by the variability of yield and prices is high compared with EU and scorecard indicates serious potential consequences that wine makers are confronted with.
- Taking into account that financial analyses faced difficulties concerning the fact that we were required to publish aggregated financial data, nevertheless, financial analyses don't favour wine industry in Croatia. It seems that current risk management practices do not reduce risk exposure. Theoretically, it leads to inefficient assets use and resource allocation and consequently lower farm income. Finally, it influences access to the financial means which could slow down the introduction of new technologies, level of specialization and flexibility.

Options that were open upon Croatian EU accession and are available to Croatian wine makers funding are in scope of CAP, IPARD program and in the future throughout Rural Development Program for the period 2014 to 2020. National co-financing is possible through state-owned development bank and different Programs of Croatian Government (Ministry of Agriculture, 2013, 2014).

Market support, direct payments and rural development measures (diversification) in the framework of the CAP have a major impact on farmers' risk, even if their main goal may be income stabilisation and not risk reduction. In particular, the price support mechanisms play a role in reducing price risks for key products... EU member states have developed different systems to cope with risk exposure in the farming sector. The various systems can be classified according to the state involvement (European Commission, 2001). Enjolras *et al.* (2014) analyses the questions of efficiency of structural policies aimed at securing and stabilizing farmers' incomes. Copa-Cogeca points out that it is crucial for market management measures to enable producers to hold out during periods of low market prices and/or rapid increases in costs. Also, among other items, it repeats its call for safety nets to be reinforced and updated, in the wine sector (including planting rights) to take account of the specific nature of these sectors (Copa-Cogeca, 2012). With the changes introduced in the proposed regulations on rural development for the period 2014 - 2020, the Commission not only confirms the provisions contained in Regulation 73/2009 (placing them, however, in the multi-annual setting of the funding for actions to support rural development), but introduces a new measure, called IST (Income Stabilization Tool), aimed at supporting risk management for farm incomes using insurance principles (Capitanio *et al.*, 2013). In Croatia, a public debate was held (May, 2014) con-

cerning proposal of the Croatian model of direct payments under the Common Agricultural Policy reform 2015 to 2020 (Ministry of Agriculture, 2014).

Given the results of the research, one cannot suggest a unique recipe for risk reduction, but a combination of different measures. One of the options represents assurance systems, branding, marketing and market joint approach to the market, the EU funds... Whether the introduction of such measures in Croatia was really successful and how the companies themselves were prepared to global market, it is expected for some other papers to be able to answer that question. The results of this research can be used to plan further strategic activities of wine companies in Croatia, and encompassed methodology gives a possible template for evaluation of other agricultural sectors.

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