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## Categorical Characteristics of Wine Classifications in the System of Internal Regulation of Accounting

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**Abstract:**

**Purpose:** The article aims to present and discuss the categorical characteristics of wine classifications in the system of internal accounting regulations.

**Design / Methodology / Approach:** Developing the wine industry in Ukraine and increasing the strictly regulated geographical location of grapes and all stages of production of controlled wines by origin require strengthening Ukrainian legislation on wine labeling requirements, classification methods, control of names quality control, and its institutional consolidation.

**Conclusions:** The interdependence of domestic and foreign markets for raw materials and accounting regulation system affects the application of the method of accounting for business transactions, as well as the relationship between the provisions of accounting, contractual, and tax policies.

**Practical implications:** The presented internal regulation of accounting of wine production is provided by the accounting policy, which highlights the relationship of elements of the accounting method in the system of contractual and tax policies aimed at quality characteristics of wines and business results of wine companies.

**Originality / Value:** It is proven that the effectiveness of control and information accounting functions in the management system provides quality characteristics of wines and economic results for wine companies.

**Keywords:** Viticulture, winemaking, accounting, accounting policy, categorical classification of wine, accounting functions, management.

**JEL codes:** E23, F14, F23, M40, M41, Q13.

**Paper type:** Research article.

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## **1. Introduction**

The market environment and conditions of uncertainty have proved to be difficult for the practical activities of wine-growing and winemaking enterprises. As a result, enterprises need to re-evaluate their priorities based on real conditions since the requirements for the quality of grapes as raw materials for the production of high-quality wines have increased. There take place an important selection of varieties and their placement in accordance with agrobiological requirements and consideration of the type of wine which grapes are grown for.

Industrial methods of treatment and processing of raw materials also significantly affect the quality of grapes and the products of their processing. In addition, tough competition in domestic and foreign markets requires the support of Ukrainian producers for a high level of competitiveness.

Wine production is one of the economy's most profitable sectors, bringing significant income to both businesses and the state. Therefore, it is essential in the Ukrainian economy as a whole and in social terms. Therefore, the study of this sector from the standpoint of current development and further prospects in the framework of the international competition is especially relevant.

A well-established accounting and control system is the basis of the effective activity of business entities, including agribusiness. Regardless of the organizational and legal form of enterprise management, accounting is a tool that confirms the legal and financial validity of actions and their interaction with public administration to comply with the established norms and rules. Accounting and control are management functions, the effectiveness of which ensures the efficiency of economic activities of business entities.

## **2. Theoretical Framework and Previous Studies**

Due to the efforts of researchers and practitioners, there have developed numerous advanced and progressive methods, techniques, and practices in accounting organization in the wine industry. Blake John, Amat Oriol and Moya Gutiérrez Soledad (1998) take one example of an industry, wine production, where in most countries there has been a movement towards expanding higher quality production.

According to the researchers (Iukuridze and Lozovska, 2015) from the same grape variety, using different production technologies, it is possible to obtain wines of different quality and character. Each technological operation affects the formation of the product, and the quality and properties of the future wine depend on its correct execution. Gutsalenko, Marchuk, Hutsalenko, and Tsaruk (2020), considers the problem of that grape production and processing of grapes are related that the quality control and regulated by a normative document, which defines the essence of methods and quality indicators.

In addition, changes in wine consumption and external factors, including COVID-19, have been studied by Wittwer and Anderson (2021), that provides an empirical case study of the impacts of the COVID-19 pandemic on global beverage markets, particularly the wine sector. Both international trade and domestic sales have been adversely affected by temporary shifts away from on-premise sales by social distancing measures and self-isolation that led to the closure of restaurants, bars, and clubs, plus declines in international travel and tourism.

Agnoli and Charters (2022), showed the differences between wine and alcohol consumption, and the consumption of aesthetic, quasi-aesthetic and serious leisure products more widely, and that is the necessity of examining differences between professional and non-professional consumers.

Dubois, Agnoli, Cardebat, Compés, Faye, Frick, and Simon-Elorz (2021), present how that the COVID-19 crisis has affected the drinking behavior of Latin European wine consumers. Wine consumption frequency held up better than other types of alcohol (beer and spirits). We analyze heterogeneities among countries and individuals by employing the Marascuilo procedure and an ordered logit model. Statistical studies reflect the changes that occurred in 2018-2021 and various factors presented graphically.

### **3. Research Methodology**

In the study, the authors used the legislative and regulatory documents of Ukraine on compliance with sectoral legislation of Ukraine with international regulations on wine production and implementation of regulations (EU) and Regulations (EU) on oenological practices, labeling, and protection of geographical indications of wine products and control viticulture and winemaking, official statistical materials of the State Statistics Service of Ukraine, as well as domestic and foreign scientific publications devoted to the study of the impact of quality characteristics of wines on the formation of their prices.

The following general scientific research methods are used in the article, in particular analysis and synthesis, theoretical generalization, and comparison, to study the institutional environment of wine production, the study its classification features, and qualitative characteristics.

The study cites the latest available public data on the world's leading exporters and importers of wine. The gaps are the ineffectiveness of the Ministry of Agrarian Policy's 2009 № 444/74 of July 21, 2008 "On Approval of the Sectoral Program of Viticulture and Enology of Ukraine until 2025", which aims to implement Ukraine's state policy on regulation development of this branch of economy, the concentration of financial, logistical, and other resources, production, and scientific and technical potential to solve the main problems of the branch (Ministry of agricultural policy of Ukraine, On Approval of the Sectoral Program of Viticulture and Enology of

Ukraine until 2025, 2008).

Currently, in Ukraine, the institutional consolidation of wine labeling requirements, methods of classification, control of appellations of origin, state quality control, and its institutional merger has not been finalized, which became the hypothesis of our study.

## **4. Empirical Results and Discussions**

### **4.1 Economic Situation**

Viticulture is becoming one of the essential and complex branches of agriculture. Successful development of viticulture occupies a significant share and impacts the state's economic condition, as to some extent, it ensures the filling of the budget.

The alcohol sector holds leading positions among other sectors related to the agricultural and food industries (food sector). Moreover, it is one of the critical sources of budget revenue, as the bulk of alcohol produced in Ukraine and imported from abroad is excised, allowing the state to receive additional income from any type of alcohol sold in Ukraine.

Global trends determine the current state and prospects of the Ukrainian alcohol market. It can be explained not only by the opening of the Ukrainian market for imports of various types of alcohol but also by the spread of the global trend of interconnected markets of some countries and the establishment of global, and regional markets within the global market.

When comparing Ukraine with the world players of the wine market, it should be noted that winemaking regulation on the part of CNO wines is represented by the Law of Ukraine "On Grapes and Grape Wine", where there is a classification of wines according to the category of CNO wines (Chapter 1. Article 8): "The name of wines of controlled names by the origin is given to the best wines, which are produced using a stable raw material base and which have proved to be of high quality for at least five years of production. All stages of production of wines of controlled names by the origin must be carried out the enterprise located in a strictly regulated geographical location of grapes growing" (Law of Ukraine, On Grapes and Wine, 2005).

Considering such scarce information on the status of CNO wines, it is not surprising that Ukraine, as a country producing CNO wines, is insufficiently presented in domestic and foreign markets.

In addition, the development of the industry is hampered by the lack of appropriate state support, in contrast to France or Italy, where French winemakers receive government subsidies of up to 50% of production costs. Hence, French premium

wines are cheaper than ordinary Ukrainian wines (Ernst and Young LLC, National Strategy to Increase Foreign Direct Investment in Ukraine. 2021, p. 50).

In 2019 and 2020, weather conditions were favorable, but the COVID-19 pandemic forced winemakers from key wine-producing countries (France and Spain) to reduce yields to avoid overproduction (Wittwer and Anderson, 2021). In addition, the pandemic also affected the decline in trade (Agnoli and Charters, 2022; Dubois, Agnoli, Cardebat, Compés, Faye, Frick, and Simon-Elorz, 2021), losses from travel and tourism, which is one of the key factors influencing the development and sale of products (Gutsalenko, Marchuk, Hutsalenko, and Tsaruk, 2020).

The top 5 leading wine-selling countries remain unchanged (Spain, Italy and France, Australia, and Chile), accounting for 70.8% (Table 1).

**Table 1.** *The main wine exporters and importers in the world, 2018-2021*

№	Country	Volume (million hectoliters)				Cost (EUR million)			
		2018	2019	2020	2021	2018	2019	2020	2021
<b>Exporters</b>									
1.	Spain	21,0	21,4	20,2	23,0	2 916	2 718	2 626	2 883
2.	Italy	19,7	21,6	20,8	22,2	6 148	6 400	6 233	7 060
3.	France	14,1	14,3	13,6	14,6	9 336	9 794	8 736	11 075
4.	Chile	9,3	8,7	8,5	8,7	1 680	1 716	1 595	1 664
5.	Australia	8,6	7,4	7,5	6,3	1 829	1 829	1 787	1 353
6.	South Africa	4,2	4,1	3,6	4,8	663	590	535	634
7.	Germany	3,8	3,8	3,4	3,7	1 032	1 044	882	991
8.	USA	3,5	3,6	3,6	3,3	1 226	1 254	1 147	1 231
9.	Portugal	3,0	3,0	3,2	3,3	804	819	846	924
10.	Argentina	2,8	3,1	4,0	3,3	674	682	655	700
11.	New Zealand	2,6	2,7	2,9	2,8	1 011	1 096	1 145	1 165
<b>Importers</b>									
1.	Germany	14,5	14,8	14,1	14,5	2 619	2 635	2 572	2 777
2.	United Kingdom	13,2	14,0	14,6	13,6	3 510	3 957	3 804	4 082
3.	USA	11,5	12,3	12,3	13,9	5 245	5 787	5 160	6 242
4.	China	6,9	6,1	4,3	4,2	2 415	2 182	1 599	1 430
5.	France	6,2	7,2	6,3	5,9	861	869	761	821
6.	Canada	4,2	4,2	4,5	4,2	1 693	1 742	1 727	1 906
7.	The Netherlands	4,2	4,2	4,7	5,0	1 162	1 198	1 304	1 447
8.	Russia	4,1	4,5	3,5	3,7	1 226	1 039	948	1 061
9.	Belgium	3,0	3,1	3,0	3,9	975	1 010	988	1 282
10.	Japan	2,6	2,8	2,6	2,4	1 419	1 607	1 366	1 439

**Source:** *Formed by the authors according to State of the world vitivincultural sector in 2019, 2020, 2021; The International Organisation of Vine and Wine 2019, 2020, 2021.*

Three countries of the European Union (Italy, Spain, and France) account for 59% (in 2020) and 47% (in 2021) of the total value of exported wine. However, three countries, i.e., France (-10.8%), Spain (-3.4%), and Italy (-2.4%), recorded a decline in export values compared to 2019. Among these top three wine producers, Italy was the only one that recorded an increase not only in wine production compared to 2020 (+2%1) but also with respect to its last-five-year average (+3%).

Having found out that the leading players in the wine market are France, Spain, Italy, Portugal, and Germany, we offer to consider the classification of categories of their wines from the highest one (1) to the lowest (5) (Table 2).

**Table 2.** *Categorical classification of wine in the leading countries*

No	France	Italy	Spain	Portugal	Germany	New European classification
1	2	3	4	5	6	7
1	<b>AOC</b> (Appellation d'Origine Controllee)	<b>DOCG</b> (Denominazione di Origine Controllata e Garantita)	<b>DOCa</b> (Denominación de Origen Calificada)	<b>DOC</b> (Denominação de Origem Controlada)	<b>QmP</b> (Qualitätswein mit Prädikat)	<b>IGP</b>
2	<b>VDQS</b> (Vin Delimite de Qualite Superieure)	<b>DOC</b> (Denominazione di Origine Controllata)	<b>DO</b> (Denominacion de Origen)	<b>IPR</b> (Indicacao de Proveniencia Regulamentada)	<b>QBA</b> (Qualitätswein Bestimmer Anbauggebiete)	<b>AOP</b>
3	<b>VdP</b> (Vin de Pays)	<b>IGT</b> (Indicazione Geografica Tipica)	<b>VDT</b> (Vino de la tierra)	<b>VQPRD</b> (de Vinhos Qualidade Produzidos em Regioes Determinades)	<b>Deutscher Tafelwein</b>	<b>VdT</b>
4	<b>VdT</b> (Vin de Table)	<b>VDT</b> (Vino da Tavola)	<b>VDM</b> (Vino de Mesa)	<b>Vinho Reginal</b>	<b>Deutscher Landwein</b>	n/a
5	-	-	-	<b>Vinho de Mesa</b>	-	-

*Source: Formed by the authors.*

Considering the leading countries have state-level requirements for wine qualification and quality, Ukraine, which strives for European integration and is a member of the WTO, in the context of market globalization, must constantly explore priority areas and improve the quality of wine and wine products.

Over the last 12 years, normative and legal acts that promote the development of viticulture in Ukraine and improve qualitative characteristics of Ukrainian wines are as follows:

- *On the state regulation of production and circulation of ethyl alcohol, cognac and fruit, alcoholic beverages, tobacco products, liquids used in electronic cigarettes and fuel (Law of Ukraine of December 19, 1995 No 481 / 95-VR) (Law of Ukraine,*

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*On the State Regulation of Production and Circulation of Ethyl Alcohol, 1995);*

*- On the Day of the vine grower and winemaker (Decree dated September 22, 2020 No 403 / 2020) (Decree of the President of Ukraine, About the Day of the vine grower and winemaker, 2020);*

*- On grapes and grape wine (Law of Ukraine dated June 16, 2005 No 2662-IV) (Law of Ukraine, On Grapes and Wine, 2005);*

*- On licensing business activities (Law of Ukraine dated March 2, 2015, No 222-VIII) (Law of Ukraine, About licensing of types of economic activity, 2015);*

*- On the establishment of a working group to promote the development of horticulture, viticulture, and hop growing (Order of the Ministry of Economic Development, Trade and Agriculture of Ukraine dated June 12, 2020 No 1093)( Order, Regulations, On the establishment of a working group to promote horticulture, viticulture and hop growing, 2020);*

*- About registration of grape plantations (Order of the Ministry of Agrarian Policy and Food of Ukraine dated August 12, 2014 No 303) (Order of the Ministry of Agrarian Policy and Food of Ukraine, About registration of grape plantations, 2014).*

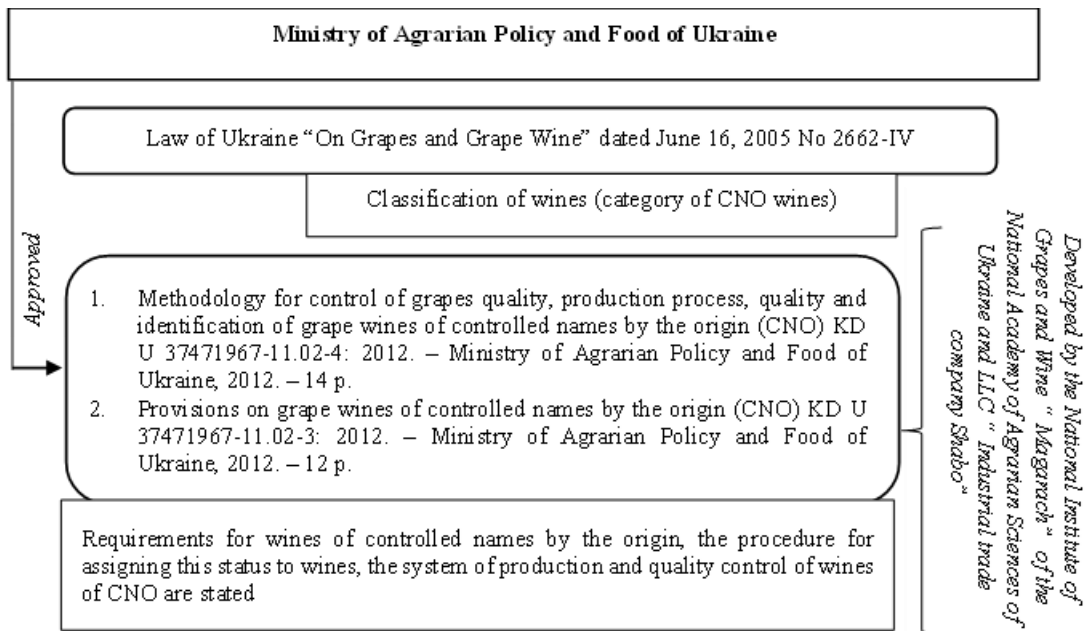
## **4.2 Legal Support**

In the context of the legal support of the grape and wine industry of Ukraine, in our opinion, there is a need for legislation to ensure the requirements of wine labeling, classification methods, control of appellations of origin, state quality control, and its institutional consolidation. Currently, in Ukraine, control over wine production is as follows (Figure 1). Considering the industry's prospects, we have identified the main problems and ways to improve the state of the wine industry under the approved Sectoral Program of Viticulture and Winemaking of Ukraine 2025 (Figure 2).

Regarding all these needs, it is also necessary to increase plantations, restore and establish new vineyards, enhance the quality of wine from recognized international varieties that grow well in Ukraine, and develop local aboriginal varieties, which can be found in Ukraine in a significant number.

In addition, the successful functioning and development of the wine market is constrained by the lack of investments in the modernization and expansion of the material and technical base. The wine market is formed as an independent part of the consumer market. However, one of the critical components is competition, and unfortunately, Ukraine does not have priority in the world market, but there are some successes in the state field of competition.

Figure 1. State control of wine production in Ukraine



Source: Formed by the authors according to Ernst & Young LLC, National Strategy to Increase Foreign Direct Investment in Ukraine. 2021; Iukuridze, E & Lozovska, T., 2015.

The wine industry is associated with a significant amount of material and financial resources in the accounting system. Therefore, viticulture and winemaking are characterized by the production process resulting in the company's production costs and the appropriate income.

### 4.3 Accounting Regulations

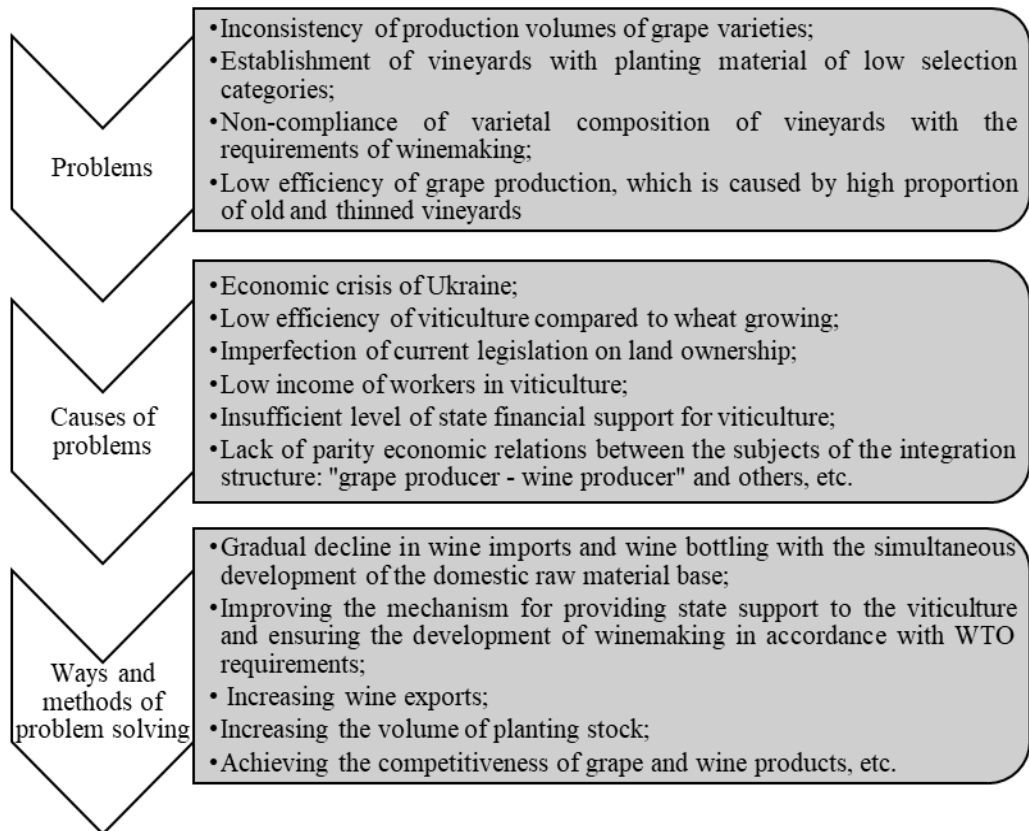
In the accounting process, special attention should be paid to the efficiency of current assets, including accounting for procurement (receipts) and consumption of raw materials. In particular, the documentation forms and ensures the effectiveness of the control function over the regulatory use and qualitative characteristics of wine raw materials that are safe for consumers' health.

Furthermore, accounting documents also perform the information function of accounting, which is the basis for the analytical assessment of qualitative characteristics of wines by the general features in the world market, identification of factors influencing the improvement of its qualitative aspects that affect the financial performance of wine enterprises. Peculiarities in accounting for each type of production are directly related to its place in the wine market.

Hence, the market mechanism impacts the accounting system of wine companies.



**Figure 2.** The main problems, causes, ways, and methods for the development of viticulture and winemaking in Ukraine by 2025



**Source:** Formed by the authors based on Ministry of agricultural policy of Ukraine, On Approval of the Sectoral Program of Viticulture and Enology of Ukraine until 2025, 2008.

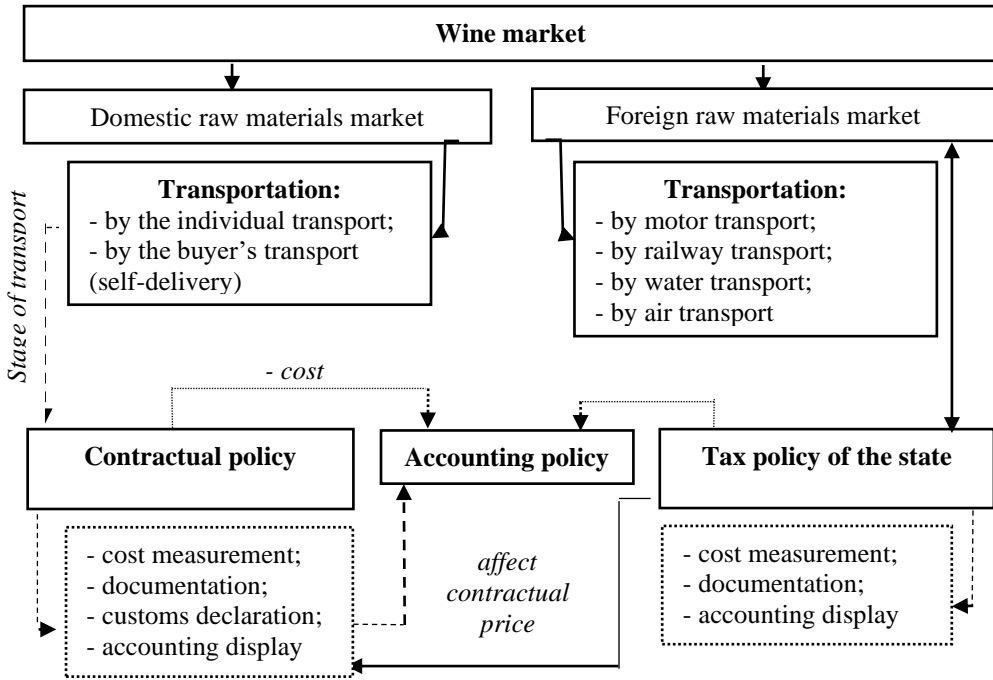
Financial accounting ensures the formation of information about the enterprise's activities as a whole, following the general indicators of its activities. Financial accounting data are summarized in the financial statements and prescribed to external users, including the founders of the enterprise, tax authorities, statistical authorities, banking, and financial institutions. Management accounting covers all types of accounting information required for management within the enterprise.

In addition, management accounting provides the formation of internal information about the enterprise's activities, i.e., information on the specific needs of enterprise management. Management accounting is a particular function of management, and it is implemented through the effectiveness of control, information, and other tasks that ensure the reproduction process.

To clarify the features of the wine industry in the accounting system and its

importance for successful operation, they should be considered from the standpoint of internal regulation of accounting and management (contractual, accounting, and tax policy) (Figure 3).

**Figure 3.** Position of wine products in the system of internal accounting regulations



**Source:** Formed by the authors.

According to Figure 3, it is possible to trace the interdependence of domestic and foreign markets for raw materials and the accounting regulation system, which affects the application of the method of accounting for business transactions. In addition, there is a relationship between the provisions of accounting, contractual, and tax policies.

Contractual and fiscal policies affect the nature of business transactions that are the accounting objects, while accounting policy, in conjunction with these policies, determines their display in the accounts and reporting. All these relationships impact some aspects of the method of accounting valuation, calculation, documentation of accounts, reporting, etc. As a result, it can be summarized that the market mechanism affects the system of formation of contractual, accounting, and tax policies.

The accounting functions in the management system are implemented through the costs accounting in terms of redistribution of production and the formation of the cost price of semi-finished and finished products that ensure their quality characteristics. Documenting implements the effectiveness of the control function of accounting for

the compliance with the technological process using high-quality wine raw materials, and it is an information base for analytical assessment of the competitiveness of finished products in terms of their types, markets, and identification of factors negatively affecting the financial performance of wine enterprise.

## **5. Conclusions**

Based on the analysis and the information presented above, the following conclusions can be formulated:

1. The leading wine-producing countries distinguish categorical characteristics of wine classifications strictly regulated by the territory, grape varieties used, the technology of cultivation and production, grapevine yield and vigor, etc.
2. Ukraine is developing the wine industry and expanding the strictly regulated geographical location of grapes and all stages of production of CNO wine. Production of CNO wines involves peculiarities of accounting for each type of product and is directly related to its place in the wine market.
3. Interdependence of domestic and foreign markets of raw materials and the system of accounting regulation, which affects the application of the method of accounting for business transactions, as well as the relationship between the provisions of accounting, contractual and tax policies.
4. The effectiveness of control and information functions of accounting in the management system and their impact on the quality characteristics of wines and results of economic activity of wine companies is argued.

## **References:**

- About licensing of types of economic activity. 2015. Law of Ukraine on March 2, № 222-VIII. Retrieved from: <https://zakon.rada.gov.ua/laws/show/222-19#Text> (in Ukr.).
- About the Day of the vine grower and winemaker 2020. Decree of the President of Ukraine on September 22, № 403/2020 Retrieved from: <https://zakon.rada.gov.ua/laws/show/403/2020?lang=en#Text> (in Ukr.).
- Agnoli, L., Charters, S. 2022. The alcohol consumption of wine drinkers with the onset of Covid-19. *Food Quality and Preference*, 98. <https://doi.org/10.1016/j.foodqual.2021.104489>.
- Blake, J., Oriol, A., Gutiérrez, M., Soledad. 1998. The Drive for Quality - the Impact on Accounting in the Wine Industry. *Economic Working Paper 251*, Retrieved from: <https://ssrn.com/abstract=78048> or <http://dx.doi.org/10.2139/ssrn.78048>.
- Dubois, M., Agnoli, L., Cardebat, J., Compés, R., Faye, B., Frick, B., Simon-Elorz, K. 2021. Did Wine Consumption Change During the COVID-19 Lockdown in France, Italy, Spain, and Portugal? *Journal of Wine Economics*, 16(2), 131-168.

- doi:10.1017/jwe.2021.19.
- Gutsalenko, L., Marchuk, U., Hutsalenko, O., Tsaruk, N. 2020. Wine industry: economic and environmental factors which influence development and accounting. *Economic Annals-XXI*, 181(1-2), 105-114. doi: <https://doi.org/10.21003/ea.V181-09>.
- Iukuridze, E., Lozovska, T. 2015. Technological features of Chardonnay grape processing in order to obtain wines of controlled names by origin in the conditions of the Shabo terroir. *Food science and technology*, 9. <https://doi.org/10.15673/2073-8684.3/2015.50281> (in Ukr.).
- Ministry of Agrarian Policy and Food of Ukraine. 2014. About registration of grape plantations. Retrieved from: <https://zakon.rada.gov.ua/laws/show/z1211-14?lang=en#Text>. (in Ukr.).
- Ministry of Agricultural Policy of Ukraine. 2008. About approval of the branch Program of development of gardening of Ukraine for the period till 2025 and the branch Program of development of viticulture and winemaking of Ukraine for the period till 2025. On July 21, № 444/74. Retrieved from: <https://zakon.rada.gov.ua/rada/show/v0444555-08#Text> (in Ukr.).
- National Strategy to Increase Foreign Direct Investment in Ukraine. 2021. Section 2.5: High-Value Agriculture. Ernst & Young LLC, p. 115. Retrieved from: <https://ukraineinvest.gov.ua/wp-content/uploads/2021/08/FDI-Strategy-Section-2-High-Value-Agriculture-ENG.pdf>.
- On Grapes and Wine. 2005. Law of Ukraine on June 16, № 2662-IV. Retrieved from: <https://zakon.rada.gov.ua/laws/show/2662-15#Text> (in Ukr.).
- On the establishment of a working group to promote horticulture, viticulture and hop growing. 2020. Order, Regulations of 12.06.2020 № 1093. Retrieved from: <https://ips.ligazakon.net/document/ME200524> (in Ukr.).
- On the State Regulation of Production and Circulation of Ethyl Alcohol, Cognac and Fruit Alcohols, Alcoholic Beverages and Tobacco Products. 1995. Law of Ukraine on December 19, № 481/95-BP. Retrieved from: <https://zakon.rada.gov.ua/laws/show/481/95-%D0%B2%D1%80#Text> (in Ukr.).
- The International Organisation of Vine and Wine. 2020. State of the world vitivinicultural sector in 2019. Retrieved from: <http://www.oiv.int/public/medias/7298/oiv-state-of-the-vitivinicultural-sector-in-2019.pdf>.
- The International Organisation of Vine and Wine. 2021. State of the world vitivinicultural sector in 2020. Retrieved from <https://www.oiv.int/public/medias/7909/oiv-state-of-the-world-vitivinicultural-sector-in-2020.pdf>.
- The International Organisation of Vine and Wine. 2022. State of the world vitivinicultural sector in 2021. Retrieved from: <https://www.oiv.int/public/medias/8778/eng-state-of-the-world-vine-and-wine-sector-april-2022-v6.pdf>
- Wittwer, G., Anderson, K. 2021. COVID-19 and Global Beverage Markets: Implications for Wine. *Journal of Wine Economics*, 16(2), 117-130. doi:10.1017/jwe.2021.13.