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COMMODITY ASSESSMENT OF THE QUALITY OF SCOTTISH WHISKY AND STUDY OF DEMAND FOR IT

ТОВАРОЗНАВЧА ОЦІНКА ЯКОСТІ ШОТЛАНДСЬКОГО ВІСКІ ТА ВИВЧЕННЯ ПОПИТУ НА НЬОГО

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Стаття присвячена актуальним питанням визначення ключових аспектів вивчення ринку та якості шотландського віскі. Огляд ринку віскі в Україні показує, що даний продукт представлений в Україні в широкому асортименті, а споживчий ринок України надходить в режимі імпорту. Ринок віскі в Україні представлений переважно імпортною продукцією, зокрема такими брендами, як Johnnie Walker, Jameson, Jim Beam, Jack Daniel's, Chivas Regal та White Horse. Основні обсяги поставок припадають на Великобританію (45%), Німеччину (14%) і США (9%). Популярними є змішані сорти та американський бурбон, які завдяки активному маркетингу займають значну частку ринку. В даний час вітчизняного виробництва віскі немає. Оцінка якості віскі проводиться згідно ДСТУ 4257-2021, який регламентує органолептичні (колір, аромат, смак) та фізико-хімічні (вміст спирту, фурфурол) показники. У дослідженні проаналізовано три зразки шотландського віскі: Chivas Regal '12', Hankey Bannister і Johnnie Walker. Органолептичну оцінку проводили за 10-бальною шкалою прозорості, кольору, смаку та аромату. Зразки Chivas Regal та Johnnie Walker отримали найвищі бали та відповідали вимогам стандарту. Hankey Bannister не відповідав стандарту через різкий запах етилового спирту. Фізико-хімічні дослідження показали відповідність зразків вимогам ДСТУ за об'ємом наповнення, концентрацією фурфуролу та об'ємною часткою спирту. Chivas Regal і Johnnie Walker показали відмінні показники наповнення, а Hankey Bannister показав відхилення мінус 5 мл від норми. Результати дослідження ринку свідчать про стабільний попит на шотландський віскі, особливо в I і IV кварталі року. Близько 67% українських споживачів обирають шотландський віскі, при цьому якість є ключовим фактором їхнього вибору (39%). При цьому 45% респондентів приваблює ціна товару. Дослідження підтверджує, що споживачі позитивно ставляться до віскі, особливо до перевірених брендів, що спонукає роздрібних торговців приділяти увагу контролю якості та перевіркам постачальників для забезпечення позитивного іміджу компанії.

Ключові слова: якість, підприємництво, показники якості, бальні оцінка, вивчення попиту, імідж.

The article is devoted to the current issues of determining the key aspects of studying the market and quality of Scotch whiskey. A review of the whiskey market in Ukraine shows that this product is represented in Ukraine in a wide range, and enters the consumer market of Ukraine in the import mode. The whiskey market in Ukraine is represented

mainly by imported products. Domestic whiskey production is currently absent. The whiskey quality assessment is carried out in accordance with DSTU 4257-2021 of three samples of Scotch whiskey. The organoleptic assessment was carried out on a 10-point scale according to transparency, color, taste and aroma. The samples Chivas Regal and Johnnie Walker received the highest scores and met the requirements of the standard. Hankey Bannister did not meet the requirements due to the pungent smell of ethyl alcohol. The results of the marketing research indicate a stable demand for Scotch whiskey. Research confirms that consumers have a positive attitude towards whiskey, especially proven brands, which encourages retail chains to pay attention to quality control and supplier audits for a positive corporate image.

Key words: quality, entrepreneurship, quality indicators, scoring, demand research, image.

Statement of the problem. The Ukrainian market of Scotch whisky is characterised by growing demand and expanding product range, which indicates an increase in consumer interest in this drink. The Ukrainian market offers both premium and more affordable brands of Scotch whisky. For example, Silpo supermarket chain offers a low-cost imported malt whisky called Old Castle, produced by Glasgow Whisky Limited. Ukrainian distributors and retailers continue to expand the range of Scotch whisky, offering both classic and new releases. In 2023, Lagavulin 12 YO Special Release with 56.4% alcohol content was launched on the market. In Ukraine, there is a growing interest in the culture of whisky consumption, which is evidenced by the organisation of themed events and tastings. In particular, restaurants offer guests tastings and releases of Scotch single malt whisky. Thus, this drink is in demand and is reaching a new level of consumption and becoming an 'image product'.

Analysis of recent research and publications. Demand for whisky in Ukraine is growing every year, making it more and more accessible – even in small shops you can find the most famous brands. This makes the issues of quality and development of the Scotch whisky market more relevant [1; 2].

However, the increase in the cost of this drink in recent years has made consumers more careful about their choice. The low-cost whisky segment in Ukraine remains almost unfilled, and the weakening of the national currency makes imported options even more expensive. Given the growing popularity of whisky and its consumption in Ukraine, as well as the lack of a specialised regulatory framework, the issue of determining the quality of this drink is extremely relevant.

Identification of previously unresolved parts of the overall problem. However, despite the considerable scientific work on the market and quality of Scotch whisky, there are still many questions about the quality and avoidance of counterfeit products

Formulation of the article's objectives. To carry out a commodity assessment of the quality of Scotch whisky sold on the Ukrainian market using various methods.

Summary of the main research material. Famous international whiskey brands are traditionally popular in Ukraine. Consumers prefer blended whiskey and American bourbon. The majority of the market belongs to such brands as Johnnie Walker, Jameson, Jim Beam, Jack Daniel's, Chivas Regal and White Horse. These producers were among the first to enter the Ukrainian market.

The active marketing strategy of importers of these brands creates a high level of competition. The beverages of these brands have an affordable price, as they are imported mainly in budget varieties. However, the consistent quality and unique taste of each bottle contribute to the popularity of this drink among Ukrainian consumers.

Today, the whisky market in Ukraine is fully supplied by imports. There is no domestic whisky production. Today, sales of all types of whisky in Ukraine are estimated at 1.3 million standard bottles or 9.75 thousand dal. Thus, the analysis of literature shows that one of the most famous brands in the world, Johnnie Walker, continues to be the leader, although there is a slight decline in its share. The second place is occupied by Hankey Bannister, which is being caught up by the equally famous Chivas Regal and Jameson. All three brands are showing fairly high growth rates and pose a certain danger to the Walker line. New brands continue to emerge.

An analysis of the geographical structure of whisky imports by country of origin shows that half of all products are imported to Ukraine from the UK, with 45% (Scotch and Irish whisky), 14% imports from Germany, and 9% imports of American whisky.

Whiskey is a strong alcoholic beverage made from barley, rye, wheat or corn by malted, distilled and aged in oak barrels.

The alcohol content of whisky is usually between 40% and 60% by volume, the sugar

level is either absent or very low, and its colour varies from light golden to deep chestnut.

Scotch whiskies are in the highest demand and are therefore more likely to be falsified. For the study, 3 types of whisky were selected in the retail network, namely sample 1 CHIVAS REGAL '12' Scotch Whisky (producer: Chivas Brothers Limited); sample 2 HANKEY BANNISTER Scotch Whisky (producer: Inver House Distillers); sample 3 Johnie Walker Scotch Whisky (producer: Campbell Maher Co Ltd) [3].

The quality requirements for whiskey are defined by DSTU 4257-2021 'Alcoholic beverages. Technical requirements' [4], in particular, it regulates the following indicators: organoleptic (labelling, packaging, colour, aroma and taste) and physicochemical (fullness of filling, mass fraction of ethyl alcohol and mass fraction of furfural in 1 dm³ of anhydrous alcohol), as well as methods for their determination. Sampling for the determination of organoleptic and physicochemical parameters of the samples was carried out in accordance with DSTU 4257-2021 'Alcoholic beverages'[4].

Organoleptic characteristics provide reliable information about the quality of whisky. Subjective organoleptic evaluation should always be confirmed by the results of instrumental research methods.

The following research methods were used in the process of commodity assessment of whisky quality: Organoleptic indicators (colour, aroma, taste) and physicochemical indicators (fullness of filling, mass fraction of ethyl alcohol, mass concentration of furfural in 1 dm³ of anhydrous alcohol).

To study the organoleptic characteristics of whiskey, a tasting assessment was carried out on a ten-point scale for the following indicators: taste, aroma, colour and transparency. The following scale was used to establish the quality score: – Taste: 3.8-4.0 – 'excellent'; 3.6-3.7 – 'good'; less than 3.6 – 'unsatisfactory'; 3.8-4.0 – 'excellent'; 3.6-3.7 – 'good'; less than 3.6 – 'unsatisfactory.' – Transparency and colour: 1.9-2.0 - 'excellent'; 1.7-1.8 – 'good'; less than 1.8 - 'unsatisfactory'. Assessment of whisky quality by organoleptic indicators (Table 1).

The results of the study showed that samples No. 1 and No. 3 meet the requirements of DSTU. And sample No. 2 does not meet the requirements of DSTU, because it has a very strong smell of ethyl alcohol, which is unacceptable.

The sum of the scores of the individual attributes is the total score of the product under test. The highest score is 10. Taste and aroma are given 80% of the total points, as they play

Table 1

Organoleptic quality assessment

Name of the indicator	Sample no. 1	Sample no. 2	Sample no. 3	According to DSTU[4]
Transparency	Transparent without sediment	Transparent without sediment	Transparent without sediment	Clear without sediment and impurities
Colour	Golden	Dark brown	Light gold	Light golden to brown
Taste.	Harmonious, characteristic of a Scotch blended whisky, with a hint of carame	Characteristic of Scotch blended whisky, but with a hint of ethyl alcohol	Characteristic of Scotch blended whisky, with a hint of caramel	Harmonious, characteristic of Scotch blended whisky, without foreign flavours, but a caramel flavour is allowed if the whisky contains a sugar colouring agent (E150)
Aroma	Characteristic of a Scotch blended whisky, without any foreign aroma	Uncharacteristic for Scotch blended whisky with a sharp smell of ethyl alcohol	Characteristic of a Scotch blend, without any foreign aroma	Harmonious, characteristic of Scotch blended whisky, without foreign odours, but caramel aroma is allowed if the whisky contains a sugar colliery (E150)
Total score	9,8 (excellent)	7,5 (satisfactorily)	9,5 (excellent)	10 (excellent)

Source: developed by the author

a major role in the organoleptic assessment of product quality.

This rating is given to whiskies of exceptional quality, which are on a par with the best reference samples of their prototypes in terms of taste and other qualities.

A 9-point rating is given to whiskies of high quality with a well-developed aroma and flavour. High quality whiskeys are awarded 8 points. Whiskeys with a tasting score of 8 points or higher are allowed to be sold. After scoring the organoleptic indicators, we can see that sample No. 1 received the highest score among all the samples; sample No. 3 received a lower score because the aroma is slightly worse than that of sample No. 1. Now we can fully assume that sample No. 2 is a counterfeit because it has a strong smell of ethyl alcohol, which is unacceptable for Scotch blended whisky according to DSTU.

The next step was to assess the quality of the whisky by physical and chemical parameters (Table 2). The assessment was carried out in an independent laboratory.

After determining the mass concentration of furfural, the volume fraction of ethyl alcohol and the completeness of the bottling of the three whisky samples under study, it can be concluded that they meet the requirements of DSTU.

Alcohol content depends on the quality of raw materials, production technology and aging time. All samples have the same aging time but different alcohol content. This proves once again that each whisky is individual.

In sample No. 1, the fullness of the filling was 752 ml of whisky, which is 2 ml more than the specified amount. And sample No. 2 had 5 ml less than the specified amount. And sample No. 3 was 6 ml more than indicated on the bottle.

The presence of furfural in whisky in the permissible amount is also important. This means that the whisky was aged for as long as

necessary, and that all the rules and regulations regarding production and aging technology were followed.

The next stage is to study consumer opinion about whisky. Whisky is an imported product from other countries, mainly from the UK. It is this category of goods that largely shapes the loyalty of customers to the company, so one of the most important marketing aspects of a retailer's business is to constantly study consumer attitudes towards these goods.

Accordingly, the problem of marketing research was defined: to determine the attitude of buyers to different categories of whiskey. Based on the identified problems, the objective of the marketing research was developed: to study consumer demand for whiskey based on the results of the study of the optimal range of goods [5].

The consumer survey was conducted near the shelves with alcoholic beverages. The survey was conducted orally, and the interviewer made notes in the questionnaire based on the respondent's answers. As a result of the fieldwork, 164 women and 164 men were interviewed.

According to the survey, 66% of Ukrainians drink whiskey: 33% – less than once a month, 26% – several times a month, 7% – several times a week, and 1% – daily. The survey also found that the most important factor is quality, with 39% of respondents sharing this opinion. The least important factor is the manufacturer, with 9% of respondents being guided by this factor. 49% of respondents would buy a product of a new brand on the recommendation of friends or a salesperson, and 33% would buy products made or branded by a manufacturer whose other products they have already bought.

A histogram is provided to demonstrate how the answers to the question about consumer

Table 2

Results of physical and chemical tests

Name of the indicator	Sample no. 1	Sample no. 2	Sample no. 3	According to DSTU [4]
Filling capacity, ml	752	745	706	The volume is indicated on the bottle with a tolerance of ± 6 ml
Volume fraction of ethyl alcohol %,	42%	45%	41%	at least 40 %
Mass concentration of furfural in 1 dm ³ of anhydrous alcohol,	20	27	24	no more than 30

Source: developed by the author

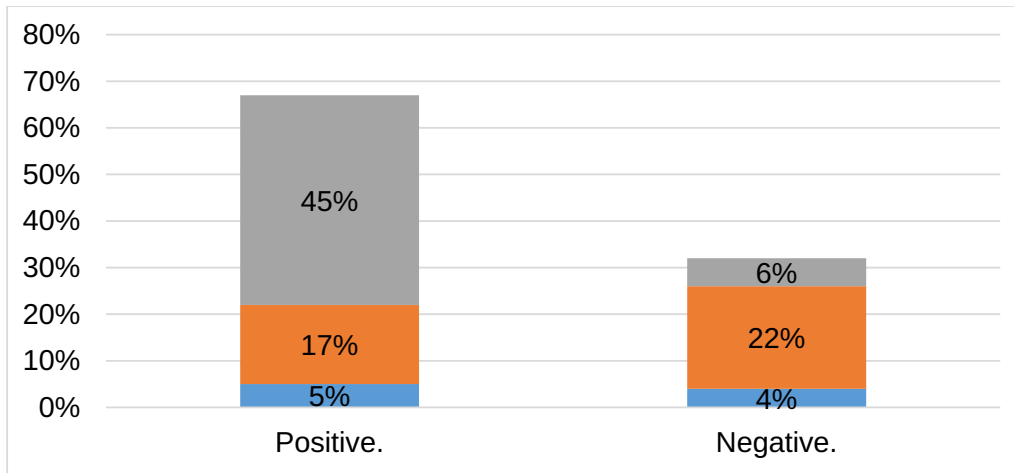


Figure 1. consumer attitudes towards Scotch whisky in the retail network

Source: developed by the author

attitudes towards Scotch whisky were divided (Figure 1).

As we can see, 67% of respondents buy Scotch whisky in the retail network, with 45% of them attracted by the price of the product. And among the 33% of respondents who do not buy whisky, 22% are not satisfied with the quality of the product.

The results of the survey to determine consumer preferences in choosing whisky of different brands of grain and mixed (blended) whisky are shown in the diagram (Figure 2).

As we can see, among the whisky brands represented, the most popular are products under the Loch Lomond Single Grain trademark, which is chosen by 37% of consumers. The smallest number of buyers – 16% – prefer products from Johnnie Walker, while 34% of respondents do not buy this product at all.

Among mixed (blended) whiskeys, the largest number of consumers prefer Johnnie Walker TM (28%). Fauconnier is the most popular brand, with 36% of respondents buying it.

ПІДПРИЄМНИЦТВО, ТОРГІВЛЯ ТА БІРЖОВА ДІЯЛЬНІСТЬ

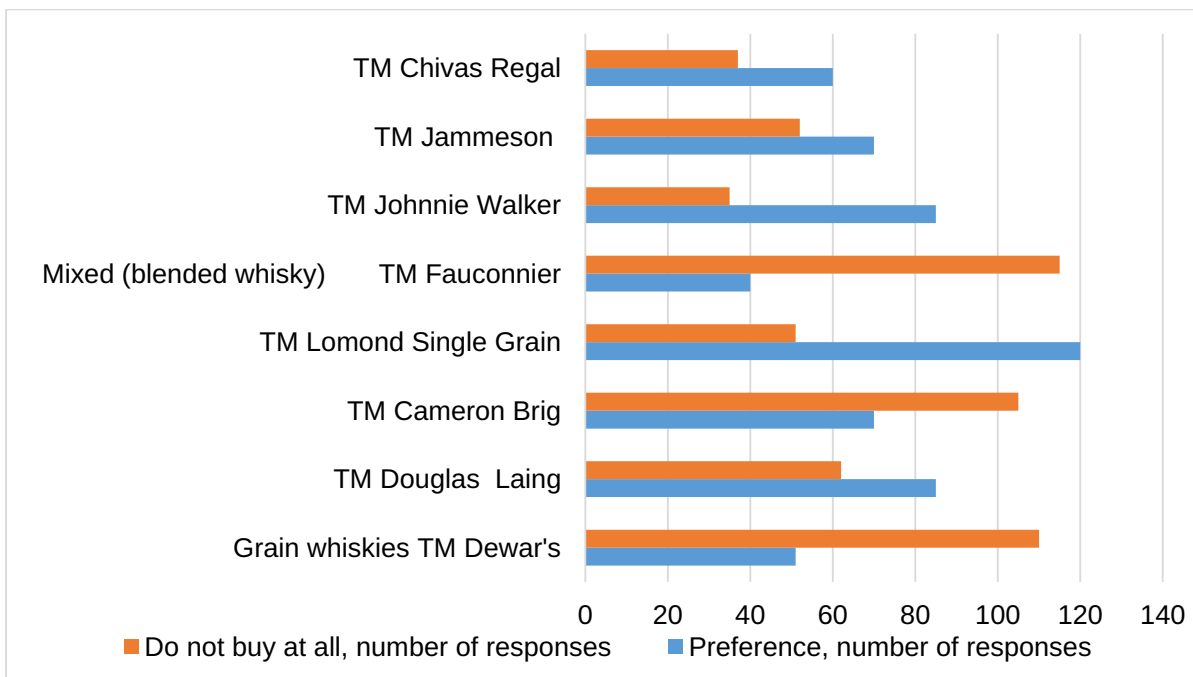


Figure 2. Consumer preferences in choosing whisky of different brands

Source: developed by the author

Demand for Scotch whisky is highly seasonal. The highest frequency of purchases is observed in Q1 and Q4, so during these periods it is necessary to increase supply volumes, control timely delivery and shelf placement. In Q2 and Q3, when sales decline, it is necessary to ensure the minimum quantity of goods required to be constantly available in the assortment, but which would not create hard-to-sell inventory.

The most important factor that influences consumers' consistent choice of certain brands is the quality of the product. The likelihood of purchasing a new product is most likely to be influenced by recommendations from friends or the seller. Therefore, special attention should be paid to the quality of goods: careful control during acceptance, timely response to consumer complaints and suggestions, systematic audits of manufacturing companies and product testing. It is also necessary to periodically increase the level of knowledge of merchandisers about new products and their characteristics.

Consumers' attitude to Scotch whisky in the retail network is generally positive, with 67% of consumers choosing it, and more than half of them are attracted by the price. Therefore, it is important for the retailer to control the quality of the product to build a positive image of the company.

A well-established image gives an organisation access to financial, information and other resources. To do this, it is necessary to clearly define the stages of its creation, take into account the impact of external and internal factors, and use scientifically sound and proven image-building technologies.

Conclusion. After conducting a quality study of three samples of Scotch whisky, the following conclusions can be drawn:

– The quality assessment was carried out by organoleptic and physicochemical indicators. Also, for the objectivity of the study of organoleptic quality indicators, the whiskey was evaluated according to a 10-point system for four main indicators: taste, aroma, colour, transparency with the distribution of maximum points by quality elements. The results of the study showed that samples No. 1 (Scotch whisky CHIVAS REGAL '12' TM – Chivas Brothers Limited) and No. 3 (Scotch whisky Johnnie Walker TM – Campbell Maher Co Ltd) meet the requirements of the DSTU. And sample No. 2 (HANKEY BANNISTER Scotch Whisky TM – Inver House Distillers) does not meet the requirements of DSTU because it has a very strong smell of ethyl alcohol, which is unacceptable.

– After determining the mass concentration of furfural, the volume fraction of ethyl alcohol and the completeness of the bottling of the three whisky samples under study, it can be concluded that they meet the requirements of DSTU.

– According to the results of the market research, it was found that the most popular whisky brand among the presented brands is Loch Lomond Single Grain, chosen by a third of respondents. The least popular is whisky under the Johnnie Walker brand, and another third of respondents do not buy this product at all. As for mixed (blended) whiskey, the most popular is the Johnnie Walker brand, which is chosen by 28% of consumers. The least popular is Fauconnier, which is bought by 36% of respondents.

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