

# ALTERNATIVE INVESTMENTS IN FOOD, ON THE EXAMPLE OF INVESTMENTS IN WHISKY

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## Abstract

*The aim of the article is to indicate whether investing in whisky as a form of alternative investment is a viable form of investment and what the determinants of this profitability are. The reason for the research undertaken is an attempt to present the whisky investment market, which has so far been omitted in considerations of alternative investments. The profitability of investment in whisky was analyzed using static and dynamic methods on the basis of data available on the collector's market. A statistical analysis of the ROI determinant and the period of return on investment in whisky in the indicated market using the r-Pearson and the Spearman ranks was carried out. The analysis covered an eleven-year period (2008–2018). There were 40 selected collector bottles available for purchase at the World Whisky Index, whose purchase prices were announced. The whisky came from 29 distilleries, of which 21 were open and 8 were closed. The influence of the age of whisky on the ROI, whether the distillery from which it came was still functioning and its taste were analyzed. The research revealed that both the age of the whisky and its taste had a marginal impact on the ROI and PP on investment in whisky, which is surprising in a food commodity. The results showed that the factor which most determines the profitability of investment in whisky is the place of origin (the distillery), more precisely whether the factory is still functioning or not.*

**Keywords:** *alternative investment, whisky, investment in food, rate of return*

**JEL classification:** G2, G4, K2, N2, N4, O3

## INTRODUCTION

In recent years, the production and consumption of whisky has been growing constantly (Gielda-inwestora.pl, n.d.). This trend has been observed both in the cradles of production of this liquor, i.e. in Europe and North America, as well as in areas where the tradition of drinking whisky is relatively young, such as in Asia or South America. (Forbes.pl, 2013). The whisky market is constantly segmented and that product is progressively diversified, which is a result of, among other things, the growing interest in this type of alcohol. Currently, producers and distributors offer whisky to buyers guided by various motivations, including consumption, collecting and, what is most important for this work, investment (Ostrowska, 2014). These incentives are also available at prices ranging from around € 20 to € 20,000 (Wordwhiskey.com, n.d.). Therefore, the question arises about the effectiveness of investment in whisky, i.e. whether the purchase of the indicated beverage for

investment purposes is profitable, and if so in what period, for what quality of alcohol etc., or what are the factors determining the profitability of such an investment.

## **1. SPECIFIC FEATURES OF INVESTMENTS IN EATABLE GOODS**

One of the unusual alternative investment markets (more: Anson,2002; Aspadarec, 2013, p. 9-26; Bodie, Kane, Marcus, 2002;Boido, Fasano, 2009, p. 74-105; Chevalier, Ellison, 1999, p. 875-899; Chorafas, 2003; Cichorska,2015, p. 69-83; Dorsey, 2007; Felis, 2005; Gabryelczyk, 2010; Goetzmann, Rouwenhorst, 2005) are the markets of luxury eatable goods (foodstuffs). It includes mainly alcohols (including wine, whisky), truffles (Borowski 2010, p. 251-252), some species of fish and seafood (lobster, bluefin tuna, caviar, oysters), meat and sausages, spices (Goldenmark.com, n.d.), cheese (Bookofluxury.pl, n.d.) etc. These investments should be qualified as a specific group of alternative assets due to a number of characteristics specific only to them. They are as follows:

- (a) a relatively short return horizon,
- (b) the possibility of consuming (eating) a given good,
- (c) a narrow group of buyers,
- (d) high transaction costs,
- (e) high storage costs,
- (f) dependence of the available amount of goods on non-economic conditions (e.g. weather),
- (g) occurrence of fashions.

A short payback period is a desirable feature for an active investment portfolio. In the case of food products, it results from a short period of their usefulness, in particular in the case of seafood or truffles (Nagrzyby.pl, 2024). It also applies to alcohol, especially to aged alcohols, i.e. to the collector's market. An example may be over 50 years of Whisky barrels in which the liquor loses alcoholicity. According to legal regulations, the alcohol content in whisky must be at least 40%. (MILER,2011). Likewise, wine that is improperly stored loses the status of wine and becomes vinegar (souring) (Koneserzy.pl, n.d.). Investing in barrels of whisky entails the risk of overlooking the moment when the alcohol content in the beverage drops below 40% and the investment will bring lower profits than expected.

The possibility of consumption of the object of investment is characteristic only for products intended for this purpose, typically for food products. This fact affects the price of other goods of a given species on the market, especially when only a limited edition was

produced. It is difficult to state clearly whether, firstly the reduction of the quantity of a given good is more desirable for investors (the price of goods remaining on the market will increase) or secondly whether the market will remain unsated with a given good because the relative unavailability of goods will result in the loss of the status of a unique good which has a negative impact on its price and lengthens the payback period what is rather undesirable for food products. As A. Adamska writes, an additional value of investments in alcohol exists, a kind of emotional dividend. As the author states, if the investment in alcohol turns out to be not very lucrative, you can always drink it (Adamska, 2016, p. 579).

## **2. WHISKY MARKET AND SPECIFICITY OF INVESTMENT IN WHISKY**

The three largest countries where whisky is currently produced and exported are: the United Kingdom (Scotland), Japan and the United States (Tpewhisky.com, n.d.). Interestingly, over  $\frac{3}{4}$  of the world's whisky production is produced in small areas such as Scotland and Japan (Ibidem). In the latter, in just eight distilleries in Japan approximately 15% of global whisky production is made. For this reason, but not only, it is worth looking at the main areas of whisky production, including in Japan, but above all in Scotland and America. The main whisky producers are also the largest exporters. Scotch whisky exports have seen a steady, albeit slight, increase in the interest in single malt whisky since 2007. Exports of other types of whisky have also been increasing, but the increases are smaller and there is greater fluctuation than in the single-malt market (Scotch-whiskey.org.uk, 2024).

The largest market for the consumption of Scotch whisky is the EU market, followed by North America (USA, Canada, Mexico) and the Asian market. In 2016, blended whiskies constituted the largest part of exports, as they are relatively inexpensive, intended for consumption and for mass consumers. Continued interest in buying whisky in bulk has been observed (0.1/0.2 trillion £ annually). (Gięda-inwestora.pl, n.d.).

The whisky imports market remains diversified, both in terms of the quality of alcohol consumed and its strength. Among the developed countries, such as certain EU member states (Germany, Italy, the Netherlands, Latvia, Poland), the USA, Singapore, Japan and Panama, there is an increase in imports of whisky of higher quality and higher percentage. Some countries focus on importing lower quality whisky while maintaining the existing taste of alcohol percentage, such as France and Mexico. Others, in turn, import low-quality and low-alcohol whisky, i.e. blended whisky. An interesting case is China, which shows an increase in interest in better quality whisky, but of weak power (Foodfakty.pl, 2018). This demonstrates

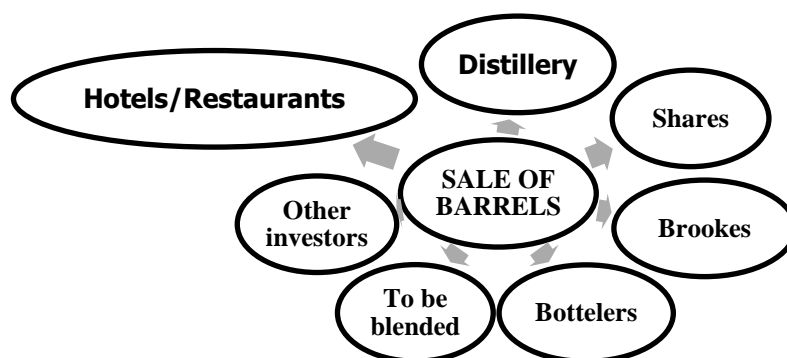
little knowledge about investing in whisky on the Chinese market, which is confirmed by practice (NaTemat.pl, 2012).

Whisky exists on the market as a consumer, collector and investment good. The classification of the described beverage as food, an item and an investment has been described above. The specifics of investing in whisky as an investment per se and as a collector's item are presented below. The investment in a whisky can be direct or indirect. Direct investments include the purchase of whisky bottles or barrels (Docplayer.pl, 2016), indirect investments can take the form of subsidies for the distillery or a purchase of their shares.

Collecting the collectible, bottled whiskies is the most popular form of whisky investment. It is also possible to invest in collector's barrels to distribute like single cask. Investments in barrels, however, are riskier because it is not always possible to check the content before bottling. These are investments that are much more profitable, but they also require more investment. It should be remembered that during whisky maturation, 2 to 5% of the volume evaporates each year, the so-called angel's share. Barrel whisky is an intermediate product that can be further sold (bearing the storage costs previously) or bottled to create a finished product or sell as a food good (see Diagram 1). The liquidity of the whisky barrel market is therefore greater than in the case of the bottle market, including primarily collector bottles. By investing cash in barrels of whisky you can use the services of whisky banking offered, among others by Stilnovisti (Stilnovisti.pl, 2019).

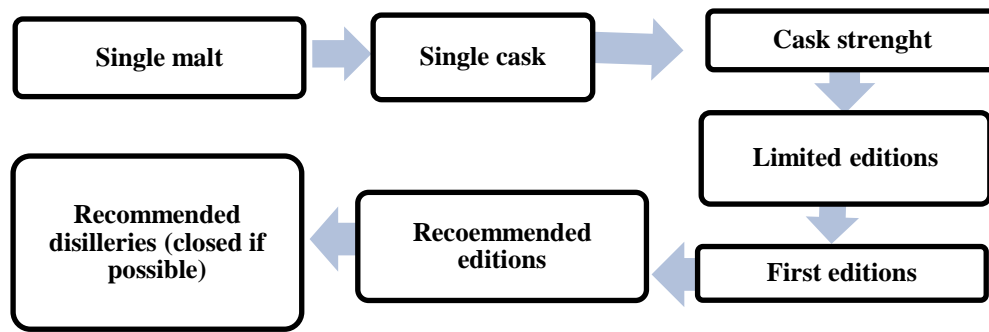
The most appreciated are singles cask and cask strength. It should be emphasized that the market for investment in bottled whisky is the largest part of the whisky collector market (see Diagram 2).

**Diagram 1:** Ways of investing in barrelled whisky



Source: <http://docplayer.pl/10609649-Investment-w-szkocja-whisky.html>, (access on 12.12.2017)

**Diagram 2:** Increase in value of bottled whisky



Source: <http://docplayer.pl/10609649-Investment-w-szkocja-whisky.html>, (access on 12.06. 2024)

Similarly as in other investments, the question is when to invest in whisky, more precisely when to buy barrels or bottles. In the case of barrels it depends on how long the alcohol has already been matured. The older the barrel, the greater the necessity and the cost of transforming the intermediate, i.e. barrelled whisky into ready-made collector's products like bottles. Thus, older whisky barrels are an investment with a short payback period and should be included in the active investment portfolio. Young barrels are, in turn, a passive investment with an extended return horizon. Before the investment is made it should be carried out an analysis of the quality of the purchased whisky, i.e. how it is assessed by critics, what is the opinion on the brand etc.

Regarding the investment in bottles, the oldest and rarest specimens are best purchased as soon as they appear on the market. New collector's editions are best purchased after saturation of the market with a given product, about two years after the appearance of the collection on the market. An investment in a young whisky requires prior analysis of the market. As a rule, it is indicated that such investment should take place as late as possible.

### **3. METHODS OF COUNTING THE PROFITABILITY OF INVESTMENTS IN WHISKY**

To assess the effectiveness of an investment in whisky, static methods for the profitability of investments in the form of a rate of return on investment (ROI) and the period of return on investment in absolute and average values were used. There were 40 selected collector bottles available for purchase at the World Whisky Index (Worldwhiskeyindex.com, n.d.), for which the prices of their earlier purchase were visible. The whiskies came from 29 distilleries, including 21 active ones (Ardbeg, Auchentoshan,

Balblair, Benromach, Blairmhor, Bowmore, Clynelish, Deanston, Glenfarclas, Glenlivet, Glenmorangie, Highland Park, Kilbeggan, Lagavulin, Linkwood, Macallan, Macphail's, Springbank, Strathisla, Talisker, Tamdhu) and 8 inactive ones (Brora, Caperdonich, Hanyu, Killyloch, Kinclaith, Lochside, Port Ellen, Tomatin<sup>1</sup>).

It was also checked how the value of the return on investment and the payback period are influenced by factors mentioned most often as determinants of the price of collector whisky, i.e. the continuous production in the whisky distillery, the age of the whisky and the taste of the whisky. The last factor was analyzed on the basis of the whisky qualification based on the taste proposed by D. Wishart (2013). The correlation study of the indicated factors on ROI and the payback period was calculated using the r-Pearson ratio and the Spearman rank.

*Tab. 1: Prices of selected whiskies in 2018 and the price of their previous purchase*

Whisky	Price in 2018 (€)	Date of purchase	Price of purchase(€)
<b>BOWMORE 42y.</b>	17,500.00	04-10-2017	12,000.00
		28-08-2017	10,850.00
		18-11-2016	8,750.00
<b>MACPHAIL'S 44y.</b>	16,749.00	03-03-2009	1,275.00
<b>BOWMORE 29y.</b>	15,500.00	07-05-2013	8,255.00
		30-08-2011	3,900.00
<b>TOMATIN 42y.</b>	10,340.00	09-09-2016	595.00
		13-03-2014	203.00
		13-03-2014	203.00
<b>BOWMORE No age on label (1964)</b>	10,000.00	25-11-2013	5,000.00
		07-05-2013	4,826.00
		26-07-2011	3,600.00
<b>MACALLAN 34y.</b>	9,850.00	29-01-2018	4,521.00
<b>BOWMORE 38y.</b>	8,900.00	10-03-2015	6,200.00
		02-12-2014	3,995.00
		25-11-2013	4,000.00
<b>BOWMORE No age on label(1964)</b>	8,900.00	13-12-2017	3,887.00
<b>GLENLIVET No age on label</b>	7,000.00	19-11-2013	4,293.00
<b>GLENFARCLAS 58 Year</b>	7,000.00	01-09-2016	5,600.00
		01-09-2016	5,000.00
		10-05-2015	5,600.00
<b>MACALLAN 35 Year 1938</b>	6,024.00	01-02-2016	2,500.00

<sup>1</sup> The Tomatin distillery was closed in 1986 and reopened after being taken over by the Japanese company Takara Shuzo. The whisky bottles tested come from the defunct Tomatin distillery, not the functioning distillery (Wishart 2013a, p. 240).

		16-12-2013	2,200.00
		05-08-2011	1,550.00
<b>MACALLAN 25 Year</b>	5,500.00	17-04-2009	350.00
<b>SPRINGBANK 33 Year 1951</b>	5,000.00	20-08-2012	4,500.00
		30-08-2011	4,500.00
<b>LAGAVULIN 37 Year</b>	4,500.00	19-07-2016	2,510.00
<b>GLENLIVET 55 Year 1943</b>	4,200.00	19-11-2013	3,568.00
<b>PORT ELLEN 22 Year 1979</b>	3,900.00	19-07-2015	1,999.00
		13-10-2014	1,600.00
		08-07-2013	1,500.00
<b>TAMDHU 35 Year 1973</b>	3,551.00	24-02-2016	320.00
		14-01-2016	295.00
		12-10-2015	266.00
<b>GLENFARCLAS 1966</b>	3,400.00	09-09-2016	1,278.00
<b>TALISKER 1952</b>	3,000.00	26-07-2011	1,030.00
		12-01-2009	700.00
<b>KILLYLOCH 22 Year 1972</b>	2,999.00	20-08-2015	1,695.00
		22-08-2012	1,675.00
		05-01-2009	1,650.00
<b>PORT ELLEN 25 Year 1980</b>	2,978.00	30-05-2014	400.00
		06-02-2010	350.00
<b>LINKWOOD(No age on label) 1939</b>	2,800.00	25-07-2012	1,900.00
		15-04-2010	1,700.00
		15-04-2010	1,700.00
<b>KILBEGGAN 34 Year 1946</b>	2,800.00	30-08-2011	1,900.00
<b>HIGHLAND PARK 40 Year</b>	2,775.00	04-03-2018	1,775.00
<b>GLENMORANGIE 21 Year</b>	2,660.00	28-11-2017	760.00
		11-12-2013	475.00
		19-11-2011	600.00
<b>GLENFARCLAS 46 Year 1954</b>	2,500.00	10-03-2015	800.00
		16-04-2014	656.00
		16-04-2014	656.00
<b>HANYU 1988</b>	2,500.00	23-11-2012	87.00
		11-01-2010	80.00
<b>LOCHSIDE 31 Year 1966</b>	2,499.00	28-04-2015	550.00
		26-11-2013	535.00
<b>BRORA 30 Year</b>	2,350.00	03-10-2016	1,320.00
		02-10-2014	392.00
		01-02-2009	290.00
<b>CAPERDONICH 38 Year 1970</b>	7,874.00	14-04-2013	200.00
		05-12-2012	180.00
		04-11-2012	165.00
<b>KINCLAITH 36 Year 1969</b>	1,825.00	12-05-2017	1,800.00

		12-12-2016	1,700.00
		13-11-2015	2,000.00
<b>ARDBEG</b>	50.00	24-01-2018	55.00
		18-06-2017	55.00
		15-05-2017	57.00
<b>DEANSTON 12 Year</b>	65.00	23-12-2008	68.00
<b>GLENLIVET</b>	65.00	05-09-2016	70.00
<b>BENROMACH 12 Year</b>	66.00	12-01-2009	72.00
<b>AUCHENTOSHAN 12 Year</b>	70.00	17-02-2014	72.00
<b>BLAIRMOHR 8 Year</b>	70.00	30-08-2011	75.00
<b>BALBLAIR 13 Year 1992</b>	80.00	12-01-2016	85.00
<b>CLYNELISH 38 Year 1971</b>	1287.00	27-05-2017	322.00
		13-03-2010	189.00
		27-07-2009	164.00
<b>STRATHISLA 50 Year 1965</b>	750.00	27-03-2018	748.00
		14-03-2018	748.00
		26-02-2018	748.00

Source: own study based on data from <https://www.worldwhiskyindex.com/> (access on 12.12.2023)

### 3.1. Return of Investment (ROI)

The rate of return on investment is the profit that is obtained from one monetary unit of invested capital. The ROI for absolute values is calculated on the basis of the following formula:

$$ROI = \frac{\text{Profits from investment}}{\text{Cost of investment}} \times 100\%$$

*Tab. 2: ROI in whisky on the collector's market*

Whisky	ROI (%)	ROI per year (%)	Average ROI (%)
<b>BOWMORE 42y.</b>	146%	45.83%	169,4%
	161%	61.29%	
	200%	100.00%	
<b>MACPHAIL'S 44y.</b>	1314%	1213.65%	1314%
<b>BOWMORE 29y.</b>	188%	87.76%	293%
	397%	297.44%	
<b>TOMATIN 42y.</b>	1738%	1637.82%	3975%
	5094%	4993.60%	
	5094%	4993.60%	
<b>BOWMORE No age on label (1964)</b>	200%	100.00%	229%
	207%	107.21%	
	278%	177.78%	



<b>MACALLAN 34y.</b>	218%	117.87%	218%
<b>BOWMORE 38y.</b>	144%	43.55%	196%
	223%	122.78%	
	223%	122.50%	
<b>BOWMORE No age on label(1964)</b>	229%	128.97%	228%
<b>GLENLIVET No age on label</b>	163%	63.06%	163%
<b>GLENFARCLAS 58 Year</b>	125%	25.00%	130%
	140%	40.00%	
	125%	25.00%	
<b>MACALLAN 35 Year 1938</b>	241%	140.96%	301%
	274%	173.82%	
	389%	288.65%	
<b>MACALLAN 25 Year</b>	1571%	1471.43%	1571%
<b>SPRINGBANK 33 Year 1951</b>	111%	11.11%	111%
	111%	11.11%	
<b>LAGAVULIN 37 Year</b>	179%	79.28%	179%
<b>GLENLIVET 55 Year 1943</b>	118%	17.71%	
<b>PORT ELLEN 22 Year 1979</b>	195%	95.10%	118%
	244%	143.75%	
	260%	160.00%	
<b>TAMDHU 35 Year 1973</b>	1110%	1009.69%	1216%
	1204%	1103.73%	
	1335%	1234.96%	
<b>GLENFARCLAS 1966</b>	266%	166.04%	266%
<b>TALISKER 1952</b>	291%	191.26%	360%
	429%	328.57%	
<b>KILLYLOCH 22 Year 1972</b>	177%	76.93%	1216%
	179%	79.04%	
	182%	81.76%	
<b>PORT ELLEN 25 Year 1980</b>	745%	644.50%	798%
	851%	750.86%	
<b>LINKWOOD(No age on label) 1939</b>	147%	47.37%	159%
	165%	64.71%	
	165%	64.71%	
<b>KILBEGGAN 34 Year 1946</b>	147%	47.37%	147%
<b>HIGHLAND PARK 40 Year</b>	156%	56.34%	156%
<b>GLENMORANGIE 21 Year</b>	350%	250.00%	451%
	560%	460.00%	
	443%	343.33%	
<b>GLENFARCLAS 46 Year 1954</b>	313%	212.50%	358%
	381%	281.10%	
	381%	281.10%	
<b>HANYU 1988</b>	2874%	2773.56%	2999%
	3125%	3025.00%	

<b>LOCHSIDE 31 Year 1966</b>	454%	354.36%	461%
	467%	367.10%	
<b>BRORA 30 Year</b>	178%	78.03%	529%
	599%	499.49%	
	810%	710.34%	
<b>CAPERDONICH 38 Year 1970</b>	3937%	3837.00%	4361%
	4374%	4274.44%	
	4772%	4672.12%	
<b>KINCLAITH 36 Year 1969</b>	101%	1.39%	100%
	107%	7.35%	
	91%	-8.75%	
<b>ARDBEG</b>	91%	-9.09%	90%
	91%	-9.09%	
	88%	-12.28%	
<b>DEANSTON 12 Year</b>	96%	-4.41%	96%
<b>GLENLIVET</b>	93%	-7.14%	93%
<b>BENROMACH 12 Year</b>	92%	-8.33%	92%
<b>AUCHENTOSHAN 12 Year</b>	97%	-2.78%	97%
<b>BLAIRMOHR 8 Year</b>	93%	-6.67%	93%
<b>BALBLAIR 13 Year 1992</b>	94%	-5.88%	94%
<b>CLYNELISH 38 Year 1971</b>	400%	299.69%	622%
	681%	580.95%	
	785%	684.76%	
<b>STRATHISLA 50 Year 1965</b>	100%	0.27%	100%
	100%	0.27%	
	100%	0.27%	
<b>Mean</b>	673%	<b>572.75%</b>	<b>610%</b>

Source: own study based on data from <https://www.worldwhiskyindex.com/> (access on 12.06.2024)

The average rate of return on investment was 610% in absolute terms, which means that from a single euro invested in whisky on the collector's market, it returns an average of EUR 5.1. The average value of the annual ROI amounted to approx. 573%, that is, EUR 4.7 is paid annually from one euro.

For the examined investment items, the ROI in absolute terms ranged from 90% to 4361%. A wide spread of the value of the rate of return indicates a high risk related to investments in a given market.

### 3.2. Payback period

The payback period is the time needed for the ROI to reach at least 100%, which is

necessary to achieve a profit equal to at least the investment costs. It is described by the formula:

$$T_0 = \frac{\text{Outlay}}{\text{Net profit}} = \frac{1}{ROI}$$

*Tab. 3: The payback period for the investment in whisky*

Whisky	PP (in days)	Average pp (in days)
<b>BOWMORE 42y.</b>	252	219
	226	
	183	
<b>MACPHAIL'S 44y.</b>	29	29
<b>BOWMORE 29y.</b>	193	142
	91	
<b>TOMATIN 42y.</b>	22	11
	7	
	7	
<b>BOWMORE No age on label (1964)</b>	183	161
	175	
	131	
<b>MACALLAN 34y.</b>	168	168
<b>BOWMORE 38y.</b>	256	193
	164	
	164	
<b>BOWMORE No age on label(1964)</b>	161	164
<b>GLENLIVET No age on label</b>	223	223
<b>GLENFARCLAS 58 Year</b>	292	281
	259	
	292	
<b>MACALLAN 35 Year 1938</b>	153	128
	135	
	95	
<b>MACALLAN 25 Year</b>	22	22
<b>SPRINGBANK 33 Year 1951</b>	329	329
	329	
<b>LAGAVULIN 37 Year</b>	204	204
<b>GLENLIVET 55 Year 1943</b>	310	310
<b>PORT ELLEN 22 Year 1979</b>	186	161
	150	
	139	
<b>TAMDHU 35 Year 1973</b>	33	29
	29	
	26	

<b>GLENFARCLAS 1966</b>	139	139
<b>TALISKER 1952</b>	124	106
	84	
<b>KILLYLOCH 22 Year 1972</b>	208	204
	204	
	201	
<b>PORT ELLEN 25 Year 1980</b>	47	47
	44	
<b>LINKWOOD(No age on label) 1939</b>	248	230
	223	
	223	
<b>KILBEGGAN 34 Year 1946</b>	248	248
<b>HIGHLAND PARK 40 Year</b>	234	234
<b>GLENMORANGIE 21 Year</b>	106	84
	66	
	84	
<b>GLENFARCLAS 46 Year 1954</b>	117	102
	95	
	95	
<b>HANYU 1988</b>	11	11
	11	
<b>LOCHSIDE 31 Year 1966</b>	80	80
	77	
<b>BRORA 30 Year</b>	204	102
	62	
	44	
<b>CAPERDONICH 38 Year 1970</b>	11	7
	7	
	7	
<b>KINCLAITH 36 Year 1969</b>	361	365
	339	
	402	
<b>ARDBEG</b>	402	405
	402	
	416	
<b>DEANSTON 12 Year</b>	383	383
<b>GLENLIVET</b>	394	394
<b>BENROMACH 12 Year</b>	398	398
<b>AUCHENTOSHAN 12 Year</b>	376	376
<b>BLAIRMOHR 8 Year</b>	391	391
<b>BALBLAIR 13 Year 1992</b>	387	387
<b>CLYNELISH 38 Year 1971</b>	91	62
	55	
	47	

<b>STRATHISLA 50 Year 1965</b>	365	153
	365	
	365	
<b>Mean</b>	<b>183</b>	<b>193</b>

Source: own study based on data from <https://www.worldwhiskyindex.com/> (access on 12.06.2024)

The average payback period for whisky investments on the collector's market was 183 days, i.e. 6 months. The average value of the estimated indicator was 193 days, i.e. about half a year. Therefore, when investing in whisky, you can expect a return on investment after a six-month period on average.

The fastest, ca two-week period of return was achieved by whiskies produced in inactive distilleries like Caperdonich, Hanyu or Tomatin. The longest payback period was recorded for Ardbeg, Benromach, Glenlivet (unlicensed), Balirmhor, Balblair and Auchentoshan whiskies, and it ranged from 12 to 13 months.

The following distilleries made extraordinary profits: Caperdonich's (4261% of the invested amount), Tomatin (3875% of the invested amount) and Hanyu's whisky from Japan (2899% of the invested amount). The indicated positions were also characterized by the shortest payback period of about 10 days. A quarter of the investments in whisky yielded profits about five times higher than the investment costs incurred. 28% of the tested sample yielded an extraordinary profit (profit-cost) equal to at least the value of the investment. 50% of all investments yielded a profit equal to only the investment cost or less, hence it was ineffective in the analyzed period. In some cases, an upward trend may be predicted, which is noticeable in the case of Ardbeg, Stratshikla or Kinklaith.

#### **4. DETERMINANTS OF ROI IN WHISKY ON THE COLLECTOR'S MARKET**

There is a lack of research in the literature on investment in whisky. The author proposes his own division of determinants of investment in this liquor. The following factors that affect the investment in whisky can be distinguished: its age, origin (distillery) and taste. This catalogue is not closed. There may also be other specific determinants, such as historical conditions (consumption of a specific whisky by famous people), national (popularity of a given whisky in a given country in a given period) or cultural and social (origin of semi-finished products for whisky production, method of production). Hereinafter only those determinants are discussed which, in the author's opinion, are the most universal and most important in the investment process.

#### 4.1. Age

The age of whisky is the length of the maturation process, i.e. maturing in a barrel.

*Table 4: Correlation between ROI and payback period for whisky and its age*

Whisky	Age	ROI (%)
BLAIRMOHR	8	0.933333
AUCHENTOSHAN	12	0.972222
DEANSTON	12	0.955882
BENROMACH	12	0.916667
BALBLAIR1992	13	0.941176
GLENMORANGIE	21	4.511111
KILLYLOCH1972	22	12.16126
PORT ELLEN1979	22	2.329492
MACALLAN	25	15.71429
PORT ELLEN1980	25	7.976786
BOWMORE	29	2.926004
BRORA	30	5.292883
LOCHSIDE1966	31	4.607332
SPRINGBANK1951	33	1.111111
MACALLAN 34y.	34	2.178722
KILBEGGAN1946	34	1.473684
TAMDHU1973	35	12.16126
MACALLAN1938	35	3.011411
KINCLAITH1969	36	0.999973
LAGAVULIN	37	1.792829
CAPERDONICH1970	38	43.61189
CLYNELISH1971	38	6.217993
BOWMORE	38	1.962756
HIGHLAND PARK	40	1.56338
TOMATIN	42	39.75002
BOWMORE	42	1.690412
MACPHAIL'S	44	13.13647
GLENFARCLAS1954	46	3.582317
STRATHISLA1965	50	1.002674
GLENLIVET1943	55	1.17713
GLENFARCLAS	58	1.3
<b>r-Pearson coefficient</b>	<b>-</b>	<b>0.15</b>

Source: own study based on data from <https://www.worldwhiskyindex.com/> (access on 12.06.2024)

The research showed a slight positive correlation between the age of the whisky and the profitability of investing in it on the collector's market (a Pearson's ratio of 0.15) with

extreme values from 0.916667% to 43.61189% and a moderate correlation between the period of return and the age of the whisky (r-Pearson coefficient -0.35) with a significance level of approx. 18% ( $R^2 = 0.1822$ ). To sum up, the age of the whisky has extremely small (if any) impact on the profitability of investment in it, but it can contribute to shortening the payback period.

## 4.2. Distillery

In the sample under study, 8 whiskies came from distilleries that did not produce whisky any more, while the remaining ones came from 21 still active distilleries.

**Table 5:** Average ROI and average return on investment in whisky from active and inactive distilleries

Open	ROI (%)	PP (in years)	Closed	ROI (%)	PP (in years)
Ardbeg	90%	405	Brora	529.29%	102
Auchentoshan	97%	376	Caperdonich	4361.19%	7
Balblair	94%	387	Hanyu	2999.28%	11
Benromach	92%	398	Killyloch	1216.13%	204
Blairmhor	93%	391	Kinclaith	100%	365
Bowmore	223%	175	Lochside	460.73%	80
Clynelish	622%	365	Port Ellen	515.32%	106
Deanston	96%	383	Tomatin	3975%	11
Glenfarclas	251%	175			
Glenlivet	125%	310			
Glenmorangie	451%	84			
Highland Park	156%	219			
Kilbeggan	147%	248			
Lagavulin	179%	204			
Linkwood	159%	230			
Macallan	697%	106			
Macphail's	1314%	29			
Springbank	111%	329			
Strathisla	100%	153			
Talisker	360%	106			
Tamdhu	1216%	29			
<b>Mean</b>	318%	245	<b>Mean</b>	1630.25%	110

Source: own study based on data from <https://www.worldwhiskyindex.com/> (access on 12.06.2024)

**Tab. 6:** Correlation between the functioning of a distillery and the price of whisky made in it on the collector's market

-	Open distillery(0)	Closed distillery (1)	Rang-Spearman coefficient
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<b>ROI</b>	313.27%	1630.25%	0.58
<b>PP</b>	226	110	-0.43

Source: own study based on data from <https://www.worldwhiskyindex.com/> (access on 12.06.2024).

Studies have shown that regarding the relation between the functioning of a given distillery and the ROI of its whisky on the collector's market there is a medium-high positive correlation between the inactivity of a given distillery (a Rank-Spearman coefficient of 0.58) and a moderate negative correlation between the period of return of investment and inactivity of distilleries (a Rank-Spearman correlation of -0.43). There is, therefore, a fairly strong correlation between the functioning of the distillery and the profitability of investments in the whisky coming from it. Failure to operate a distillery contributes to a statistical increase in ROI and, in the same way, a reduction in the payback period.

### 4.3. Taste

The analysis was based on the division of whisky into three flavour groups proposed by D. Wishart covering group 1 (A-C), group 2 (D-G) and group 3 (H-J).

*Tab. 7: Average ROI and payback period for whisky from individual flavour groups according to the classification proposed by D. Wishart*

Whisky	Taste group	Average ROI	Average PP
Macallan	<b>A</b>	697%	0.29
Strathisla	<b>B</b>	100%	0.42
Glenfarclas	<b>B</b>	251%	0.48
Glenlivet	<b>C</b>	125%	0.85
Auchentoshan	<b>D</b>	97%	1.03
Tomatin	<b>F</b>	3975%	0.03
Deanston	<b>F</b>	96%	1.05
Glenmorangie	<b>H</b>	451%	0.23
Bowmore	<b>I</b>	223%	0.48
Springbank	<b>I</b>	111%	0.90
Highland Park	<b>I</b>	156%	0.64
Ardbeg	<b>J</b>	90%	1.11
Lagavulin	<b>J</b>	179%	0.56

Source: own study based on data from <https://www.worldwhiskyindex.com/> (access on 12.06.2024)

*Tab. 8: Average ROI and payback period for individual whisky flavour groups according to the classification proposed by D. Wishart*

1 taste group (A-C)	
Average ROI (%)	293%



Average PP (in years)	0.51
<b>2 taste group (D-G)</b>	
Average ROI (%)	1389%
Average PP (in years)	0.70
<b>3 taste group (H-J)</b>	
Average ROI (%)	202%
Average PP (in years)	0.65

Source: own study based on data from <https://www.worldwhiskyindex.com/> (access on 17.06.2024)

For the indicated data, the Rank-Spearman correlation coefficient was calculated in which the following classification values were adopted: group 1 (1), group 2 (2), group 3 (3). The calculated ratio was -0.09 for the average ROI, and 0.17 for the average return period. It follows that the whisky taste has a negative (near zero) effect on the ROI and a slight positive impact on the payback period. It follows from the above that the taste of whisky does not affect the ROI of whisky. This is because, although it is a food good, it is not consumed. Another conclusion is the slight extension of the period of return on investment in whisky with a more demanding peat flavour. This may be due to the fact that an investment in this type of whisky is a more advanced stage of contact with whisky, and thus requires a great experience at the connoisseur level.

In summary, investing in whisky is profitable even in a relatively short period. However, there should be bear in mind the high risk incurred when deciding on this form of thesaurisation. Choosing an investment in whisky, first of all, the potential investor should be guided by its place of origin, in particular whether the distillery is still functioning. The profitability of the investment in whisky does not significantly depend on its age or taste. Therefore, it can be concluded that investing in whisky is rather slightly driven by emotions or passion for this liquor, but more by desire to secure the investment portfolio, i.e. economic incentives. The acquisition of collector's bottles of whisky is rarely directed to its consumption. Their purchase is frequently a conscious investment decision. The analysis including data from the 2008–2018 period showed that in about 50% of cases an extraordinary profit was made from the investment in whisky at a level equal to at least the size of the investment. The other half of the investment turned out to be unprofitable or yielded zero extraordinary profits (profits equal investment costs). The interest in investing in the whisky collector's market is therefore not makeshift. It can therefore be concluded that this market is currently a relatively constant area of alternative investments.

## CONCLUSION

Whisky is on the market both as a consumer, collector and investment good. You can invest in it directly or indirectly. Direct investments include the purchase of whisky bottles or barrels, while indirect investments consist of subsidies for the distillery or the purchase of their shares. Barrel whisky is a semi-finished product that can be resold (previously bearing storage costs) or bottled to create a finished product or sell as a food good. The liquidity of the whisky barrel market is therefore greater than in the case of the bottle market, including primarily collector bottles. By investing cash in barrels of whisky you can use the services of whisky banking offered, among others by Stilnovisti. To assess the effectiveness of investment in whisky, static methods of profitability of physical investments in the form of the rate of return on investment (ROI) and the period of return on investment in absolute and average values were used. There were 40 selected collector bottles available for purchase at the World Whisky Index, for which also the prices of their earlier purchase were available. Whisky came from 29 distilleries, including 21 active and 8 inactive distilleries. It has been checked how the rate of return on investment and the payback period are influenced by the factors mentioned most often as determinants of the price of collector whisky, i.e. the continuous operation of the whisky distillery, the age of the whisky and the taste of the whisky. The last factor was analyzed on the basis of the whisky qualification based on the taste proposed by D. Wishart. The correlation study of the indicated factors on the ROI and the payback period was calculated using the r-Pearson ratio and the Spearman rank. The analysis covered data from the 2008–2018 period. In about 50% of cases, it showed an extraordinary profit from investment in whisky at a level equal to at least the size of the investment. The other half of the investment turned out to be unprofitable or yielded zero extraordinary profits (profits equal investment costs). Research has shown that investing in whisky is profitable even in a relatively short period. However, one should remember the high risk incurred when deciding on a given form of thesaurisation. When choosing an investment in whisky, first of all, the potential investor should be guided by its place of origin, in particular whether the distillery is still functioning. The profitability of investment in whisky does not significantly depend on its age or taste, which proves that its purchase is a conscious investment rather than a manifestation of passion for this liquor.

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## **REFERENCES**

ADAMSKA A. (2016). Alkohole jako przedmiot inwestycji alternatywnych. *Finanse, Rynki Finansowe, Ubezpieczenia*, 4(82), p. 571-579. DOI: 10.18276/frfu.2016.4.82/1-47.

ANSON M. (2002). *The handbook of Alternative Investments*. New York: John Wiley & Sons. ISBN: 0-471-21826-X.

ASPADAREC W. (2013). Atrakcyjność inwestycyjna inwestycji alternatywnych. *Finanse: czasopismo Komitetu Nauk o Finansach PAN*, 1(6), p. 9-26. ISSN: 1899-4822.

Bookofluxury.pl (n.d.). Najdrozsze sery swiata. [online]. [cit. 2024-06-12]. Available at: <http://www.bookofluxury.pl/foodwine/najdrozsze-sery-swiata/>

BODIE Z., KANE A. AND MARCUS A. (2002). *Investments*. New York: McGraw-Hill. ISBN: 978-0072339161.

BOIDO C. and FASANO A. (2009). Alternative Assets: A Comparison Between Commodities and Traditional Asset Classes. *ICFAI Journal of Derivatives Markets*, 6(2), p. 74-105. ISSN: 0972-9119.

BOROWSKI K. (2010). Nowe kierunki bankowości inwestycyjnej- rynek przedmiotów kolekcjonerskich. In: PRUCHNICKA-GRABIAS I. (ed.). *Inwestycje alternatywne*, Warsaw: CeDeWu, p. 217-266.

CHEVALIER J. and ELLISON G. (1999). Are some mutual fund managers better than others? *Journal of Finance*, vol. 54, p. 875-899. ISSN: 0022-1082.

CHORAFAS D. (2003). *Alternative Investments and the Mismanagement of Risk*. New York: Palgrave Macmillan. ISBN: 978-1-349-51026-9.

CICHORSKA J. (2015). Rozwój rynku sztuki jako przykład inwestycji alternatywnych. *Annales Universitatis Mariae Curie-Skłodowska Lublin – Polonia*, Vol. XLIX, 4, Sectio H, p. 69-83. DOI:10.17951/h.2015.49.4.69.

Docplayer.pl (2016). Inwestycja w szkocję Whisky - PDF Darmowe pobieranie. [online]. [cit. 2023-06-12]. Available at: [https://docplayer.pl/10609649-Inwestycja-w-szkocja-whisky.html#google\\_vignette](https://docplayer.pl/10609649-Inwestycja-w-szkocja-whisky.html#google_vignette)

- DORSEY A. (2007). *A Portfolio Approach to Selecting and Managing Alternative Investments*. New Jersey: John Wiley & Sons, Inc. ISBN: 978-0-471-79132-4.
- FELIS P.(2005). *Metody i procedury oceny efektywności inwestycji rzeczowych przedsiębiorstw*. Warsaw: Wydawnictwo WSE-I.
- Foodfakty.pl (2018). Polacyspozywajacorazwiecej whisky single malt. [online]. [cit. 2024-06-12]. Available at: <https://www.foodfakty.pl/polacy-spozywaja-coraz-wiecej-whisky-single-malt>
- Forbes.pl (2013). Whisky podbijaazjatyckierynki. [online]. [cit. 2024-06-12]. Available at:<https://www.forbes.pl/life/travel/whisky-podbija-azjatyckie-rynki/yxmwxqz>
- GABRYELCZYK K. and TRUSZKOWSKI J. (2010). *Portfel inwestycyjny*. Poznań: Wyd. Uniwersytetu Ekonomicznego w Poznaniu.ISBN: 978-8374174428.
- Gięda-inwestora.pl (n.d.). Whisky konsumpcji whisky swieciepolska 13 miejscu. [online]. [cit. 2024-06-12].Available at: <https://gięda-inwestora.pl/alternatywne/alkohole-i-cygara/whisky-konsumpcji-whisky-swiecie-polska-13-miejscu>
- GOETZMANN W. and ROUWENHORST G. (2005). *The Origins of Value, The Financial Innovations that Created Modern Capital Markets*. New York: Oxford University Press. ISBN: 9780195175714.
- Goldenmark.com (n.d.). Luksus talerzu czyli najdrozsze produkty spozywcz swiecie. [online]. [cit. 2024-06-12].Available at: <https://goldenmark.com/pl/mysaver/luksus-talerzu-czyli-najdrozsze-produkty-spozywcz-swiecie/>
- GUZIK K. and SMAGA E. (2013). *Ryzyko i rentowność inwestycji finansowych i rzeczowych*. Cracow: Wyd. Uniwersytetu Ekonomicznego w Krakowie. ISBN: 978-8372526229.
- KLEIN, C., J. HØJ & G. MACHLICA (2021). The impacts of the COVID-19 crisis on the automotive sector in Central and Eastern European Countries.*OECD Economics Department Working Papers*, 1658. DOI: 10.1787/a7d40030-en.
- Koneserzy.pl(n.d.). Kulturawina. [online]. [cit. 2024-06-12]. Available at: <http://www.koneserzy.pl/kultura-wina/51-jak-d%C5%82ugo-starzeje-si%C4%99-wino.html>
- MILER, T. (2011). Jak się liczy wiek whisky? Obalanie mitów i praktyczny poradnik. [online]. [cit. 2024-06-12].Available at: <http://www.milerpije.pl/wiek-whisky.html>
- Nagrzyby.pl (2024). Przedwojennyartykul o truflach w polsce. [online]. [cit. 2024-06-12].Available at: <https://nagrzyby.pl/ciekawostki/przedwojenny-artykul-o-truflach-w-polsce>
- NaTemat.pl (2012). Ccesz inwestowac w whisky? Napijsie to, ci przejdzie. [online]. [cit. 2024-06-12].Available at:<http://lukaszdynowiak.natemat.pl/33611,chcesz-inwestowac-w-whisky-napij-sie-to-ci-przejdzie>
- OSTROWSKA E. (2014). *Portfel inwestycyjny klasyczny i alternatywny*. Metody oceny. Warsaw: C.H. Beck. ISBN: 978-8325563608.
- Scotch-whiskey.org.uk (2024). Scotch whisky exports 2016 analysis. [online]. [cit. 2024-06-12]. Available at: <http://www.scotch-whisky.org.uk/news-publications/publications/documents/scotch-whisky-exports-2016-analysis/>
- Stilnovisti.pl (2019). Strona główna | Stilnovisti. [online]. [cit. 2024-06-12]. Available at: <https://stilnovisti.pl/>
- Tpewhiskey.com (n.d.). International market. [online]. [cit. 2024-06-12]. Available at: <http://tpewhiskey.e-monsite.com/pages/international-market/>

Webshop analytics.pl (n.d.). Okreszwrotunakladowinwestycyjnych. [online]. [cit. 2024-06-12]. Available at: <http://webshop-analytics.pl/okres-zwrotu-nakladow-inwestycyjnych>

WISHART D. (2013a). *Whisky Classified: Choosing Single Malts by Flavour*. Glasgow: Pavilion Books. ISBN : 978-1911595731.

WISHART D. (2013). *Whisky. Leksykon smakosza*. Warsaw: Wyd. RM. ISBN: 978-83-7243-791-4.

Wordwhiskyindex.com (n.d.). World whiskey index. [online]. [cit. 2024-06-12]. Available at: <https://www.worldwhiskyindex.com/search.asp>

## ***INWESTYCJE ALTERNATYWNE W PRODUKTY SPOŻYWCZE NA PRZYKŁADZIE INWESTYCJI W WHISKY***

**Streszczenie:** Celem pracy jest podjęcie próby wskazania czynników inwestowania w whisky, jako forma inwestycji alternatywnych, jest rentowną formą inwestycji oraz jakie są determinanty tej rentowności. Powodem podjęcia badań jest próba przybliżenia rynku inwestycji w whisky, który dotychczas był pomijany w rozważaniach poświęconych inwestycjom alternatywnym. Rentowność inwestycji w whisky została przeanalizowana metodami statystycznymi i dynamicznymi na podstawie danych dostępnych na rynku kolekcjonerskim. Rentowność inwestycji w whisky zbadana została za pomocą metod statystycznych i dynamicznych na podstawie danych dostępnych na rynku kolekcjonerskim. Autor przeprowadził również analizę statystyczną determinant ROI i okres zwrotu whisky na wskazanym rynku za pomocą współczynników r-Pearsona i rang-Spearmana. Przeprowadzona analiza objęła okres jedenastoletni (lata 2008-2018). Przebadane zostało 40 wybranych butelek kolekcjonerskich dostępnych do nabycia na World Whisky Index, których ceny ich nabycia były podane do wiadomości. Whisky pochodziły z 28 destylarni, w tym 21 był czynnych oraz 8 nieczynnych. Zbadane zostały jako wpływna ROI mają: wiek whisky, to czy destylarnia z której pochodzi wiaź funkcjonuje oraz jej smak. Badanie ujawniło, że zarówno wiek whisky, jak i jej smak mają zaledwieniewielki wpływ na ROI oraz okres zwrotu inwestycji w whisky, co w przypadku dobra spożywczego jest zaskakujące. Wyniki pokazały również, że czynnikiem, który najbardziej determinuje opłacalność inwestycji w whisky, jest jej pochodzenie (gorzelnia), a ściślej to, czy nadal ona funkcjonuje.

**Słowa kluczowe:** inwestycje alternatywne, whisky, inwestycje w żywność

**Klasyfikacja JEL:** G2, G4, K2, N2, N4, O3.