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## Article

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Contemporary Economics

## Provided in Cooperation with:

VIZJA University, Warsaw

*Suggested Citation:* Ziarko-Siwiek, Urszula (2026) : Empirical analysis of the dogs of the dow trading strategy: Polish evidence, Contemporary Economics, ISSN 2300-8814, VIZJA University, Warsaw, Vol. 20, Iss. 1, pp. 112-134,  
<https://doi.org/10.5709/ce.1897-9254.585>

This Version is available at:

<https://hdl.handle.net/10419/340152>

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Primary submission: 17.05.2024 | Final acceptance: 14.03.2025

# Empirical Analysis of the Dogs of the Dow Trading Strategy: Polish Evidence

Urszula Ziarko-Siwiek 

## ABSTRACT

This study examines how effective the Dogs of the Dow (DoD) investment strategy, popular in the USA, was for the Polish blue-chip stock market between 2002-2023. This strategy involves investing the same amount of funds each year in shares of ten companies called Dogs of Dow with the highest dividend yield. The portfolio is then retuned every year – companies that do not meet the aforementioned criterion are removed, and new ones are added. For the entire research period, raw and risk-adjusted annual and five-year rates of return were determined for 10- and 5-component portfolios, taking into account transaction costs and dividend tax. Although both the DoD (YD10) and Puppies of the Dow (YD5) portfolios exceeded the average annual rate of return for the entire research period, it cannot be unequivocally stated that it is an effective and long-term method of beating the market. Neither the one-year nor the multi-period portfolios achieved positive abnormal returns consistently and systematically. Moreover, in most portfolios, the differences between portfolio and index returns were not statistically significant. Similarly, as in some foreign markets, the effectiveness of DoD strategies was higher in the first half of the research period (2002-2011), and declined over time. On the Polish market, as in other foreign markets, it was observed that 5-component portfolios (less diversified portfolios) generated higher returns than 10-component portfolios. The analysis of the effectiveness of the DoD during bull and bear market periods does not allow for a clear conclusion that during downturns this strategy allowed investors to limit their losses relative to the benchmark. Concluding the conducted research, it should be stated that there are no solid grounds to consider this strategy effective on the Polish market for the 2002–2023 period.

## KEY WORDS:

Dogs of Dow strategy, high yields dividends strategies, investment strategy, portfolio analysis, stock market.

**JEL Classification:** G10, G11.

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## 1. Introduction

The basic goal of every investor on the capital market is to achieve high rates of return at an acceptable level of risk, or to beat the market – achieve higher returns than the selected benchmark. Investment strategies that enable effective portfolio management include dividend investing, which involves purchasing shares of companies that, on the one hand, offer the chance to earn from their increase in the value due to good fundamentals, and on the other hand, share profits with their shareholders. Dividend in-

vesting combines features of value investing (Filbeck & Visscher, 1997) and investing in low-volatility stock (Clemens, 2012). Proponents of dividend investing believe that in the long term this strategy achieves higher rates of return than by the market in general (Keppler, 1991).

Dividend strategies include: (a) long-term investment in companies that have been paying regularly increasing dividends over a number of years and (b) short-term (annual) investing in entities with a high dividend rate. When it comes to long-term investments in dividend companies, investors seek out so-

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called dividend aristocrats – companies that, according to the Standard & Poor (S&P) definition, have been continuously paying increasing dividends to their shareholders for at least 25 years, with a market capitalisation of free-floating shares of at least USD 3 billion, and a USD 5 million average daily trading value of these shares over the three months before being included in the S&P500 Dividend Aristocrats index. The Dividend Aristocrats Index was established in 2005, is regularly updated and is the basis instrument used for ETFs. As of the end of 2023, this index included 68 companies, 44 of which had been paying dividends continuously for at least 40 years, and some much longer: Coca-Cola – 61, and Dover – 68. Dividend companies of this type did not stop paying dividends nor reduce their value during any of the recent crises that affected the American stock exchange: the Internet bubble of 2000, the financial crisis in 2007-2009, the Covid-19 pandemic in 2020, or the period of high inflation and interest rates. Such entities are also listed on the European capital market, but their period of consecutive payment of increasing dividends is much shorter – 10 years or less. The Warsaw Stock Exchange, although it has only been operating for 30 years, also lists companies that have been sharing their profits with shareholders for over 15 years. Currently, there are 15 such enterprises, including ASSECO Poland, Ambra, Apator, CEZ, Dębica, Neuca, and DomDevelopment. A number of studies can be found in the literature that deal with the analysis of the factors influencing the decisions of company boards to share the profit generated (Sierpińska-Sawicz, 2016).

The second of these strategies is the Dogs of the Dow, very popular in the USA and introduced by John Slatter in 1988 (Slatter, 1988) in an article published in the Wall Street Journal. It involves investing the same amount in the so-called dogs of the Dow – companies included in the Dow Jones Industrial Average (DJIA) index with the highest dividend rate. This kind of dividend portfolio is retuned every year – companies that do not meet the aforementioned criterium are removed, and new ones are added. These companies are attractive from the point of view of price, which has recently dropped, and due to their stable or growing dividend payouts, resulting in higher dividend rates (Tissayakorn et al., 2013). Ac-

ording to the strategy, when share prices are low, the time is opportune to create an investment portfolio consisting of fundamentally strong companies from the DJIA with large capitalisation, which are temporarily valued low by the market. Increased demand pushes up the prices and these companies achieve higher rates of return compared to the benchmark in the following period (Alles & Sheng, 2008). Some researchers consider the DoD strategy to be contrarian (Ghouse & Ahmad, 2014) – stocks are selected whose ratios, such as P/E and P/BV, suggest that the companies are currently undervalued and of little interest to the rest of the market.

The DoD strategy piqued the interest of some investors due to its simplicity of application and clear rules that discipline investment decisions. This type of investment is characterised by low portfolio volatility because the companies that make up the DJIA tend to be large and with good financial liquidity. However, it is not without its drawbacks, including the need to retune the portfolio every year, which, depending on transaction costs, may impair the rate of return. Additionally, holding a portfolio for one year may give worse results than a long-term buy-and-hold strategy. This argument means that although the strategy was designed to be annual, it is also analysed in terms of its long-term effectiveness. Many researchers have argued that whereas this strategy is unstable when taken annually, in the long term the portfolios of Top 10 companies turned out to beat the market.

More than 30 years have passed since the first results were published regarding the effectiveness of investment strategies based on companies with a high dividend rate. Two books were devoted to this topic – by Knowles and Petti (1992) and O'Higgins and Downes (1991) – as well as many academic papers. Initially, most research was conducted on well-established stock markets – American, British, Canadian – but in subsequent years the following markets were also included: Indian, Finnish, South American, Korean, Thai, Pakistani and several others.

DoD's efficacy was also tested on the Polish market by Brzeszczyński and Gajdka (2007, 2008), who confirmed that between 1994-2004 DoD portfolios achieved higher rates of return than the stock market index. Because abnormally higher rates of return did

not occur systematically throughout the research period, they did not formulate any unequivocal conclusions along the lines that this strategy always yields better results than the market. Their study also mentioned transaction costs, considered as important factors when evaluating this strategy (Brzezyczyński & Gajdka, 2007).

Since Brzezyczyński and Gajdka published their work, the Polish stock exchange has evolved significantly. Due to the need to adapt to European regulations, many changes have been made in legislation. New financial instruments have appeared over the years, and the share of foreign investors in the Polish stock market has grown to over 60%. The WSE has become the leading stock exchange in Central and Eastern Europe, increasing in capitalisation from PLN 103 billion in 2001 to PLN 1,440 billion at the end of 2023, while the number of listed companies rose in the same period from 230 to 413. The value of turnover increased from PLN 40 million in 2001 to PLN 282 billion in 2023. In 2018, the FTSE Russell agency classified the Polish capital market as developed. In the face of numerous changes that have taken place in the Polish stock market, an attempt was made to re-examine the effectiveness of the dividend strategy during the period 2002-2023 (the first portfolios are based on data from 2001). A proper evaluation of the DoD investment strategy requires adopting a relatively long time horizon, which allows for assessing whether the strategy's effectiveness has changed over time and with the development of the capital market. The choice of the research horizon was also influenced by factors such as the availability of a sufficient number of listed blue chips (companies from WIG20 index) paying dividends and the availability of historical data, which was limited, for example, due to subsequent company mergers, resulting in the absence of quotations for individual entities before the merger. Another crucial factor in the selection was the implementation of the new WARSET trading system, which significantly influenced the development of the capital market in Poland. Such a long time horizon also allows for examining the effectiveness of the strategy during periods of economic boom and downturn in the stock market. Changes in the size and depth of the market, the significant presence of international investors

and increasing turnover could have helped erode the anomaly associated with investing in companies with a high dividend yield. Considering that on some non-Polish markets, the DoD strategy has become less effective over time, it is worth checking if this has also happened regarding shares on the WSE over an investment period of over twenty years. The need to reanalyse over longer timeframes is also supported by conclusions drawn from Hirschey (2000), who criticised this simple investment strategy, pointing out certain inaccuracies in the conducted research – for example, the choice of investment period. Analyses would yield contradictory conclusions depending on the period studied. Failing to take into account transaction costs and taxes in the total rate of return, or doing so inaccurately, could distort the figures (Hirschey, 2000).

Research conducted across various markets and time horizons has shown that the DoD strategy achieved better results than the benchmark in annual investment periods. This finding applies to the U.S. market (Knowles & Petty, 1992; McQueen et al., 1997; O'Higgins & Downes, 1991; Slatter, 1988), selected Latin American countries (Da Silva, 2001), Canada (Visscher & Filbeck, 2003), Finland (Rinne & Vähämaa, 2011), and Japan (Qiu et al., 2013). On some of these markets, the strategy was effective even after accounting for risk, transaction costs, and taxes.

Despite a group of studies that do not confirm the short-term effectiveness of the DoD strategy, such as those on the British (ap Gwilym et al., 2005; Filbeck & Visscher, 1997) and Brazilian markets (Da Silva, 2001), the author decided to investigate whether, in Poland from 2002 to 2023, the returns - accounting for transaction costs and dividend tax - achieved by two types of portfolios applying the DoD strategy - YD10 and YD5 (Puppies of the Dow) - were higher than the returns achieved by WIG20 and WIG20TR indices. To achieve this objective, the first hypothesis was formulated and tested, stating that the returns - accounting for transaction costs and dividend tax - realized by portfolios formed according to the Dogs of the Dow strategy from 2002 to 2023 exceed the adopted benchmark returns.

Some studies have shown that while the DoD strategy did not consistently deliver satisfactory results in annual periods, it proved to be a strategy

that generates higher long-term returns than the market (Brzeszczyński & Gajdka, 2008; Doh-Khul, 2019 ; McQueen et al., 1997; Qiu et al., 2013; Rinne & Vähämaa, 2011; Visscher & Filbeck, 2003). Therefore, the author decided to investigate whether the tested strategy, when applied over a long term, could achieve better results than the market. To explore this, the second hypothesis was formulated: that the Dogs of the Dow strategy, during the studied period, delivered satisfactory results over a long investment horizon.

This work is divided into four parts. The first reviews the literature on this dividend strategy. The topic of the study and the research method are presented in the second part, while the empirical results and conclusions from the study are presented in the third and fourth sections.

## 2. Literature Review

The DoD strategy was first published in the Wall Street Journal in August 1988. John Slatter (1988), a financial analyst, cited research results showing that between 1973-1988 the average annual rate of return on investments in American shares of companies with the highest dividend yield was 18.4% compared to 10.8% achieved on DJIA index. O'Higgins and Downes (1991) were among the first to confirm the efficacy of the Slatter strategy on the American market between 1973-1991, followed by Knowles and Petty (1992) who additionally confirmed the advantage of the DoD strategy for less diversified portfolios containing shares of 5 high-dividend companies (see Table 1).

Domian et al. (1998) were the first to try to find the answer as to why such a simple strategy offers higher returns than the market. Using data from the American market between 1964-1997, they showed that the more impressive rates of return achieved by a DoD portfolio were due to market overreaction to so-called 'losing stock'. They revealed that shares included in the DoD portfolio had yielded negative rates of return over the previous 12 months and were valued low by the market. In the following 12 months, after being included in the Top 10 portfolio, their price rose, leading to abnormal positive rates of return and a 'winner-loser' effect (Domian et al., 1998). Having examined data for two sub-periods, they indicated that the premium generated by the strategy dissipated over time due to the 'learning investor' effect. The first DoD sceptics were McQueen et al. (1997), arguing that in the 1946-1995 period, the average portfolio returns on the American market yielded higher rates of return than the index, but after adjusting for risk, transaction costs and taxes, the market index turned out to offer a higher rate of return. According to the authors of this study, investors are quick to learn about various market anomalies, so an abnormally high rate of return on a DoD portfolio should not be expected in the future. Hirshey (2000) was also critical of the DoD strategy, pointing out the inappropriate method used to select the investment period to be studied, as well as some problems encountered by researchers in terms of accurately measuring rates of return. He also demonstrated that when investigating DoD strategy transaction

**Table 1**

*Results of the First Studies Analysing the Effectiveness of DoD Strategies*

Authors	The research period	Return on TOP10	Return on DJIA
Slatter	1973-1988	18,39%	10,86%
Knowles and Petty	1973-1990	17,81%	11,41%
O'Higgins and Downes	1973-1991	16,61%	10,43%
Prudential Securities	1973-1992	16,06%	10,93%

*Source:* Adapted from Domian et al., 1998, p. 146.

costs and taxes should be accounted for, since they offset the effectiveness of this method (Hirschey, 2000). Regarding Hirschey's conclusions, Prather and Webb (2002) conducted research revealing that the US market was inefficient and the DoD strategy could outperform the market by over 4%. In turn, in the latest American research by Doh-Khul (2019) covering the 2000-2017 period has shown that in the first six years the DoD strategy was effective, having taken into account transaction costs and taxes, but this result was not sustained over the following years. In his opinion, investing equal amounts in 30 companies from the index and holding them for the long term or purchasing an index ETF would have yielded better results than the DoD strategy.

Interest in the Dogs of the Dow strategy vis-a-vis the American market prompted researchers from other countries to test its efficacy in a different economic setting. Filbeck and Visscher (1997) showed that in the case of British companies listed on the LSE and included in FTSE-100 index between 1985-1994, the DoD strategy was ineffective. The average annual return was -2.1% of the benchmark. Only in 4 out of 10 years did an investment in the 10 companies with the highest dividend yield bring higher rates of return than the market. According to the authors, the strategy could not be confirmed as effective perhaps due to the difference between the stock indexes used in the study: DJIA and FTSE-100. DJIA is a price-weighted index consisting of 30 companies representing over 20 sectors, while FTSE-100 is capitalisation-weighted, representing more industries, including the financial sector. Having adjusted the returns in terms of risk and transaction costs as well as having compared them to other indexes (FTSE-30, FTSE-100 and FTSE-250), ap Gwilym et al. (2005) confirmed the conclusions reached by Filbeck and Visscher. However, Brzeszczyński and Gajdka (2008) came to different conclusions when examining a different investment period and taking into account transaction costs, dividend taxes and currency risk. They showed that the TOP10 portfolios were able to beat the market, albeit not systematically, with an average annual rate of return over the entire study period more than four

times higher than the index rate. The DoD strategy – taking into account transaction costs, taxes and risk – was also confirmed to be advantageous by Visscher and Filbeck (2003) for the Canadian market, Kotkamp and Otte (Henne et al., 2009) for the German market, Qiu et al. (2013) for the Japanese market, Milinov and Pavlov (2016) for the Bulgarian market and Rinne and Vähämaa (2011) for the Finnish stock exchange. The latter also noted that the strategy was particularly effective during bear markets. They explained the DoD's effectiveness by the 'winner-loser' hypothesis.

A large body of research has shown that, in economic terms, the DoD strategy has outperformed stock market indexes both in absolute and risk-adjusted terms, but the differences between the rates of return on the TOP10 portfolios and the market were statistically insignificant. This includes studies by Da Silva (2001) examining 7 Latin American countries, Sahu (2001) and Pandey (2017) on the Indian market, Ghose et al. (2018) testing Dogs of the Dow and Puppies of the Dow for Indonesia, Malaysia, Thailand and China, as well as Qiu et al. (2012) on Hong Kong portfolios. Similar conclusions were also reached by Wang et al. (2011), who created 126 portfolios differing in number of components (from 1 to 45) and frequency of retuning (from 1 to 12 months). The above research, as well as a study by Tissaykorn et al. (2013) on the Thai market, demonstrated that portfolios consisting of a smaller number of companies achieved higher rates of return than the TOP10 and that the DoD strategy yielded better results in the long term. The cumulative rate of return on the portfolio was 1699% and was 17 times higher than in the first year of the study (Tissaykorn et al., 2013).

Yan et al. (2015) confirmed the effectiveness of DoD for the Taiwanese market, but they did not take into account either transaction costs or taxes. Ahmad et al. (2017) took the same approach when examining Asian developing (Malaysia, Thailand and Indonesia) and developed (Singapore, South Korea and Hong Kong) countries. They mentioned the advantage of dividend portfolios in relation to the market, and the results yielded were statistically significant (Ahmad et al., 2017).

The Australian market (Alles & Sheng, 2008) and the Indonesian market (Gunawan, 2017) followed a similar pattern to the American market in that DoD was observed to be effective during the initial years of the study, but less so over a longer timeframe, confirming that investors learn about anomalies in due course, and this leads to market efficiency.

Brzeszczyński and Gajdka (2008) checked how effectively the DoD strategy worked for the Polish market. They investigated whether portfolios including companies from WIG index between 1997-2007 achieved higher rates of return than WIG. This turned out to be true, albeit not systematically during each of the annual periods examined. Over the 10-year investment period, the average annual rate of return for their portfolios was double the benchmark. Like other researchers, they calculated Sharpe and Treynor ratios, which

proved the superiority of the TOP10 portfolios over the index. Taking into account their findings, while also considering transaction costs and taxes, they concluded that the DoD strategy brings better results in the long term.

How the DoD strategy manages to be effective still remains an unresolved mystery. Some studies found that, on average, the strategy achieves abnormal positive rates of return in the long term, but does so inconsistently throughout individual annual investment periods. In some studies, the results were statistically insignificant or did not take into account risk-adjusted returns, transaction costs and taxes. The comparability of the studies was limited, among others, because they did not use identical stock exchange indices (price, income, broad market or largest company indices) or the research periods differed greatly.

**Table 2**

*Average Annual of Dividend Yield*

<b>Year</b>	<b>YD10</b>	<b>YD5</b>	<b>GPW</b>
2002	6,78%	9,27%	1,3%
2003	3,06%	4,85%	1,6%
2004	2,29%	3,61%	1,5%
2005	2,89%	4,25%	1,8%
2006	2,57%	3,38%	1,95%
2007	3,68%	5,08%	2,83%
2008	7,99%	12,62%	3,1%
2009	7,59%	11,80%	3,6%
2010	4,78%	7,22%	2,4%
2011	3,86%	5,07%	2,9%
2012	6,26%	9,04%	3,9%
2013	7,54%	10,60%	3,6%
2014	6,84%	8,81%	3,1%
2015	5,29%	6,47%	2,3%
2016	5,29%	8,22%	3,4%
2017	4,33%	5,74%	2,3%
2018	3,14%	4,57%	2,5%
2019	2,67%	4,25%	2,9%
2020	4,56%	6,40%	3,6%
2021	2,74%	2,74%	1,5%
2022	3,43%	4,97%	3,1%
2023	5,31%	6,93%	3,5%
Mean	3,80%	6,50%	2,66%

**Table 3**  
Composition of Portfolio of Dogs

	Year																						
	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
ŚWIECIE	X	X	X	X																			
KGHM	X				X	X	X	X	X		X	X	X	X	X						X	X	
BRE	X	X																					
BPHPBK	X																						
BZWBK/SANPL	X	X	X		X	X	X	X		X						X	X	X	X		X		
INGBSK	X																						
PKNORLEN	X	X	X	X	X	X		X							X	X	X	X	X	X	X	X	
PEKAO		X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X		X	X	
ORBIS		X	X	X																			
KETY		X	X	X	X	X																X	
DĘBIC		X	X	X																			
PGF			X																				
COMARCH			X																				
TPSA/OR- ANGEPL			X	X	X	X	X	X	X	X	X	X	X	X	X	X						X	
GTC				X																			
POLIMEXMS				X					X														
PKOBP					X	X	X	X	X	X	X	X						X	X			X	
PGNIG					X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	
NETIA					X	X																	
BANKBPH		X		X	X	X	X																
AGORA							X	X															
TVN							X	X	X														
CEZ							X	X	X	X													
CYFROWYPOL- SAT									X	X							X		X	X	X	X	
ASSECOPOL									X	X	X	X	X	X		X	X			X	X	X	
HANDLOWY										X	X		X										
PZU									X	X	X	X	X	X	X	X	X	X	X		X	X	
PGE									X	X	X	X	X	X	X								
TAUREONE										X	X		X	X									
SYNTHOS											X	X	X										
JSW											X	X							X				
BOGDANKA														X									
ENERGA															X	X	X						
ENEA															X								
EUROCASH																X	X						
LOTOS																	X	X	X	X			
CCC																		X					
MBANK																		X					
LPP																			X		X	X	
CDPROJEKT																					X		
KRUK																						X	

### 3. Data and Methodology

The assessment of the effectiveness of the DoD investment strategy on the Polish capital market between 2002-2023 involved blue chip stock – shares of companies with the best liquidity and largest capitalisation, listed on the WSE and included in WIG20. Data on share prices and the value of dividends paid come from WSE annual updates and reports from 2001-2023.

Firstly, for all companies included in WIG20, at the end of each calendar year starting from 2001, the dividend yield (YD) was determined according to the formula:

$$YD = \frac{D_t}{P_t} * 100$$

$D_t$  - dividends on shares paid during period  $t$

$P_t$  - price of shares on the last day of period  $t$

The average dividend yield between 2002-2023 for companies from 10-component portfolios was 3.8%, while this figure was double for less diversified portfolios – 6.50% (see Table 2).

Based on the determined YD, 10 and 5 companies with the highest rates were selected, for which two types of investment portfolios were created: YD10 – Dogs of the Dow (10 companies with the highest YD index for the previous year) and YD5 – Puppies of the Dow (5 companies with the highest YD for the previous year). The list of all companies selected in individual years is given in Table 3. Unlike Slatter's study that involved one portfolio consisting of 10 companies, in this analysis a 5-component portfolio was additionally created to check whether lower diversification affects the portfolio outcome in comparison with the benchmark. PLN 50,000 was invested in each of the two portfolios, created on January 2, 2002, with an equal amount of shares for each company. Over the entire 22-year study period, the portfolios included a total of 41 different companies representing various industries (banking, fuels, energy, telecommunications, clothing, IT, insurance, metallurgy, automotive). Some were a regular component of these portfolios (e.g., PEKAO SA was selected 18 times; see Table 3).

The first portfolio consisted of stock with the highest dividend yield as of the end of 2001. The shares for the portfolio were purchased on the day of the first stock exchange session of 2002, and they were sold during the final session of the same year. The 10- and 5-company portfolio did not change throughout the calendar year ('buy-and-hold' strategy). At the end of the calendar year, the rate of return was determined for each of the individual stock in the portfolio, looking at the change in value and the net dividend paid. The rate of return was also affected by 0.5% transaction costs resulting from the need to annually retune the portfolios. The rate of return was calculated according to this formula:

$$R_{i,t} = \frac{(P_{i,t} - P_{i,t-1}) + D_{i,t}}{P_{i,t-1}}$$

$R_{i,t}$  - annual rate of return on stock during period  $t$

$P_{i,t}$  - market value of stock  $i$  at the end of period  $t$  accounting for transaction costs

$P_{i,t-1}$  - market value of stock  $i$  at the start of period  $t$  accounting transaction costs

$D_{i,t}$  - net value of dividends from stock paid out during period  $t$ .

Then, the total annual rates of return on the portfolios were calculated according to this formula:

$$R_{p,t} = \sum_{i=1}^{10} w_i R_{i,t} \quad R_{p,t} = \sum_{i=1}^5 w_i R_{i,t}$$

The rates of return from the portfolios were compared with the returns of the blue-chip index – WIG20 and WIG20TR, by calculating excess (abnormal) returns.

$$AR_{p,t} = R_{p,t} - R_M$$

$AR_{p,t}$  - difference between the rate of return from the portfolio and the benchmark

$R_{p,t}$  - rate of return from the YD portfolio

$R_M$  - market rate of return (benchmark).

As benchmarks for comparing the YD10 and YD5 portfolios, two indices were used, representing the stocks included in the study: WIG20 (over the full research period, 2002-2023) and WIG20TR

**Table 4**  
*Compound Returns and Standard Deviation for Single Year Holding Periods*

Year	Return of YD10	SD of YD10	Return of YD5	SD of YD5	Return of WIG20	SD of WIG20	Return of WIG20TR	SD of WIG20TR
2002	12,37%	26,17%	15,39%	28,23%	-3,35%	32,92%	-	-
2003	68,00%	19,75%	73,05%	31,17%	37,42%	32,97%	-	-
2004	14,75%	20,34%	13,04%	24,38%	21,64%	12,07%	-	-
2005	29,21%	21,21%	24,48%	25,73%	37,03%	21,34%	41,47%	21,74%
2006	34,34%	21,50%	34,78%	26,48%	24,22%	19,37%	33,6%	20,30%
2007	8,01%	21,21%	15,74%	25,52%	2,20%	18,25%	5,7%	18,58%
2008	-42,89%	23,23%	-48,06%	29,21%	-45,12%	29,64%	-43,21%	30,64%
2009	42,42%	25,10%	61,58%	29,82%	30,21%	36,99%	36,6%	37,69%
2010	9,72%	16,66%	19,40%	25,75%	13,82%	20,83%	16,93%	20,52%
2011	-6,05%	20,36%	-10,07%	24,50%	-21,14%	21,09%	-17,36%	20,12%
2012	18,01%	20,74%	31,10%	25,40%	19,69%	17,64%	28,74%	18,24%
2013	-7,17%	21,40%	-11,89%	27,11%	-7,44%	16,08%	-2,23%	16,71%
2014	-7,07%	20,66%	1,45%	24,36%	-4,99%	9,34%	-1,00%	8,82%
2015	-19,92%	23,05%	-27,65%	31,31%	-21,87%	13,04%	-19,24%	12,08%
2016	3,67%	21,89%	3,61%	27,19%	8,44%	15,98%	11,70%	15,62%
2017	10,60%	21,09%	12,48%	25,37%	25,89%	15,76%	28,42%	15,60%
2018	-0,49%	20,94%	3,89%	24,84%	-6,56%	17,23%	-4,46%	17,92%
2019	-12,88%	21,09%	-4,35%	24,61%	-4,41%	12,80%	-1,41%	12,19%
2020	-17,80%	26,54%	-26,25%	36,54%	-8,70%	35,62%	-8,15%	35,64%
2021	27,55%	24,76%	27,55%	24,76%	13,83%	16,12%	16,35%	16,01%
2022	-18,87%	24,06%	-13,04%	30,44%	-21,65%	35,15%	-19,07%	34,93%
2023	35,38%	21,35%	44,18%	26,35%	28,58%	23,24%	35,37%	22,55%
Mean	8,22%	25,04%	10,93%	28,79%	5,35%	21,93%	7,30%	18,91%
CAGR	5,40%	-	7,16%	-	2,94%	-	4,68%	-
Min	-42,89%		-48,06%		-45,12%		-43,21%	
Max	68%		73,05%		37,42%		41,47%	

*Note.* The standard deviation (SD) is an annual average based on the monthly standard deviations from each year. Bold numbers indicate the years when the YD10 or YD5 portfolios outperformed the market index.

**Table 5***The Results of the Significance Test of Abnormal Returns of the YD10 and YD5 Portfolios for Single Year Holding Periods*

<b>Year</b>	<b>YD10-WIG20</b>	<b>YD10-WIG20TR</b>	<b>YD5-WIG20</b>	<b>YD5-WIG20TR</b>
2002	15,72% (0,09)	-	18,74% (0,07)	-
2003	30,57% (0,008*)	-	35,63% (0,05*)	-
2004	-6,89% (0,13)	-	-8,60% (0,12)	-
2005	-7,82% (0,25)	-12,26% (0,17)	-12,55% (0,27)	-16,99% (0,22)
2006	10,12% (0,43)	0,74% (0,20)	10,56% (0,17)	1,18% (0,49)
2007	5,81% (0,47)	2,31% (0,15)	13,55% (0,08)	10,04% (0,20)
2008	2,24% (0,43)	0,32% (0,40)	-2,93% (0,21)	-4,85% (0,16)
2009	12,22% (0,19)	5,82% (0,46)	31,37% (0,27)	24,98% (0,42)
2010	-4,10% (0,25)	-7,21% (0,14)	5,59% (0,32)	2,47% (0,45)
2011	15,10% (0,09)	11,31% (0,15)	11,07% (0,21)	7,29% (0,31)
2012	-1,69% (0,15)	-10,73% (0,02*)	11,41% (0,18)	2,36% (0,35)
2013	0,28% (0,37)	-4,94% (0,08)	-4,45% (0,34)	-9,66% (0,20)
2014	-2,08% (0,06)	-6,07% (0,01*)	6,44% (0,39)	2,45% (0,44)
2015	1,95% (0,13)	-0,68% (0,08)	-5,78% (0,04*)	-8,41% (0,03*)
2016	-4,77% (0,33)	-8,03% (0,22)	-4,83% (0,34)	-8,09% (0,26)
2017	-15,28% (0,04*)	-17,82% (0,01*)	-13,40% (0,06)	-15,94% (0,02*)
2018	6,07% (0,22)	3,97% (0,35)	10,45% (0,09)	8,35% (0,16)
2019	-8,47% (0,06)	-11,47% (0,03*)	0,06% (0,41)	-2,94% (0,37)
2020	-9,10% (0,43)	-9,65% (0,42)	-17,56% (0,38)	-18,10% (0,38)
2021	13,72% (0,06)	11,20% (0,09)	13,72% (0,06)	11,20% (0,09)
2022	2,78% (0,40)	0,20% (0,42)	8,62% (0,31)	6,03% (0,23)
2023	6,81% (0,45)	0,01% (0,25)	15,61% (0,26)	8,81% (0,41)

**Table 5**

*The Results of the Significance Test of Abnormal Returns of the YD10 and YD5 Portfolios for Single Year Holding Periods (Continued)*

Year	YD10-WIG20	YD10-WIG20TR	YD5-WIG20	YD5-WIG20TR
Mean	2,87%	-2,79%	5,58%	0,01%
p-value <sup>b</sup>	0,10	0,07	0,04*	0,49
No. of observations	22	19	22	19
No. of positive years	13	9	14	11

Note. p-values are provided in parentheses; a p-values are calculated for differences on a monthly basis. b p-values are calculated for differences on a yearly basis.

\* significant at 5%.

(over the shorter period, 2005-2023, due to data availability). WIG20 is a price index calculated since 1994, based on the portfolio value of the 20 largest and most liquid companies listed on the Warsaw Stock Exchange Main Market. A better benchmark for comparing dividend portfolios is an index from the total return index group - in this case, WIG20TR. A total return index tracks both capital gains and any cash distributions, such as dividends. In Poland, WIG20TR index was first introduced in December 2012. At the same time, the WSE retrospectively calculated its values starting from 2005.

This procedure was then repeated 21 times. In the end, 44 average annual rates of return were calculated for 22 YD10 and YD5 portfolios. In order to assess the risk (volatility) of the portfolios and the index, standard deviations and Beta were determined for each annual period.

To compare the effectiveness of the YD10 and YD5 portfolios over the long term, 18 5-year portfolios were created.

To check whether these portfolios achieve significantly better results than the market, a *t*-test was used for dependent observations. The monthly rates of return of the portfolio and the stock index over the entire analysed period were used as observations, and the *p*-value was estimated based on the Student's *t*-test with a one-sided critical area and *n*-1 degrees of freedom.

In addition to the annual rates of return, the holding period return (HPR) was calculated for 22 years as well as the average compound annual growth rate (CAGR) for all annual and 5-year investment periods. Holding period return (HPR)

measures what an investment has generated over a certain period of time by starting out at an investment of 100% and then multiplying the returns with each other to achieve a cumulative effect.

$$HPR_p = (1 + R_{p2002}) * \dots * (1 + R_{p2023}) - 1$$

$HPR_p$  - holding period return of the portfolio  
 $R_{p2002}$  - rate of return of the portfolio for 2002.

$$CAGR(t_0, t_n) = \left(\frac{V_n}{V_0}\right)^{\frac{1}{t_n - t_0}} - 1$$

$V_n$  - value of the portfolio at the end of the period  
 $V_0$  - value of the portfolio at the start of the period.

Beta coefficients and rates of return adjusted for total risk were determined for all portfolios. The Sharpe ratio was calculated according to this formula:

$$S = \frac{R_{p,t} - R_{f,t}}{\sigma_{p,t}}$$

$R_{f,t}$  - risk-free rate  
 $\sigma_{p,t}$  - standard deviation of the portfolio.

The three-month WIBOR rate was adopted as the risk-free rate.

The Treynor ratio was calculated according to this formula:

$$T = \frac{R_{p,t} - R_{f,t}}{\beta_{p,t}}$$

$\beta_{p,t}$  - the portfolio's Beta.

## 4. Results

### 4.1. Rates of Return and Standard Deviation of Annual Portfolios

Table 4 presents the buy-and-hold returns for annual DoD portfolios (YD10 and YD5) between 2002-2023, along with the corresponding returns for the stock market indices: WIG20 and WIG20TR. The average annual rate of return on annual dividend portfolios over the entire research horizon was 8.22% (YD10) and 10.93% (YD5), both exceeding the averages for the indices (WIG20: 5.35%, WIG20TR: 7.30%). The difference between the average return for the YD10 portfolio and WIG20TR was only 0.92%. The lack of consistency and systematic outperformance of the DoD strategy compared to the benchmark prevents it from being deemed effective. A detailed analysis of each period during which the strategy yielded higher returns than the market reveals its randomness and does not help identify the underlying reasons that would explain its effectiveness in the Polish market. Similarly to some foreign markets, the less diversified portfolio generated higher returns. The compounded annual growth rate (CAGR) for YD5 was 7.16%, and for YD10, it was 5.40%, significantly outperforming the CAGR of WIG20 (2.94%) and WIG20TR (4.68%). The YD10 and YD5 portfolios exhibited higher volatility compared to the market indices, particularly WIG20TR, whose volatility, measured by standard deviation, was only 18.91%.

The market-adjusted portfolio returns presented in Table 5 were positive for more than half of the annual investment periods, indicating that the DoD strategy generated higher returns than the market, especially in the first years of the study.

The average annual market-adjusted return, measured as the difference between the portfolio return and WIG20 return, was 2.87% for YD10 and 5.58% for YD5 over the entire period. However, it is worth noting that the returns adjusted for WIG20TR were -2.79% for YD10 and only 0.01% for YD5. This demonstrates that investing in an ETF tracking WIG20TR might have been a more favorable strategy than constructing a portfolio based on the DoD strategy. The applied *t*-test for dependent

observations showed that, in most periods, these results are not statistically significant. The *p*-value, estimated using the Student's *t*-statistic with a one-tailed critical region, was lower than the accepted 0.05 only in six out of 22 cases.

Subsequently, the entire period was split into two sub-periods: with a positive and negative abnormal rate of return. The average annual rate of return in years with a positive abnormal rate was 10.38% for YD10 and 14.83% for YD5. In 14 out of 22 years, the DoD strategy proved to yield better results than investing in WIG20, and in 11 out of 19 years, it outperformed WIG20TR. However, due to the lack of statistical significance in the difference in returns, this strategy should be approached with caution.

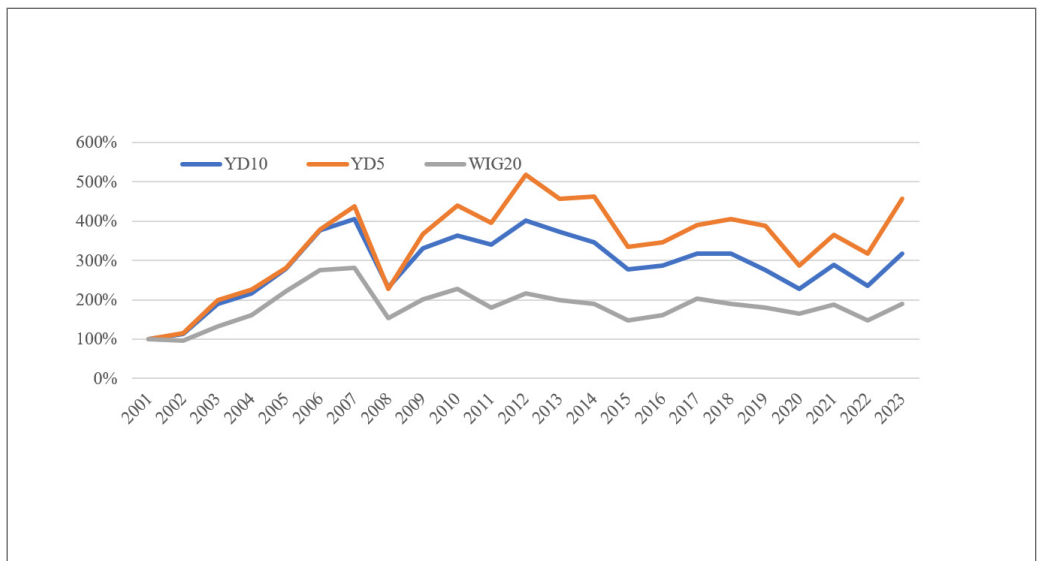
According to the presented results, the first of the formulated research hypotheses must be rejected, as the annual returns achieved by the DoD portfolios from 2002 to 2023, constructed according to the Dogs of the Dow strategy, did not consistently and systematically outperform the selected benchmark.

### 4.2. Holding Period Return

Based on the literature review, the second research hypothesis was formulated, according to which the DoD strategy, although ineffective in the short run, is satisfactory in the long run. To verify this hypothesis, the cumulative return on investment for both the dividend portfolios and the index was calculated and presented in Figure 1, assuming an initial investment of 100% at the beginning of 2002.

The 22-year compound return on investment for YD5 was 357%, while this figure was 218% for YD10, and only 89% for WIG20. On 2 January 2002, PLN 50,000 was invested in both the YD10 and YD5 portfolios. By systematically applying the Dogs of the Dow strategy for 22 years, which involves creating a portfolio each year consisting of companies with the highest dividend ratio, PLN 158,909.76 was obtained at the end of 2023 in the case of the YD10 portfolio and PLN 228,690.70 for the YD5 portfolio.

The data presented in Figure 1 indicate that during the first 10 years of implementing the strategy, from 2002 to 2012 (excluding the 2008 financial crisis related to the real estate and banking sectors), the DoD strategy yielded significantly better results than

**Figure 1***Holding Period Return of the YD10 and the YD5 Portfolios Versus WIG20 Index*

Note. Base = 100% as of 31.12.2001

in subsequent years. By 2012, the cumulative return for YD5 reached 418%, while for YD10, it was 302%. In the following years, the performance deteriorated.

#### 4.3. Multi Period Returns of YD10 and YD5

The long-term effectiveness of the DoD strategy was also examined by constructing multi-period portfolios covering various research horizons (2002–2006, 2003–2007, etc.), which allowed for observing changes in the strategy's performance over time. Eighteen 5-year, 10-stock portfolios and eighteen 5-year, 5-stock portfolios were created (Figures 2 and 3).

The DoD strategy generated positive excess returns in the 5-year horizon relative to WIG20 and WIG20TR indices only primarily in the case of the first nine portfolios on the Polish stock market (Table 6 and Table 7). The applied t-test for dependent observations showed, similarly to the annual portfolios, that the obtained results were not statistically significant for the majority

of portfolios where abnormal returns were positive.

A significant shift in the results occurred in 2011, as the 5-year returns generated by WIG20TR during the 2011–2023 period outperformed the returns achieved by the YD10 and YD5 portfolios. Moreover, most of these results were statistically significant. These findings confirm earlier conclusions that the effectiveness of the strategy was higher in the first half of the study period than in the last 10 years analyzed. This may indicate that, as the Polish stock market developed, such a simple investment strategy is no longer able to outperform the market. In the long term, purchasing an ETF tracking WIG20TR yielded better results than buying the 10 WIG20 companies with the highest dividend yields.

This demonstrates that the DoD strategy was not an effective investment strategy on the Polish capital market. The CAGR level also confirms that the effectiveness of this strategy significantly diminished over

**Table 6***The Results of the Significance Test of Abnormal Returns of the YD10 and YD5 Portfolios for Single Year Holding Periods*

Year	YD10	CAGR YD10	YD5	CAGR YD5	WIG20	WIG20TR
2002-2006	276,03%	30,33%	278,68%	30,51%	175,01%	-
2003-2007	261,44%	29,30%	279,85%	30,59%	190,80%	-
2004-2008	22,87%	4,21%	14,01%	2,66%	16,12%	-
2005-2009	52,50%	8,81%	62,97%	10,26%	24,30%	54,97%
2006-2010	29,49%	5,30%	56,33%	9,35%	3,24%	28,09%
2007-2011	-9,44%	-1,96%	4,30%	0,85%	-34,46%	-20,76%
2008-2012	-1,05%	-0,21%	18,15%	3,39%	-23,24%	-3,49%
2009-2013	60,83%	9,97%	100,41%	14,92%	29,47%	66,17%
2010-2014	4,95%	0,97%	25,83%	4,70%	-5,53%	20,43%
2011-2015	-23,40%	-5,19%	-23,75%	-5,28%	-35,15%	-16,82%
2012-2016	-15,48%	-3,31%	-12,16%	-2,56%	-10,82%	12,42%
2013-2017	-20,78%	-4,55%	-24,63%	-5,50%	-6,21%	12,15%
2014-2018	-15,08%	-3,22%	-11,14%	-2,33%	-5,31%	9,59%
2015-2019	-20,39%	-4,46%	-16,22%	-3,48%	-4,73%	9,13%
2016-2020	-18,29%	-3,96%	-14,60%	-3,11%	11,32%	24,11%
2017-2021	0,53%	0,11%	5,13%	1,01%	16,85%	29,28%
2018-2022	-26,26%	-5,91%	-18,72%	-4,06%	-27,27%	-18,53%
2019-2023	0,32%	0,06%	12,81%	2,44%	0,08%	15,43%
2002-2023	217,82%	5,4%	357,82%	7,16%	89,21%	138,47%

*Note.* Bold numbers indicate the years when the YD10 or the YD5 portfolios outperformed the market index.

time. In the first 5-year portfolio (2002-2006), the cumulative annual growth rate was approximately 30%, but it declined with each subsequent subperiod. Over the entire 22-year investment horizon, the CAGR was around 5% for the 10-stock portfolio and 7% for the 5-stock portfolio.

#### 4.4. Risk Adjusted Measures

The long-term effectiveness of the DoD strategy was also examined by constructing multi-period portfolios covering various  $r$

For each of the 44 portfolios, the risk-adjusted returns were calculated and are presented in Tables 8 and Table 9. A commonly used tool to assess the risk-adjusted investment performance of both individual stocks as well as entire portfolios is the Sharpe ratio, which works out a portfolio's premium compared with the total risk incurred.

The Sharpe ratio for the YD10 portfolio exceeded that of WIG20 in 10 annual periods, indicating that

only in 10 out of 22 years, managing a portfolio according to the DoD strategy was more profitable than passive investment in the stock index. When comparing the risk-adjusted returns of the YD10 portfolio to WIG20TR, the portfolio outperformed in only 4 annual periods. This suggests that passive investment in a total return index is a simpler and more effective option. However, the less diversified portfolio (YD5) achieved higher risk-adjusted returns than both indices in nearly half of the annual periods. This is consistent with the results obtained in studies conducted on foreign markets.

Another metric used to assess the performance of the YD10 and YD5 portfolios was the Treynor ratio, which evaluates whether the systematic risk taken provides sufficient returns compared to investing in the market benchmark. For the YD10 portfolio, it outperformed the WIG20 index in 10 annual periods. However, when compared to the total return index (WIG20TR), this was true in only 5 years. The Treynor

**Table 7***The Results of the Significance Test of Abnormal Returns of the YD10 and YD5 Portfolios for Five-years Holding Periods*

Year	YD10-WIG20	YD10-WIG20TR	YD5-WIG20	YD5-WIG20TR
2002-2006	<b>101,02%</b> (0,18)		<b>103,67%</b> (0,22)	
2003-2007	<b>70,64%</b> (0,40)		<b>89,05%</b> (0,30)	
2004-2008	<b>6,75%</b> (0,20)		-2,11% (0,22)	
2005-2009	<b>28,20%</b> (0,50)	-2,47% (0,22)	<b>38,67%</b> (0,48)	<b>8,00%</b> (0,32)
2006-2010	<b>26,25%</b> (0,64)	<b>1,40%</b> (0,19)	<b>53,08%</b> (0,24)	<b>28,24%</b> (0,51)
2007-2011	<b>25,02%</b> (0,14)	<b>11,32%</b> (0,47)	<b>38,76%</b> (0,23)	<b>25,06%</b> (0,48)
2008-2012	<b>22,18%</b> (0,22)	<b>2,44%</b> (0,28)	<b>41,39%</b> (0,26)	<b>21,64%</b> (0,38)
2009-2013	<b>31,36%</b> (0,26)	-5,34% (0,17)	<b>70,94%</b> (0,18)	34,24% (0,43)
2010-2014	<b>10,48%</b> (0,41)	-15,48% (0,04*)	<b>31,36%</b> (0,23)	<b>5,40%</b> (0,35)
2011-2015	<b>11,75%</b> (0,23)	-6,58% (0,02*)	<b>11,39%</b> (0,23)	-6,93% (0,05*)
2012-2016	-4,66% (0,03*)	-27,90% (0,01*)	-1,34% (0,10)	-24,58% (0,02*)
2013-2017	-14,57% (0,01*)	-32,93% (0,01*)	-18,43% (0,04*)	-36,78% (0,01*)
2014-2018	-9,77% (0,03*)	-24,67% (0,01*)	-5,82% (0,11)	-20,73% (0,04*)
2015-2019	-15,66% (0,03*)	-29,52% (0,01*)	-11,48% (0,09)	-25,35% (0,03*)
2016-2020	-29,61% (0,14)	-42,40% (0,06)	-25,93% (0,40)	-38,71% (0,27)
2017-2021	-16,32% (0,35)	-28,75% (0,20)	-11,72% (0,35)	-24,15% (0,20)
2018-2022	<b>1,01%</b> (0,36)	-7,73% (0,43)	<b>8,56%</b> (0,41)	-0,19% (0,45)
2019-2023	<b>0,24%</b> (0,47)	-15,11% (0,31)	<b>12,73%</b> (0,47)	-2,62% (0,38)

*Note.* Bold numbers indicate the years when the YD10 or the YD5 portfolios outperformed the market index. p-values are provided in parentheses, p-values are calculated for differences on a monthly basis.

\* significant at 5%

ratio for the less diversified portfolio (YD5) exceeded that of the market more often than for YD10, but not frequently enough to deem this strategy superior in the Polish market during the 2002-2023 period. Additionally, the YD10 portfolio recorded a positive Jensen's Alpha in 10 out of 22 annual periods, while the YD5 portfolio achieved this in 13 periods.

In the first half of the study period (2002-2012), the portfolios' beta was typically below or close to 1, indicating that the systematic risk incurred by the DoD strategy was lower than or almost equal to that of the market portfolio (see figure 4). Dividend portfolios were defensive. Since 2014, this situation has changed significantly. The period when the beta was below or close to market beta coincided with the time when the DoD strategy outperformed the market.

#### ***4.5. Performance of the DoD Investment Strategy During Downturns and Upturns in the Stock Market***

In foreign markets, it has been observed that the strategy's effectiveness depends on the phase of the stock market—whether it is in a downturn (such as the 2008 real estate crisis or the dot-com bubble) or a growth phase. It has been demonstrated that during bear markets, the DoD strategy incurred smaller losses than the benchmark. Figure 5 illustrates the returns obtained by YD10 and YD5 in periods when the returns of WIG20 and WIG20TR were negative. Between 2002 and 2023, there were 10 stock market downturns on the WSE, during which DoD portfolios generated a lower losses than WIG20 in 6 instances and only 4 instances compared to WIG20TR. The average annual return of the YD10 and YD5 portfolios during economic downturns was -12% in each case, while the return on WIG20 was -14.52% and on WIG20TR -11.62%.

In contrast, in 8 out of 12 bull years, the DoD portfolios yielded their owners a higher rate of return than the blue chip index (see figure 6). The 5-stock portfolio achieved an average profitability of 30% compared with 22% across the entire blue chip market WIG20TR.

## **5. Discussion**

The DoD is one dividend strategy that has piqued significant interest among investors and researchers for over 30 years. Despite numerous

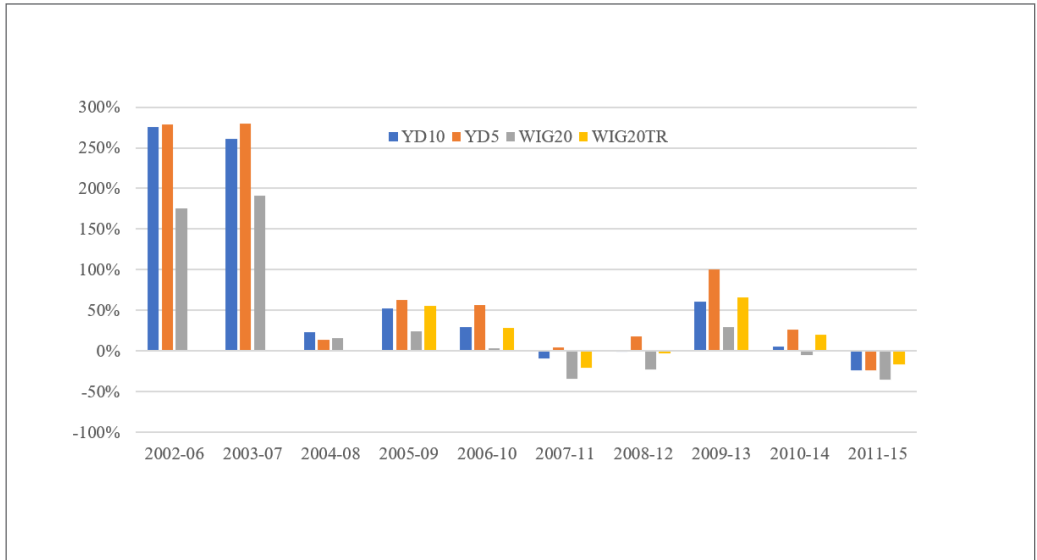
studies conducted on various markets and in various investment periods, its efficacy has not been unequivocally confirmed. In most countries where research was conducted, the returns from dividend portfolios were demonstrably higher than a given market index, but this advantage was not systematic, and in many cases, the differences between the returns from portfolios and the index were not statistically significant.

Referring to the two objectives formulated at the beginning of the study, the effectiveness of the DoD investment strategy for the Polish blue-chip stock market was analyzed for the years 2002-2023, in comparison to WIG20 and WIG20TR indices, over both short- and long-term investment horizons. The analysis took into account transaction costs incurred due to the need to retune the portfolio as well as dividend tax. The strategy of investing equal amounts in the 10 companies with the highest dividend yield outperformed the market for 13 years, and on average over the entire 22-year period the portfolio generated higher returns. The total and market risk-adjusted returns for the YD10 portfolio were higher than the market in fewer than half of the entire period. An analysis of abnormal annual rates of return revealed that they were initially high, yet decreased over time, which would confirm some conclusions from other studies that the effect of companies with a high dividend rate dissipates over the years. The article also examined the rates of return achieved by less diversified high-dividend portfolios. Returns on 5-element portfolios were higher than those achieved by 10-component portfolios for most annual investment periods. Moreover, 5-element portfolios were much more likely than 10-component portfolios to achieve better risk-adjusted returns as measured by the Sharpe and Treynor ratios.

Analysis of eighteen portfolios over a 5-year investment period demonstrated that in the long term, the DoD strategy was more effective in as many as 12 out of 18 cases, but this occurred mainly in the first half of the research period, while its effect dissipated over time, similarly to the case of annual periods. When investigating how effective the strategy is for bull and bear markets, on average, the YD10 and YD5 portfolios were demonstrated to

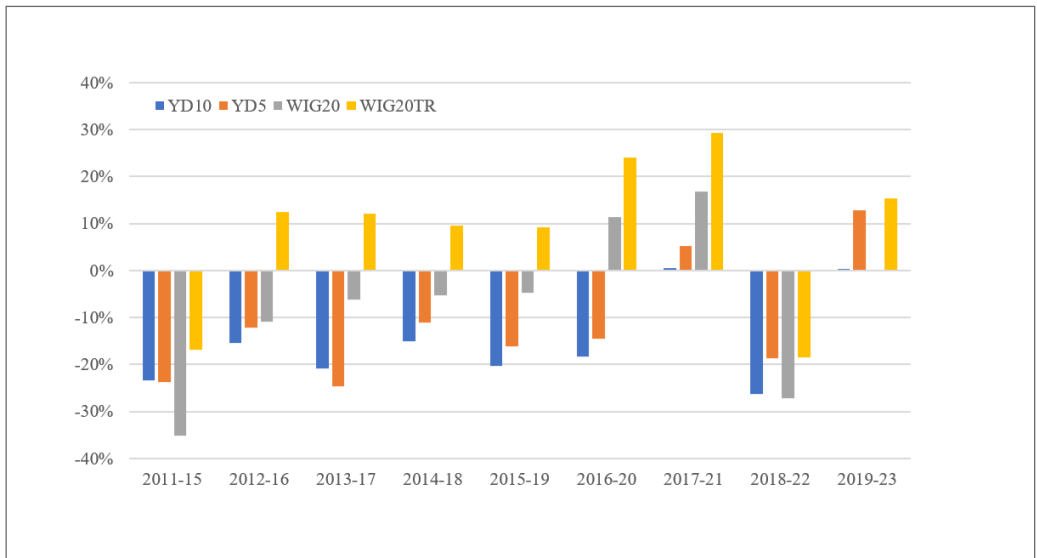
**Figure 2**

*Five-year Returns of the YD10 and YD5 Portfolios Versus WIG20 and WIG20TR in 2002-2015*



**Figure 3**

*Five-year Returns of the YD10 and YD5 Portfolios Versus WIG20 and WIG20TR in 2011-2023*



**Table 8**

*Sharpe Ratios, Treynor Index and Jensen's Alpha for the YD10 Portfolios, WIG20 and WIG20TR for Single Year Holding Periods*

Year	Sharpe ratio difference: YD10 vs. Index		Treynor ratio difference: YD10 vs. Index		Jensen's Alpha
	YD10-WIG20	YD10-WIG20TR	YD10-WIG20	YD10-WIG20TR	
2002	<b>0,13</b>	-	<b>1,27%</b>	-	<b>1,01%</b>
2003	<b>0,45</b>	-	<b>1,36%</b>	-	<b>1,46%</b>
2004	-0,25	-	-0,42%	-	-0,27%
2005	-0,10	-0,14	<b>0,48%</b>	<b>0,20%</b>	<b>0,28%</b>
2006	-0,01	-0,11	<b>0,12%</b>	-0,51%	<b>0,12%</b>
2007	-0,002	-0,06	-0,02%	-0,31%	-0,03%
2008	-0,16	-0,21	0,06%	-0,23%	<b>0,06%</b>
2009	<b>0,17</b>	<b>0,13</b>	<b>0,47%</b>	<b>0,04%</b>	<b>0,47%</b>
2010	-0,04	-0,08	-0,24%	-0,46%	-0,19%
2011	<b>0,21</b>	<b>0,16</b>	<b>0,47%</b>	<b>0,10%</b>	<b>0,26%</b>
2012	-0,1	-0,21	-0,25%	-0,88%	-0,20%
2013	<b>0,02</b>	-0,08	-0,17%	-0,63%	-0,16%
2014	<b>0,003</b>	-0,12	-0,76%	-1,10%	-0,72%
2015	<b>0,03</b>	-0,01	-0,16%	-0,42%	-0,24%
2016	-0,09	-0,15	-0,36%	-0,61%	-0,43%
2017	-0,29	-0,33	-1,06%	-1,23%	-0,92%
2018	<b>0,1</b>	<b>0,05</b>	<b>0,35%</b>	<b>0,16%</b>	<b>0,26%</b>
2019	-0,04	-0,1	-0,53%	-0,78%	-0,58%
2020	-0,05	-0,05	-0,11%	-0,16%	-0,14%
2021	<b>0,05</b>	<b>0,01</b>	<b>1,40%</b>	<b>1,22%</b>	<b>1,13%</b>
2022	-0,07	-0,09	-0,11%	-0,37%	-0,11%
2023	<b>0,01</b>	-0,04	<b>0,09%</b>	-0,17%	<b>0,08%</b>
Mean	-0,001	-0,075	0,09%	-0,32%	0,05%
SD	0,15	0,12	0,62%	0,55%	0,56%

*Note.* All values are on a monthly basis. Bold numbers indicate the years when the YD10 portfolios outperformed the market index.

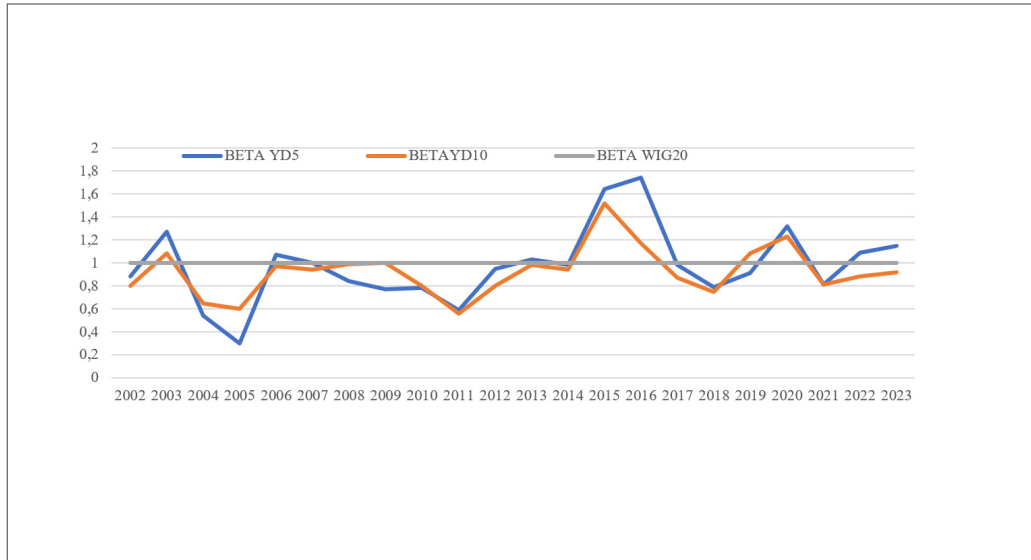
**Table 9**

*Sharpe ratios, Treynor index and Jensen's alpha for the YD5 Portfolios, WIG20 and WIG20TR for Single Year Holding Periods*

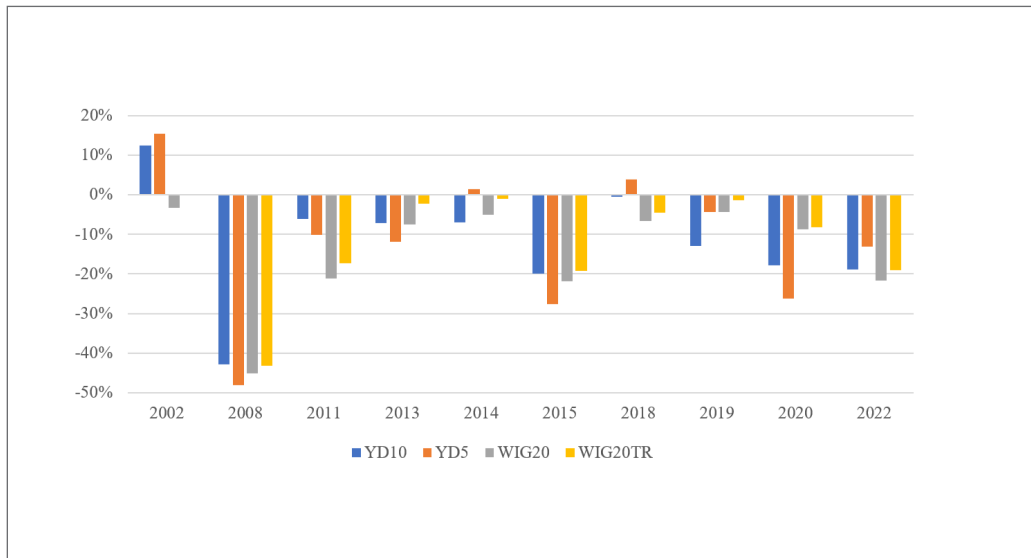
Year	Sharpe ratio difference: YD10 vs. Index		Treynor ratio difference: YD10 vs. Index		Jensen's Alpha
	YD10-WIG20	YD10-WIG20TR	YD10-WIG20	YD10-WIG20TR	
2002	<b>0,15</b>	-	<b>1,48%</b>	-	<b>1,30%</b>
2003	<b>0,25</b>	-	<b>1,15%</b>	-	<b>1,47%</b>
2004	-0,03	-	-0,80%	-	-0,44%
2005	-0,21	<b>0,41</b>	<b>1,68%</b>	<b>1,40%</b>	<b>0,49%</b>
2006	<b>0,01</b>	<b>0,36</b>	<b>0,49%</b>	-0,14%	<b>0,52%</b>
2007	<b>0,08</b>	<b>0,05</b>	<b>0,59%</b>	<b>0,30%</b>	<b>0,59%</b>
2008	-0,12	-0,58	-2,05%	-2,34%	-1,72%
2009	<b>0,13</b>	<b>0,24</b>	<b>1,50%</b>	<b>1,07%</b>	<b>1,15%</b>
2010	<b>0,02</b>	<b>0,17</b>	<b>0,60%</b>	<b>0,38%</b>	<b>0,47%</b>
2011	<b>0,18</b>	-0,34	-0,20%	-0,57%	-0,12%
2012	-0,01	<b>0,32</b>	<b>0,47%</b>	-0,16%	<b>0,45%</b>
2013	0,02	-0,09	-0,37%	-0,83%	-0,38%
2014	<b>0,16</b>	-0,09	<b>0,21%</b>	-0,13%	<b>0,20%</b>
2015	-0,02	-0,46	-0,97%	-1,23%	-1,61%
2016	-0,11	<b>0,19</b>	-0,48%	-0,73%	-0,60%
2017	-0,21	<b>0,45</b>	-0,39%	-0,56%	-0,38%
2018	<b>0,16</b>	-0,09	<b>0,83%</b>	<b>0,64%</b>	<b>0,66%</b>
2019	<b>0,09</b>	-0,11	<b>0,04%</b>	-0,21%	<b>0,04%</b>
2020	-0,06	-0,04	-0,39%	-0,44%	-0,52%
2021	<b>0,05</b>	<b>0,27</b>	<b>1,40%</b>	<b>1,22%</b>	<b>1,13%</b>
2022	-0,1	-0,18	-0,33%	-0,59%	-0,37%
2023	<b>0,02</b>	<b>0,34</b>	<b>0,09%</b>	-0,17%	<b>0,10%</b>
Mean	0,02	0,04	0,21%	-0,16%	0,11%
SD	0,12	0,30	0,91%	0,89%	0,82%

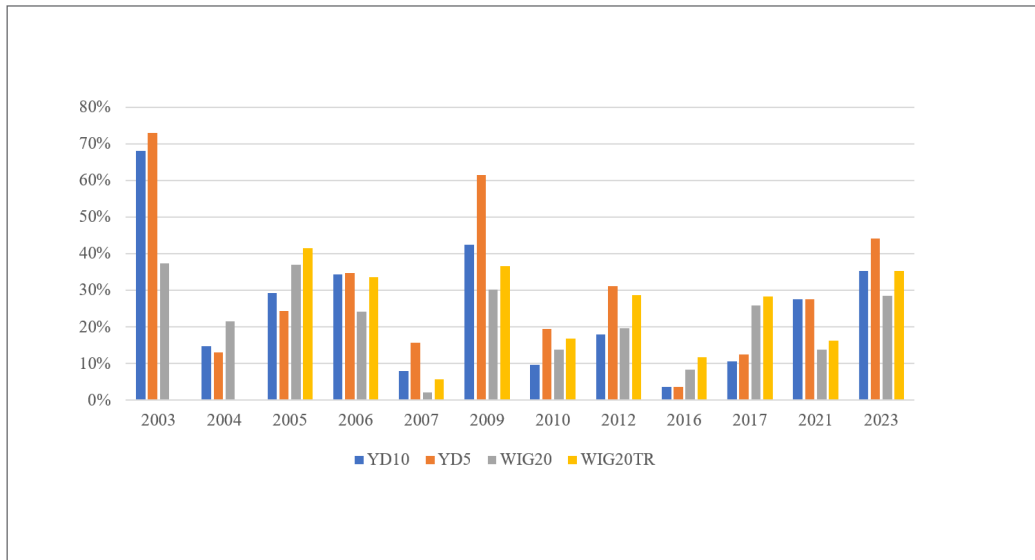
*Note.* All values are on a monthly basis. Bold numbers indicate the years when the YD5 portfolios outperformed the market index.

**Figure 4**  
*Beta of the YD10, the YD5 Portfolios and WIG20*



**Figure 5**  
*Performance of the YD10 and the YD5 Portfolios in Stock Market Downturns*



**Figure 6***Performance of the YD10 and the YD5 Portfolios in Stock Market Upturns*

perform slightly better during stock market downturns, making a 12% loss each, while the rate of return on WIG20 was -14.52%. However, during a boom, the 5-component portfolio achieved an average profitability of 30% compared with 22% across the entire blue-chip market.

## 6. Conclusion and Limitations of the Study

The DoD strategy is one of the simplest and safest methods of selecting companies for a portfolio, especially for investors interested in so-called value investing, since companies are selected from the blue chip index. Although this study found that the DoD strategy often outperformed the market over the 2002-2023 period, it cannot be unequivocally concluded that it is an effective and sustainable method of beating the market. Neither in the case of one-year nor long-term portfolios were positive abnormal returns achieved consistently and systematically. Moreover, for most portfolios, the differences between portfolio and index returns were not statistically significant. The applied t-test for dependent observations showed that, in most periods, the obtained results were not statistically significant, which does not allow this strategy to

be considered effective.

The results obtained for the Polish market are largely consistent with those on foreign markets:

- for most of the years studied, the annual rates of return achieved by dividend portfolios were higher than the returns from indexes,
- when analysed for risk-adjusted rates of return, the DoD strategies are less effective,
- less diversified portfolios achieved higher rates of return than 10-element portfolios,
- the comparison of the results from both portfolios to the total return index WIG20TR revealed that, especially since 2011, a better strategy would have been passive investing, such as in an ETF tracking WIG20TR, rather than constructing a portfolio based on the DoD strategy,
- the results obtained were not statistically significant.

In conclusion, the conducted research indicates that there is no solid basis to consider this strategy effective in the Polish market during the years 2002-2023. Consequently, both research hypotheses formulated at the beginning of the study must be rejected.

Summarizing the conducted analysis, it was

shown that the simple, passive DoD investment strategy, which involves selecting stocks for a portfolio based solely on a single parameter - high dividend yield - did not consistently deliver statistically significant satisfactory results on the Polish stock market. The assumptions of this strategy assumes that investors select blue-chip companies (fundamentally strong, with high capitalization and liquidity) that are undervalued by the market at a given time. Low stock prices, combined with stable or growing dividends, result in a high dividend yield, prompting the inclusion of such stocks in a high-dividend portfolio with the expectation of a subsequent price recovery. However, the results indicate that the price declines of stocks in the portfolio were not short-term, which hindered the achievement of higher returns compared to those of the entire index. On a stock market such as Poland's, where many listed companies are relatively young, merely being a component of the WIG20 and having a high dividend yield is not a sufficient criterion for stock selection. Perhaps enhancing the DoD strategy with several basic financial metrics - such as revenue growth, EBIT, or profitability ratios - could improve the strategy's profitability. However, this would no longer be a simple, passive strategy accessible to every investor.

It is worth noting that the author conducted another study assessing the effectiveness of a long-term dividend strategy based on a portfolio of so-called dividend aristocrats - companies that have consistently paid stable or growing dividends over many years. For this portfolio, companies listed on the Warsaw Stock Exchange were selected regardless of the index they belonged to. The study revealed that, over a long investment horizon, the dividend aristocrats portfolio outperformed the benchmark.

In the future, it would be worth conducting similar research, especially on portfolios consisting of medium-sized companies too - mWIG40, in the case of Poland. This is an index featuring more private companies, unlike WIG20, where state-owned companies dominate. It might also be worth checking whether the DoD strategy was effective during particular years in Poland due to the 'loser-winner' effect, as in some foreign markets.

A drawback of the study is the absence of an assumption of reinvestment of dividends received each year. Therefore, in the future, it is worth considering the wisdom of repeating this study, taking into account that all net dividends received will be used to purchase shares in the same issuer that paid the dividend.

## Acknowledgment

Co-financed by the Minister of Science under the 'Regional Excellence Initiative' Program for the project 'Poznań University of Economics and Business for Economy 5.0: Regional initiative - global effects (IREG)

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