



Trading ThaiDEX SET High Dividend ETF (1DIV) with Slope Indicator

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Abstract

The 1DIV or ThaiDEX SET High Dividend ETF is an exchange-traded fund incorporated in Thailand which invests in at least 65% of its total assets in securities constituting the SET High Dividend 30 Index (SETHD). The main objective of this research is to apply the slope of a straight line to find the best numbers of days for maximizing profit in the 1DIV trading. The research use daily closing prices of 1DIV from August 16, 2011 - December 28, 2018, constitute the database of 1,748 observations to study. These data computed slope of a straight line between numbers of any two distinct dates and daily closing prices which represented by the X-axis and Y-axis respectively. The numbers of any two distinct dates (n-period) is a parameter which varies from 1 to 50 with an increment by 1 and will adjust in order to find the entry point that makes the best opportunity or the maximum profit. The result from trading 1DIV using slope indicator shows that the net profit maximized when trade 1DIV using numbers of days equal 20 was 6.93 baht per share. The total time to trade was 77 times with the percent for winning at 49.35%. The numbers of days of 36 and 47 are in the second and third ranks of returns from implementation. While the whole period return, not include dividend, is 0.58 and the return including dividend is 3.66 baht per share. There are weaknesses that the percent for winning was not high since the slope indicators, as with typical trend-following indicators, may lag price and reverse after an actual top or bottom. Despite the weaknesses, however, it does not detract from its usefulness. In real life trading, the slope may be used with momentum indicators or others to make a good decision. Keep in mind that this research is designed as a starting point for trading system development. Use these ideas to augment the trading style, risk-reward preferences, and personal judgments.

Keywords: 1DIV, Thaidex, SETHD, Exchange Traded Fund, Slope

1. Introduction

An exchange-traded fund (ETF) is a marketable security that tracks on stock exchanges, which owns stock, a commodity, bonds, or a basket of assets. There are many types of ETF such as Index ETFs, Stock ETFs, Bond ETFs, Commodity ETFs, and currency ETFs. Although similar in many ways, ETFs differ from mutual funds because the price of an ETF's shares will change throughout the day as they are bought and sold, like a common stock on an exchange. The largest ETFs typically have higher average daily volume and lower fees than mutual fund shares, making them an attractive alternative for individual investors.

ThaiDEX SET High Dividend ETF (1DIV) is an exchange-traded fund incorporated in Thailand. The 1DIV launched on August 10, 2011, and managed by One Asset Management Limited. It invests in the public equity markets of Thailand. The fund seeks to invest in the stocks of companies operating across diversified sectors. It replicates net expenses, the performance of SET High Dividend 30 index, by investing at least 65% of its total assets in securities which constitute the index. The 1DIV is an alternative tool that diversifies risk and low management fee. It facilitates the asset allocation to the market in an easy way to cover the Thai high dividend market. The 1DIV is suitable for investors who like to invest in securities trading that have a high dividend.











The SET High Dividend 30 Index (SETHD) has been created to enhance the variety of The Stock Exchange of Thailand's products, correspond to the development stage of the capital market. The SETHD Index can be used as a benchmark for investment and reflects price movements of stocks that have significant market capitalization, are consistently traded with high liquidity and have constantly paid high dividend yields. The calculation methodology and base adjustment methodology of SETHD are calculated



through market capitalization and weight with dividend yield. The highest dividend yield used for the calculation is capped at 15 percent.

From Table 1, the 1DIV diversifies risk by investing in SETHD stocks through different sectors such as Energy & Utilities, Banking, Construction Materials, Information & Communication Technology, and so on. Investors may receive dividends as shown in Table 2 and receive capital gain from a rise in the price of 1DIV which the daily closing price (August 16, 2011 - December 28, 2018) is shown in Figure 1.

Table 1 Portfolio & Top 10 Holdings of ThaiDEX SET High Dividend ETF (1DIV)

Portfolio			
Total Number of Equity Holdings			30
Total Number of Bond Holdings			0
Assets in Top 10 Holdings			76.04
Top 10 Holdings 30/09/2018			
Name	Sector	Country	% of Assets
Ptt PCL	 Energy	Thailand	23.00
Siam Cement PCL	 Basic Materials	Thailand	8.81
Advanced Info Service PCL	 Communication Services	Thailand	8.61
The Siam Commercial Bank PCL	 Financial Services	Thailand	8.22
PTT Global Chemical PCL	 Basic Materials	Thailand	6.62
Bangkok Bank PCL	 Financial Services	Thailand	5.36
Thai Oil PCL	 Energy	Thailand	4.15
Land and Houses PCL	 Real Estate	Thailand	3.87
Krung Thai Bank PCL	 Financial Services	Thailand	3.84
Glow Energy PCL	 Utilities	Thailand	3.55

Source: www.morningstarthailand.com

Table 2 Dividend History of ThaiDEX SET High Dividend ETF (1DIV) since 2014 until 2019

Payment Date	Feb 26, 2019	Aug 9, 2018	Feb 13, 2018	Aug 10, 2017	Feb 15, 2017	Aug 30, 2016	Feb 23, 2015	Aug 28, 2014
Dividend (฿/Share)	0.25	0.5	0.5	0.4566	0.47	0.45	0.233	0.228

Source: www.settrade.com



Figure 1 Monthly closing price of 1DIV since August 16, 2011 to December 28, 2018
(Source: www.tradingview.com)

Nowadays, many investors interest to invest their money in ETFs because of the dividend and these corporations employ financial experts to manage the fund. If more risk can be shouldered and money can be invested for a longer period, the investing in ETFs is an alternative to manage finance. Although the ETFs manage by the experts, it is very hard to make a profit if the price is too high. On the other hand, it is more appropriate to invest at a low price. The “Buy Low & Sell High” strategy is a famous investing adage about taking advantage of the market's propensity to overshoot on the downside and upside. It seems very simple to think, but it is actually full of complexity once start diving into it. Since it is easy to say whether a certain price is low or high in retrospect, but at the moment it is difficult. Prices affect the psychology and emotions of market participants. There are no short-cuts for investing, and the past performance can in no way guarantee future results. For this reason, “Buy Low & Sell High” can be challenging to implement consistently. That is why the successful investors must require patience, discipline and work hard for researching security analysis.

Security analysis is the analysis of tradeable financial instruments typically divided into fundamental and technical analysis. Fundamental analysis examines fundamental business factors such as financial statements and qualitative and quantitative factors to evaluate the security's intrinsic value. Technical analysis involves studying charts showing the trading history and statistics for security analysis and makes buy and sell decisions using upon price trends, momentum, and market statistics.

Technical analysis has become extensive in recent years. There are several categories of technical analysis such as Price indicators, Support and Resistance levels, Momentum indicators, Volume indicators, Oscillators indicators, and so on. The main object of this research is to focus on using a basic concept of a slope or gradient of a line to trade 1DIV.

In mathematics, the slope of a line is a number that describes both the direction and steepness of the line. The slope is often denoted by the letter m . Though there is no apparent reason why the letter m is used for denoting the slope, it might be from the “ m for multiple” in the equation of a straight line “ $y = mx + c$.” The slope is calculated by finding the ratio of the “vertical change” (Δy) to the “horizontal change” (Δx) between any two distinct points on a line. The Greek letter delta, Δ , is commonly used in mathematics to denote “difference” or “change.” The slope is giving the same number for every two distinct



points on the same line. The direction of a line is increasing, decreasing, horizontal or vertical. A line is increasing if it goes up from left to right; thus, the slope is positive. In contrast, a line is decreasing if it goes down from left to right, meaning the slope is negative. However, if a line is horizontal, the slope is zero, and the slope is undefined when a line is vertical. In mathematical language, the slope (m) of the line between two distinct points (x_1, x_2) and (y_1, y_2) is

$$m = \frac{\text{Vertical}}{\text{Horizontal}} = \frac{\Delta y}{\Delta x} = \frac{(y_2 - y_1)}{(x_2 - x_1)}$$

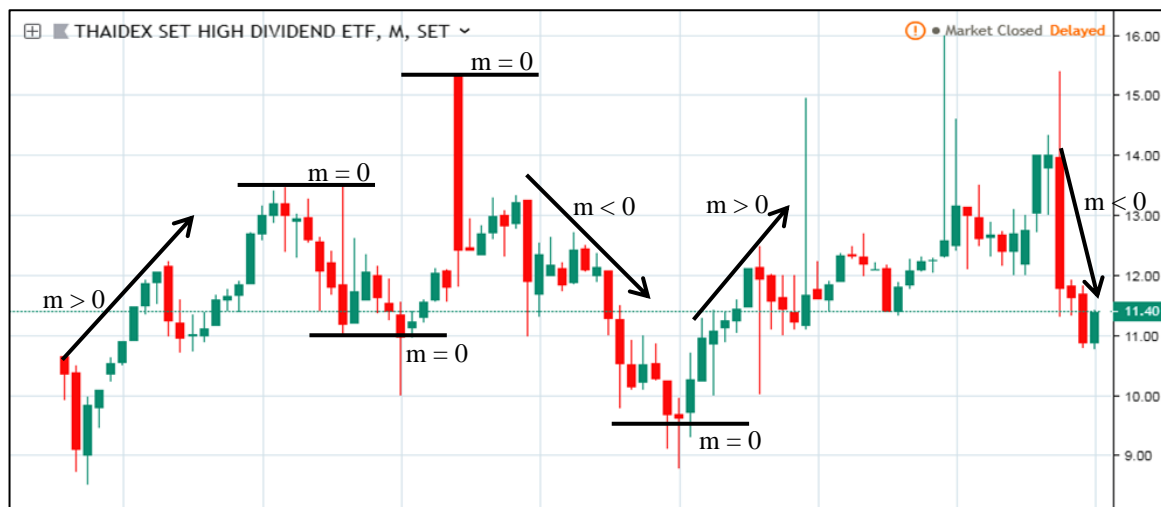


Figure 2 Example of the IDIV closing price slope: X-axis: Date, Y-axis: Closing Price.
 (Source: www.tradingview.com)

(Stockcharts, 2019) Slope measures the rise-over-run of a linear regression. In general, an uptrend is presented when the slope is positive and a downtrend exists when the slope is negative. The timeframe depends on the number of days. 10 days covers a short-term trend, 100 days a medium-term trend, and 250 days a long-term trend. As with typical trend-following indicators, the slope lags price and reverses after an actual top or bottom. It does not, however, detract from its usefulness. Trend identification and trend strength are important tools even for traders. As with moving averages, the slope can be used with momentum indicators to participate in an ongoing trend.

From Figure 2, the application of the slope for trading 1DIV shows that the slope equals zero at the extreme points (the maximum or minimum price). The slope is positive when the trend line of a closing price is uptrend and negative when the trend line of a closing price is downtrend. It is apparent that the high price will occur during the slope change from positive to negative. In contrast, the low price will occur during the slope change from negative to positive. These concepts will be back-test in this research.

2. Objectives

The main objective of this research is to apply the slope of a straight line to find the best numbers of days for maximizing profit in the 1DIV trading.

3. Materials and Methods

The first step of this research was to create the database of the daily closing price of 1DIV from efin stock pickup software, which collected 1,748 records since August 16, 2011, until December 28, 2018.

The second step was to compute the slope of the 1DIV's daily closing price between two distinct dates and backtest the trading results according to the following procedure.



- 3.1 Let (x_i, y_i) denote the coordinates of date (represented by record number) and the 1DIV's daily closing price, respectively.
- 3.2 Let n be a number of days that is the difference between two distinct dates, varying from 1 to 50 with an increment by 1.
- 3.3 Let m be the slope of 1DIV's daily closing price between two distinct dates which uses the following formula to compute:

$$m = \frac{\Delta y}{\Delta x} = \frac{(y_{i+n} - y_i)}{(x_{i+n} - x_i)}, \quad i = 1, 2, 3, \dots, 1748-n$$

- 3.4 Backtest the trading results using the following conditions:
- 3.4.1 Buy the next day 1DIV's opening price, if the slope of a previous day is negative and the today's slope is positive. The stocks should be bought only one time and held until the next selling signal.
- 3.4.2 Sell all stock that holding at the next day 1DIV's opening price, if the slope of a previous day is positive and the today's slope is negative. After that, we were waiting for the next buying signal.
- 3.5 Compute statistics and analyze the trading results.
(The limitation in this research was not concerned with the commission fee and the dividend. Each time trading the 1DIV, investors must pay the commission fee but this research calculated the profit without the fee. The total return and profit of investing in the 1DIV did not include the dividend.)

4. Results and Discussion

Considering the descriptive statistics of daily price of 1DIV for the whole period from August 16, 2011 to December 28, 2018 (2,720 calendar days or 7.37calendar years) found that:

- The opening price of 1DIV at August 16, 2011 is 10.65 baht per share.
- The closing price of 1DIV at December 28, 2018 is 11.23 baht per share.
- The total profit for holding the whole period is 0.58 baht per share or 5.45% and the average profit per year is 0.079 baht per share or 0.74%.
- The mean, median and mode of daily closing price are 11.77, 11.86 and 12.20 baht per share respectively.
- The maximum and minimum of daily closing price are 14.80 and 8.53 baht respectively.
- The range and standard deviation of daily closing price are 6.27 baht, 0.96 respectively.
- The kurtosis and skewness of daily closing price are 0.47, -0.44 respectively.
- The Total dividend was 3.08 baht per share or 0.44 baht per share per years.

Besides the above mentioned, we considered the trading result of 1DIV from all possible outcomes of the backtest which depended on the number of days varying from 1 to 50. The results were calculated the descriptive statistics presented in Table 3-4 and Figure 3-5 as follows.

Table 3 The descriptive statistics of 1DIV trading which number of days varied from 1 to 50

	# Trade	# Win	# Loss	# Draw	%Win	%Loss	%Draw	Profit	Loss	Net Profit
Mean	81.72	35.12	44.60	2.00	41.94	55.65	2.41	10.92	-9.87	1.05
Median	60.50	26.00	34.00	1.00	42.63	55.09	2.11	9.86	-9.03	1.27
Max	345.00	166.00	174.00	9.00	49.35	65.52	6.78	25.86	-4.21	6.93
Min	40.00	15.00	21.00	0.00	32.76	49.35	0.00	5.79	-23.45	-4.91
SD	56.99	27.35	28.62	1.80	4.13	4.10	1.57	4.15	4.30	2.45

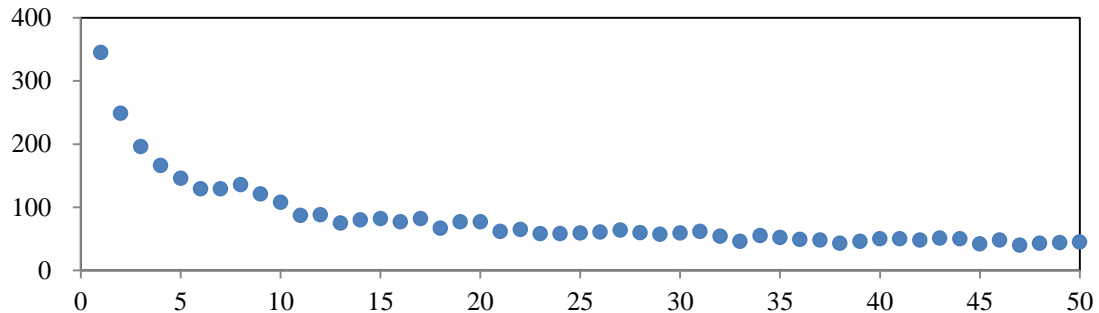


Figure 3 Graph shows relationship between number of days (X-axis) and trade times (Y-axis)

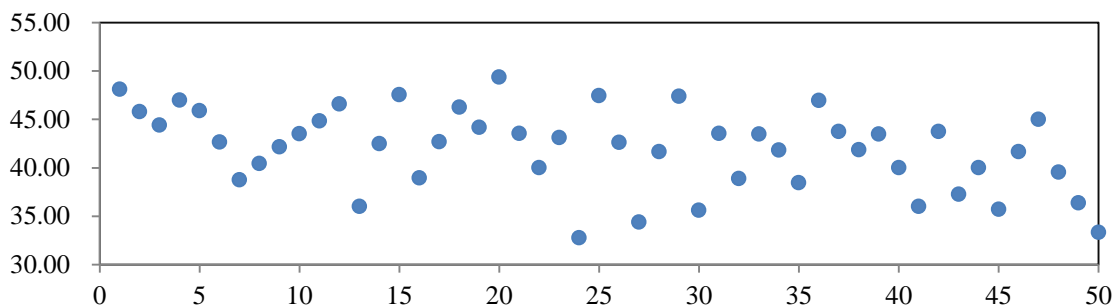


Figure 4 Graph shows relationship between number of days (X-axis) and % Win (Y-axis)

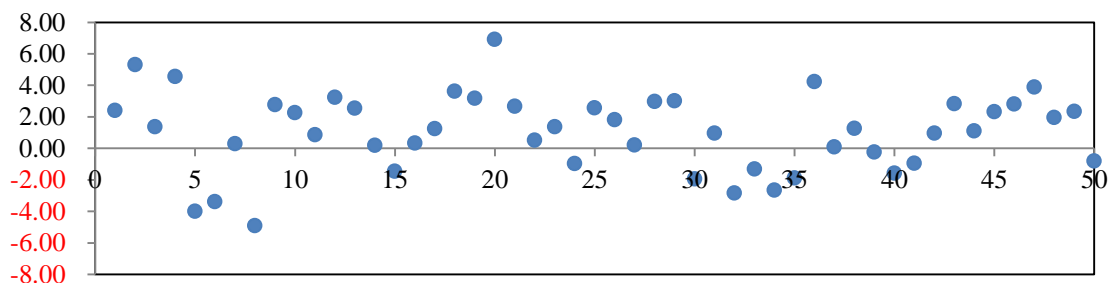


Figure 5 Graph shows relationship between number of days (X-axis) and net profit (Y-axis)

From the table above, it is apparent that trading 1DIV in which the number of days varying from 1 to 50 made the net profit between -4.91 and 6.93 with the percent for winning at 32.76-49.35%. The total times to trade were 40-345 times depended on the number of days. The more the number of days computed the slope, the less the number of times to trade. There was no relationship between the percent of winning, net profit, and the number of days.

The profit was maximized when trading the 1DIV using the numbers of days of 20 days, and the total time to trade was 77 times with the percent for winning at 49.35%. The maximum net profit and percent of net profit for the whole period were 6.93 baht per share and 66.45%, respectively. The numbers of days that rank in the top ten net profits for the 1DIV trading are in Table 4.

**Table 4** Top10 Net profit of 1DIV trading (since August 16, 2011 to December 28, 2018)

Net Profit Rank	1	2	3	4	5	6	7	8	9	10
Days	20	2	4	36	47	18	12	19	29	28
# Trade	77	249	166	49	40	67	88	77	57	60
# Win	38	114	78	23	18	31	41	34	27	25
# Loss	38	126	85	25	21	34	47	42	29	33
# Draw	1	9	3	1	1	2	0	1	1	2
%Win	49.35	45.78	46.99	46.94	45.00	46.27	46.59	44.16	47.37	41.67
%Loss	49.35	50.60	51.20	51.02	52.50	50.75	53.41	54.55	50.88	55.00
%Draw	1.30	3.61	1.81	2.04	2.50	2.99	0.00	1.30	1.75	3.33
Profit	13.74	23.16	19.28	13.12	8.10	9.35	12.53	9.68	10.40	10.55
Loss	-6.81	-17.84	-14.71	-8.87	-4.21	-5.71	-9.29	-6.50	-7.38	-7.57
Net Profit	6.93	5.32	4.57	4.25	3.89	3.64	3.24	3.18	3.02	2.98
%Profit	123.28	202.04	168.74	117.66	73.10	84.84	111.38	88.19	93.64	95.28
%Loss	-56.83	-151.12	-125.76	-70.97	-34.00	-48.43	-78.76	-54.49	-60.62	-61.75
%Net Profit	66.45	50.91	42.98	46.69	39.10	36.41	32.61	33.70	33.02	33.52
Max Profit	3.56	3.61	1.53	3.45	1.69	1.28	1.54	1.25	1.86	1.82
Max Drawdown	-0.79	-0.76	-0.79	-1.68	-0.61	-0.45	-0.63	-0.54	-0.70	-0.78
Max %Profit	31.26	31.83	15.28	30.00	15.01	13.02	16.47	13.44	19.12	18.63
Max %Drawdown	-6.08	-6.54	-7.62	-12.44	-4.81	-3.75	-5.77	-4.62	-5.36	-6.50
Max Cons. Profit	4	9	12	4	5	4	6	5	5	5
Max Cons. Loss	3	7	8	7	6	4	8	6	5	7

There are a variety of investment strategies ones can use when they trade on the stock market, and it is important to try them out before ones implement them in the real portfolio. In this research, we experiment with long-term strategies with the initial investment of 100,000 baht. For each trading, this strategy allocated a fixed percent of baht amount varying from 10%-25% to buy 1DIV. By always, the approach will invest more money if the previous trade gains and less money if the previous trade losses. This approach with a commission fee of 0.20% (0.40% roundtrip) had the result as in Table 5.

From Table 5, by using the numbers of days from Table 4 to implement with a fixed percentage of baht amount and commission fee, we found that the number of days of 20 provides the maximum returns. It is obvious that the more the percent investment, the more the returns. The numbers of days of 36 and 47 rank in the second and third of returns. It indicates that the top ten net profits from the backtest compared with the top ten returns from implementation were not the same. It should be noted that the number of days of 20 provides the maximum net profit and returns while the numbers of days of 2 and 4 made more profit from the backtest than the implementation due to the numbers of trading.

Trend lines are a great trading tool for technical analysis because they provide instant information about the strength of a trend. They can help us to identify potential areas of increased supply and demand, which can cause the market to move down or up, respectively. However, the major problem is that there are many ways to draw a trend line as it depends on each investor idea and no clear guidelines for drawing.

This research tries to fix this problem by using the slope that is a major part of a trend line. If we know the slope that makes a profit for trading, then we can do many things such as draw a trend line, make a decision to trade or develop algorithm or robot for trading, and so on. Although the slope indicator made a profit more than the returns for the whole period, the net profit using a slope indicator is 6.93 baht per share. Also, the whole period return excluding the dividend is 0.58 baht per share while the return including the dividend is 3.66 baht per share. There are weaknesses that the percent for winning was not high since the slope indicators, as with typical trend-following indicators, may be calculated not at a point but between any two given points, and a 20-day slope could be used for the short-term timing. For that reason, it may lag price and reverses after an actual top or bottom. This weakness does not, however, detract from its



usefulness. In real life trading, the slope may be used with momentum indicators or other indicators to make a good decision. Also, It should be noted that this research is designed as a starting point for trading system development. Using these ideas to augment the trading style, risk-reward preferences, and personal judgments are suggested.

Table 5 Portfolio's return which trade 10%-25% each times (since August 16, 2011 to December 28, 2018)

ReturnRank	1	10	9	2	3	5	8	7	6	4
Days	20	2	4	36	47	18	12	19	29	28
10%	2,047.87	299.96	411.43	1,468.75	1,245.65	919.08	674.60	728.63	859.40	973.21
11%	2,561.64	370.51	511.62	1,833.79	1,557.59	1,148.41	841.46	909.68	1,072.59	1,215.20
12%	6,177.43	814.86	1,182.77	4,363.66	3,746.92	2,748.49	1,989.01	2,164.27	2,545.99	2,893.91
13%	6,696.65	871.30	1,274.32	4,721.30	4,060.47	2,976.29	2,149.99	2,341.65	2,753.73	3,131.50
14%	7,216.51	926.00	1,364.77	5,077.97	4,374.20	3,203.90	2,310.22	2,518.57	2,960.76	3,368.52
15%	7,737.01	978.94	1,454.12	5,433.64	4,688.12	3,431.30	2,469.70	2,695.01	3,167.09	3,604.97
16%	8,258.14	1,030.14	1,542.38	5,788.31	5,002.22	3,658.49	2,628.43	2,870.98	3,372.71	3,840.84
17%	8,779.89	1,079.60	1,629.55	6,141.97	5,316.51	3,885.48	2,786.40	3,046.48	3,577.63	4,076.12
18%	9,302.25	1,127.33	1,715.61	6,494.61	5,630.97	4,112.25	2,943.61	3,221.49	3,781.83	4,310.82
19%	9,825.22	1,173.32	1,800.57	6,846.21	5,945.61	4,338.81	3,100.06	3,396.03	3,985.31	4,544.93
20%	10,348.78	1,217.57	1,884.43	7,196.77	6,260.42	4,565.15	3,255.74	3,570.09	4,188.07	4,778.45
21%	10,872.94	1,260.10	1,967.18	7,546.27	6,575.40	4,791.27	3,410.66	3,743.66	4,390.11	5,011.36
22%	11,397.68	1,300.91	2,048.83	7,894.69	6,890.55	5,017.16	3,564.80	3,916.74	4,591.42	5,243.67
23%	11,922.99	1,339.99	2,129.36	8,242.04	7,205.86	5,242.84	3,718.17	4,089.34	4,791.99	5,475.38
24%	12,448.87	1,377.36	2,208.79	8,588.30	7,521.34	5,468.28	3,870.77	4,261.44	4,991.84	5,706.47
25%	12,975.30	1,413.01	2,287.10	8,933.45	7,836.98	5,693.50	4,022.58	4,433.06	5,190.94	5,936.95
Mean	8,660.57	1,036.31	1,588.30	6,035.73	5,241.18	3,825.04	2,733.51	2,994.19	3,513.84	4,007.02

5. Conclusion

The simple idea of slope becomes one of the primary basis of the modern world in terms of many branches such as mathematics, technology, and investment. The mathematics defines the slope of a straight line is given by measuring the rise over the run between any two given points. The slope indicator is at the heart of the trend direction that is one of the important investment strategy designed to outperform the overall market. Even though it seems complicated, the slope indicator is pretty easy to understand. The important things one must know are

- A positive slope indicates an uptrend
- A negative slope indicates a downtrend.
- The slope indicator is zero when the linear is flat.
- The slope of the trend line describes trend strength.
- An increasing slope in an uptrend shows a trend with rising momentum.
- A decreasing slope shows fading momentum.
- Notice that the slope does not predict the trend. Instead, it follows the trend or price. It means that there will be some lag.

The main objective of this research is to apply the slope of a straight line to find the best numbers of days for maximizing profit in 1DIV trading. We found that the number of days of 20 provides the maximum net profit from the backtest and maximum returns from implementation. The numbers of days of 36 and 47 rank the second and third of the returns from implementation.



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