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Comparison of the effect of essential oil stock and exchange-traded funds returns

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ABSTRACT

The shift of the stock market into an online platform has cause an increasing number of new investors to appear and newer types of assets like Exchange Traded Funds (ETF) to be created, this had led to the investors having more options to invest in than in the past, investors now must consider various factors when selecting an asset to invest in. Previous studies show that stocks are still the preferred investing asset as it has been performing well in the past. In recent times, usage of essential oils has become more prominent as more people are aware of the benefit it brings. This research also aims to see the effect of essential oil securities on both stocks and ETFs. One problem is there has not been research that specifically targets the comparison between stocks and ETFs in order to determine which is the superior asset among the two and the factors affecting the returns of both assets. Secondary data extracted from Yahoo Finance, and Google Finance was gathered for beta, alpha, standard deviation, and trading volume analysis. Assets from period (2016-2021) was used to test relationship with the returns. Findings reveal that the standard deviation, beta, alpha influences the return of both types of assets. It was also determined that stocks generated a higher overall return than ETFs while ETFs had a lower overall risk to invest in than stocks. This shows that there is no clear winner between the stock and ETF and investors should invest based on whether they prefer a higher return or prefer a lower risk.

Keywords: Exchange traded funds, essential oil, returns, stock

1.0 Introduction

A stock or a share represents ownership in a company, owning a share of the company makes the owner an owner of the company. The concept of the stock market has been around for a long time, in the past there were only individual stocks that were traded in the market. In recent times, majority of the brokerage firms now have on online platform which provides easier accessibility to the stock market. This has caused an influx of new investors and new types of assets being traded, one of these assets being an ETF. An Exchange Traded Fund (ETF) is a relatively new financial instrument that was made during the 1990s and only got popular at around the late 2000s and only kept growing from there.

Borzykowski (2018) found that in 2008, U.S. investors had $531 billion in ETFs; that's jumped to more than $3.4 trillion today. ETFs are a basket or portfolio of stocks that are traded on the stock exchange. Unlike mutual funds who only trade once a day after the market closes, ETFs function just like common stock and is traded all day on the exchange. ETFs allow investors to diversify their risk as it is already a basket of stocks while charging an expense ratio. Essential oil securities are stocks of companies that produce goods or services relating to essential oils and ETFs consists of several essential oil stocks.

Nowadays, trading in the stock market has shifted online, all trading activities can be carried out on smart phones. This has resulted in an increased number of retail investors participating in the stock market, increasing the market size year by year. Although there many retail investors in the stock market today and they are generally less trained in picking stocks that will generate positive returns. There have indeed been many retail investors who have performed exceptionally well but many have also faced huge losses. Dalbar Inc (2020) found that around the 20 years ending on December 31, 2019, the S&P 500 Index averaged 6.06% a year. The average equity fund investor earned a market return of only 4.25%. Retail investors have underperformed the market consistently for the last 20 years. There are many factors that could be considered while evaluating the returns that a stock could possibly realize. We aimed to study the several factors that influence the returns generated by the stocks and ETFs. Other than that, we also intend to discover which asset proves to be a superior investment option for investors. A superior investment option is one that maximizes the returns with minimal risk.

2.0 Literature Review

Perold (2004) studied the key ideas of the Capital Asset Pricing Model (CAPM) which was made by William Sharpe, Jack Treynor, John Lintner and Jan Mossin in the 1960s and discuss the application of this model to discover the importance of the model in the field of finance throughout the years. The CAPM is a framework that relates the risk within investing in an asset to its expected return. It calculates the product of the beta of the stock with the market risk premium, then deducting it from the risk-free rate to get the expected return of the investment. With the model, investors can get an idea of how much their expected return of their portfolio could be. Karpoff (1986) concentrated on the assumption that market participants frequently change their demand prices that results in them randomly encountering potential trading partners. His findings coincide with the evidence that disagreement between investors results in the increase in trading volume of the security. It was also found that the trading volume can still increase despite investors interpreting the news in a similar way, this assumes that investors already had a difference in their expectation of said news.

Elton and Gruber (1997) discussed the Modern Portfolio Theory which was created by Harry Markowitz in the 1950s about the history and the future of the theory in the world of finance. They also intended to identify the key factors that are needed to efficiently make use of the theory and problems that may arise when financial institutions make use of the theory. The Modern Portfolio theory aids investors for them to construct a portfolio that can maximize returns within a certain level of risk. The theory assumes that the risk and return of a single investment cannot be evaluated by itself and must be evaluated by how the investment affects the overall risk and return of the entire portfolio. This theory assumes that all investors are averse to risk and would prefer investments with a lower level of risk. Callin (2010) examined Portable Alpha Theory which was developed by the Pacific Investment Management Company (PIMCO) in 1980s. Callin was part of the PIMCO team and explains in the book regarding her team's experience with theory and how it can be applied in the real world. The Portable Alpha Theory assumes an Alpha and a Beta, the Alpha being the return generated in excess above the market return; the Beta being the volatility of the asset based on the market index it is based on. Investors applying this theory will attempt to invest in securities which are not in the market index that the Beta is based off to grasp the Alpha. Investors are then able to generate the market return and possibly even gain more through the Alpha investment.

French, Schwert and Stambaugh (1987) found that there is a positive correlation between the market risk premium and the predictable volatility of stock returns. They had also found that unexpected stock market returns are negatively related to unexpected changes in the volatility of stock returns which also indirectly proves the positive correlation. Naturally as the stock is more volatile, there is a higher chance to make a much higher return than the market as the stock will fluctuate more frequently.

Caiger (2016) states that there are several factors that cause the difference in pricing between essential oils sold by different companies. Several of these factors are that essential oils are made from different botanical species, different part of the plants and are extracted using different methods. Different types of essential oils are being produced with raw materials such as cloves, patchouli, nutmeg, peppermint, lavender, tea tree oil, patchouli, eucalyptus, etc. Data of the prices of different essential oils were categorized into spice oils, seed oils, citrus oils, herb oils, and perfumery oils. Caiger mentions that Indonesia as the essential oil production centers of Asia due to the fertility of the soil and the environment where the crops are grown. The researcher states that there are several factors that cause the difference in pricing between essential oils sold by different companies. Several of these factors are that essential oils are made from different botanical species, different part of the plants and are extracted using different methods. Some types of essential oils also require a higher quantity of the plant than another oil, this will affect the yield of the oil and companies must increase prices to accommodate the higher costs. Other than that, there are also several other logistic factors that affect the company's pricing of their essential oils.

3.0 Methodology

Secondary data extracted from Google Finance, Bloomberg, and Yahoo Finance were compared for this study. Selection of ten stocks and ETFs each as the sample was used for analysis. Nine of the ten stocks selected were on the top 10 of the S&P 500 indices, with Treatt Plc (Essential Oil) being the only exception. On the other hand, ETFs selected were more diverse as there were many types of ETFs which are sector-focused, small cap ETFs and so on. Upon extraction the data for the independent variables and dependent variables were extracted. Data extracted were form the period of June 2016 to June 2021. Some independent variables computed were the 5-year standard deviation, 5-year alpha, and 5-year average return. The 5-year average return was calculated using the annual returns of each stock and ETF from June 2016 to June 2021.

4.0 Analysis

Table 1 Stock Descriptive

	N	***Min***	***Max***	***Mean***
Beta	**10**	**.62**	**2.06**	**1.0920**
5-year average trading volume (M)	10	1.78	44.95	15.5070
Standard Deviation (%)	**10**	**1.04**	**4.837**	**.67620**

5-year alpha (%)*	10	-.050	2.141	.31230
Valid N (listwise)	**10**			

Alpha = Asset return- Beta (Market Return)

Table 2 ETF Descriptive

	N	***Min***	***Max***	***Mean***
Beta	**10**	**.7100**	**1.3100**	**1.082000**
5-year average trading volume (M)	10	.5114	60.7100	16.345860
Standard Deviation (%)	**10**	**.0938**	**.1992**	**.150890**
5-year alpha (%)*	10	-.0869	.1943	.35580
5-year average return	**10**	**.1006**	**.3467**	**.194090**
Valid N (listwise)	10			

Alpha = Asset return- Beta (Market Return)

Table1 and Table 2 answers one of the goals of the research which is to determine which investment asset is superior as in higher return with lower levels of risk. The risk is represented by the standard deviation while the return is the 5-year average return. According to what is shown in both tables, we can see that stocks generate much higher returns than ETFs, more than doubling the ETF return. Stocks had a mean return of 47.25% while ETFs only had a return of 19.40%. Besides, ETFs have a standard deviation of 15.08% while stocks are 67.62%. ETFs have much lower risks than stocks possibly due to the diversification nature of ETFs. It can be said that there is no clear winner between the two types of assets as stocks on average generate higher returns, but ETFs are less risky to invest.

Table 3 Stock Model Summary

Model	***R***	***R^2***	***Adjusted R^2***	***Std. Error of the Estimate***	***R^2 Change***	***F Change***	***Df1***	***Df2***	***Sig. F Change***	***Durbin-Watson***
1	.999	.998	.998	.032264	.998	4318.059	1	8	<0.01	
2	1.000	1.000	1.000	.000330	.002	76656.106	1	7	<0.01	2.253

1: Predictors (Constant), 5-year alpha (%)

2: Predictors (Constant), 5-year alpha (%), Beta

Dependent Variable: 5-year average return (%)

Table 4 ETF Model Summary

Model	*R*	*R^2*	*Adjusted R^2*	*Std. Error of the Estimate*	*R^2 Change*	*F Change*	*Df1*	*Df2*	*Sig. F Change*	*Durbin-Watson*
1	.969	.939	.931	.0242893	.939	122.628	1	8	<0.01	
2	1.000	1.000	1.000	.0000549	.061	1563385.365	1	7	<0.01	.811

1: Predictors (Constant), 5-year alpha (%)
2: Predictors (Constant), 5-year alpha (%), Beta
Dependent Variable: 5-year average return (%)

Table 3 and Table 4 show the independent variables that are significant in predicting the dependent variables for both types of assets. For stocks in table 4.3, it can be seen that only the 5-year alpha and beta variables are significant. The 5-year alpha alone accounts for 99.8% of the variation in the return while the beta only accounts for the remaining 0.02% of variation. It is also the same scenario for ETFs in table 4.4, only the 5-year alpha and beta are significant predictors. The 5-year alpha accounts for 93.9% of variation in the return while the beta accounts for the remaining 6.1% of the variation. It seems that the beta has a larger of effect on the prediction of returns of the ETF than the returns of stocks.

Table 5 Stock Final Model

Model		**Unstandardized B**	**Coefficients Std Error**	**Standardized Coefficients Beta**	**t**	**Sig.**	**Tolerance**	**VIF**
1	(Constant)	.136	.011		11.898	<0.001		
	5 year alpha(%)	1.078	.016	.999	65.712	<0.001	1.000	1.000
2	(Constant)	4.306E-6	.001		.009	.993		
	5 year alpha (%)	.999	.000	.926	3026.594	<0.001	.258	3.882
	Beta	.147	.001	.085	276.886	<0.001	.258	3.882

The final regression equation for stocks according to the table above is as follows:

5-year average return= 4.306E-6+0.999(5-year alpha) +0.147(Beta)

This means that for every unit increase in the 5-year alpha of the stock, the 5-year average return will increase by 0.999%. On the other hand, for every increase in unit in the Beta, the 5-year average return will increase by 0.147%.

Table 6 ETF Final Model

Model		Unstandardized B	Coefficients Std Error	Standardized Coefficients Beta	t	Sig.	Tolerance	VIF
1	(Constant)	.162	.008		19.832	<0.001		
	5 year alpha (%)	.888	.080	.969	11.074	<0.001	1.000	1.000
2	(Constant)	-5.182E-5	.000		-.395	.705		
	5 year alpha (%)	1.000	.000	1.091	4942.236	<0.001	.803	1.245
	Beta	.147	.000	.276	1250.354	<0.001	.803	1.245

The final regression equation for ETFs is shown as follows:

5-year average return= -5.182E-5+1(5-year Alpha) +0.147(Beta)

This means that for every unit increase in the 5-year Alpha, the 5-year average return increases by 1%. Other than that, every increase in unit of beta, the average return will also increase by 0.147%.

Table 7 Hypotheses Test Table

Number	Null Hypotheses, H0	Alternative Hypotheses, H1	Result
I	There is a correlation between alpha and the returns of the stocks and ETFs	There is no correlation between alpha and the returns of the stocks and ETFs	Null hypotheses is not rejected
II	The liquidity of the stocks and ETFs affect the returns	The liquidity of the stocks and ETFs do not affect the returns	Null hypotheses is rejected
III	The volatility of stocks and ETFs are highly correlated	The volatility of stocks and ETFs are not correlated	Null hypotheses is not rejected
V	The risk of stocks and ETFs affect the returns	The risk of stocks and ETFs do not affect the returns	Null hypotheses is not rejected

5.0 Conclusion

After the analysis of the data, all the hypotheses were also successfully tested to determine its validity. In the end, only Hypotheses II was rejected as the liquidity and the return of both types of assets are not correlated. From the research, only the standard deviation, 5-year alpha and the beta variables have an effect on the return of both types of assets. The standard deviation was excluded from the final model as it had a multicollinearity issue with the 5-year alpha, causing it to be redundant. It was also proven that stocks generate a higher return than ETFs, but ETFs are less risky to invest in than stocks, therefore there is no asset that is clearly superior to the other.

Reference

1. Borzykowski,B.(2018). *The trillion-dollar ETF boom triggered by the financial crisis just keeps getting bigger.* [online*]* CNBC*. Available from https://www.cnbc.com/2018/09/14/the-trillion-dollar-etf-boom-triggered-by-the-financial-crisis.html*

2. Callin, S. (2010). Portable Alpha Theory and Practice: What Investors Really Need to Know. Journal of Pension Economics & Finance, [online] Volume 9(1), pp. 154-155. Available at DOI:10.1017/S1474747209990254

3. Caiger, S. (2016). Market Insider: Essential Oils and Oleoresins. *ITC.* Available from https://www.intracen.org/uploadedFiles/intracenorg/Content/Exporters/Market_Data_and_Information/Market_information/Market_Insider/Essential_Oils/Monthly%20Report%20April%20%202016.pdf

4. Dalbar, Inc. "2020 QAIB Report." Accessed April 5, 2021

5. French,K.R, Schwert,G.W and Stambaugh,R.F (1987). *Expected stock returns and volatility.* The Journal of Financial Economics, [online]Volume 19(1), pp. 3-29. Available at https://doi.org/10.1016/0304-405X(87)90026-2

6. Gruber,M.J. (1997). *Modern portfolio theory, 1950 to date*. Journal of Banking and Finance, [online]Volume 21(11-12), pp. 1743-1759. Available at https://doi.org/10.1016/S0378-4266(97)00048-4.

7. Karpoff,J.M. (1986). *A Theory of Trading Volume*. The Journal of Finance, [online]Volume 41(5), pp. 1069-1087. Available at https://doi.org/10.2307/2328164

8. Perold, André, F. 2004. "The Capital Asset Pricing Model." *Journal of Economic Perspectives*, 18 (3): 3-24. Available at DOI: 10.1257/0895330042162340