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Do Unethical Stocks Win in Developing Country? Evidence From Indonesia

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Abstract

Ethical investing in various countries is increasingly popular following the number of ethical investors. However, the performance of ethical investments in many developed countries is lower than the performance of the opposite category, unethical stock, or researchers called it as sin stock. This study examines whether the performance of sin stocks in Indonesia is as good as the performance of sin stocks in developed countries considering the very different cultures and religions. This study comprehensively measures the performance of all sin stocks and ethical stocks using the risk-adjusted return approach, the Sharpe and Treynor ratios. To sharpen the analysis, this study also measures the efficiency of all types of stocks using the data envelopment analysis method. The results show that the performance of the sin stock portfolio in Indonesia is different from the facts in developed countries. Sin stocks in Indonesia had the worst performance during 2013-2022 compared to ethical stocks. Furthermore, in terms of efficiency, the SRI-Kehati Index has the highest score compared to all indices. This research contributes to provide theoretical and practical insights about the comparison of the performance of sin stocks and their counterparts in Indonesia which is different from sin stocks in developed countries. The originality of the research includes the creation of a sin stock portfolio and the use of constraint stocks as a proxy for ethical stocks.

Keywords: *Sin stock; socially responsible investment; environmental social governance; Islamic stock*

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INTRODUCTION

Along with investors' social awareness of environmental concerns and efforts to introduce an ethical dimension to investment decision-making practices which usually operate through a system or filter mechanism, namely excluding sin stock and other controversial stocks (Berry & Yeung, 2013). Rennebog identifies four broad categories of stocks including unethical stocks, ethical investments, corporate governance, and environmental investment (Renneboog, Ter Horst, & Zhang, 2007). Zerbib explains that there is no consensus on the scope of the unethical stock, but academics often use the terms "sin stock" and "vice stock" for shares of companies engaged in alcohol, tobacco, and games, which is considered undesirable given the prevailing social norms (Zerbib, 2020) (Durand, Koh, & Limkriangkrai, 2013). Lobe added that the industries included in the "sextet of sin" include adult entertainment, alcohol, gambling, nuclear power, tobacco, and weapons (Lobe & Walkshäusl, 2016). Such an investment strategy goes against societal norms against funding operations that promote human vice.

After sin stocks, there are three other stock categories, namely ethical stocks, corporate governance, and environmental investment. These three stock categories focus on companies that support environmental protection, social justice, and ethical management practices. Some literature states that environmental social governance investment is also known as socially responsible investment, green stock, and sustainable investment. It is an investment that prioritizes environmental, social, and optimal governance factors or outcomes (Boumda, Duxbury, Ortiz, & Vicente, 2021); (Brimble, Vyvyan, & Ng, 2013); (Gonçalves, Pimentel, & Gaio, 2021). Furthermore, in the European Parliament's legislative resolution dated April 18, 2019, sustainable investment is defined as investment in economic activities that contribute to environmental or social objectives, as well as a combination thereof, provided that the companies invested follow good governance practices and prudential principles. Caution in the sense that it does not harm significantly, i.e. that neither environmental objectives nor social objectives are significantly harmed. Castro created a new category of shares under the name constraint fund that involves all types of ethical stocks, namely socially responsible investment and environmental social governance, plus religious-based shares, namely sharia or catholic shares (Castro, Hassan, Rubio, & Halim, 2020). Constraint funds are defined as a strategy for selecting

investment instruments that add constraint criteria to them, namely the criteria for environmental, social, and religious beliefs.

Behind the controversy, sin stocks in developed countries have performed better than their counterparts. Castro proves that investors who have chosen to completely disengage from the highly profitable sin industry have suffered significant losses at opportunity costs (Castro *et al.,* 2020). The expected annual return in the sin industry exceeds its rival stock category by seven percent. Pastor shows that green stocks have a negative alpha and brown stocks have a positive alpha (Pástor, Stambaugh, & Taylor, 2021). Brown stock is the stock of companies operating with high carbon emissions. As socially responsible investments add to the constraints on investment choices, they tend to underperform due to decreased diversification (Castro *et al.,* 2020). Liston argues that US sin stocks outperform faith-based investments (Liston & Soydemir, 2010). Fabozzi finds that sin stocks provide an annual excess return of 3.6-4.8% per year higher than their counterparts. Divesting from sin industries involving guns, tobacco, alcohol, or gambling is expensive because these companies tend to perform better than non-sins (Fabozzi, Ma, & Oliphant, 2008) (Hong & Kacperczyk, 2009). Sin stocks act like value stocks and have been beating the market over time. Sin stocks have a higher expected return than other comparable stocks with similar characteristics. Therefore, investors who hold SRI equity funds expect lower returns on their investments (Riedl & Smeets, 2017). Modesto added that stock prices sometimes have a negative correlation with positive corporate social responsibility news (Modesto Morales, 2013). This can be understood from the data that alcohol and tobacco are very popular products in the United States, even included in the top ten most consumed goods category by Americans. Purchasing alcohol ranks seventh with an average of 0.9% of total annual expenditure, while tobacco ranks ninth with an average of 0.8% of annual expenditure. This provides concrete information that Americans are very happy to buy this sin product. If someone invests, they will make money from the pleasure of these people.

The facts above are an illustration of the performance of sin and constraint stocks in developed countries such as the United States, Britain, Japan, Canada, and Australia (Durand *et al.*, 2013); (Lobe & Walkshäusl, 2016); (Castro *et al.*, 2020); (Tala & Odden, 2020). So, what about the performance of sin stocks and constraint stocks in developing countries like Indonesia? Indonesia has several constraint

stock indices including socially responsible investment stocks, environmental social governance, and religion-based stocks, namely sharia stocks. Meanwhile, for sin stocks, there is no official index. Thus, we created a portfolio to represent this category of stocks and named them "unethical stocks". The term of unethical stock was chosen because it is more familiar, easy to understand and has a softer sense of language in the context of Indonesia. Durand found that there are systematic differences in performance and valuation of sin stocks but only in the countries where the culture is closest to America – Australia and New Zealand. Investor response to sin stocks is a function of culture (Durand *et al.,* 2013). Hofstede adds that the response to the stock of sin is a function of the level of individualism in the cultural index. As it is known that Indonesia is a country in Asia that restricts trade in alcoholic beverage products and adult entertainment and prohibits the gambling business (Hofstede, 2016). Furthermore, the culture derived from the religion of the majority of Indonesians also sees alcohol, adult entertainment, and gambling as something bad and taboo (Saraswati, 2019). Meanwhile, cigarette tobacco products have become popular even though they are controversial (Marune & Tanadi, 2021). This reason may result in a different performance from the performance of sin stocks in developed countries. Research on the performance of sin stocks in Indonesia is still difficult to find. Researchers note that there are only two studies that discuss the performance of sin stocks in Indonesia associated with litigation risk and investment manager educational background (Faturohman, Widjaya, & Afgani, 2021); (Nurasiah, Nugraha, Disman, & Yuniarti, 2020). Daugaard in his bibliometric research explains that developing country capital markets are an underrepresented research area (Daugaard, 2020). The pattern of environmental social governance investment performance in low-income countries is a practical concern for investors looking to diversify their portfolio risk. For low-income countries receiving funds, there is a need to understand the potential for socially responsible investments to negatively impact their domestic activities and culture. Therefore, further investigation of ethical investment performance is highly recommended. Several previous studies have focused on comparing the performance of sin stocks and SRI in developed countries (Azmi, Mohamad, & Shah, 2020); (Tala & Odden, 2020); (Castro *et al.,* 2020); (Lobe & Walkshäusl, 2016); (Nath, 2021). While research on the performance of a socially responsible investment in Indonesia has been carried out, it ignores comparisons with its opposite stock, namely the

sin stock (Lakaba & Robiyanto, 2018); (Qoyum, Al Hashfi, Zusryn, Kusuma, & Qizam, 2021).

This study intends to fill the gaps of previous research by providing a more comprehensive picture of the performance of the sin stock in Indonesia and comparing it with all types of constraint stock indices in Indonesia. Comprehensive means that we provide an overview of all stock performance detailly and refine the analysis by testing the efficiency of their performance. Furthermore, to the best of our knowledge, the use of constraint stock as a proxy for ethical shares is the first in the context of Indonesia.

LITERATUR REVIEW

Behavioral finance is a scientific discipline in which the interactions of various disciplines are embedded, namely financial management, psychology, and sociology which are continuously integrated so that the discussion cannot be separated (Ricciardi & Simon, 2000). This complements the previous classical financial theory which states that the only considerations in investment decisions are return and risk. Human will also involve emotions, traits, preferences, and various kinds of things that are inherent as intellectual and social beings in the decision-making process (Pompian & Wood, 2006). One of the various things inherent in humans is social norms or habits. Akerlof defines social norms or customs as actions whose usefulness to the agent performing them depends on the beliefs or actions of other members of society (Akerlof, 1980). An investor who has social norms will consider this in choosing an investment instrument.

The shunned stock hypothesis assumes that socially responsible investors manage their asset allocation based on factors that are not related to purely financial performance (Derwall, Koedijk, & Ter Horst, 2011). These investors are often referred to as Value-Driven Investors (VDI). The hypothesis states that when investors care about the non-pecuniary aspect of an investment, demand will increase for the responsible asset and/or decrease for the irresponsible asset, as a result, the behavior of stock prices may change. Two important assumptions support this hypothesis, including (The first assumption is that social investors are VDI; the second assumption assumes that VDI is substantial enough in numbers to affect the price of securities). For the second assumption, Heinkel

said about 10 percent of the financial market should consist of investors who engage in SRI without financial rewards as the primary motive and use a "Green" investment model (Heinkel, Kraus, & Zechner, 2001). The fact that there has been a significant increase in the number of VDI investors ultimately supports that VDI has become more substantial over time and can affect the price of securities.

In the context of the Indonesian capital market, investors are also familiar with the socially responsible investment stock index, named SRI-Kehati. This index was launched on 8 June 2009, concerning the United Nations' Principles for Responsible Investment (PRI), and published by the Kehati Foundation in collaboration with the Indonesia Stock Exchange. The SRI-KEHATI index consists of 25 shares of public companies listed on the Indonesia Stock Exchange, whose composition is reviewed and updated in May and November each year. The index constituent screening process consists of three stages, namely screening financial and liquidity aspects, screening core business, and assessing environmental, social, and corporate governance aspects. Meanwhile, for unethical stocks, Indonesia does not have an official index, but the researchers identified seven stocks that fall into this stock category. Unethical shares in Indonesia are dominated by cigarette companies with 71.42%, the rest are alcoholic beverage producers and there are no shares from companies that provide gambling services, adult entertainment, and weapons manufacturers (www.idx.co.id).

The SRI-Kehati Index since its launch has shown better performance compared to several major indices such as the Composite Stock Price Index (JCI), LQ45, JII, and so on. Robiyanto explained that the majority of SRI-Kehati shares performed well even though some stocks showed negative numbers (Robiyanto, 2018). The SRI-Kehati index ranks fourth in performance after the property, consumer, and finance sector stock indexes. Companies that produce cigarettes and alcoholic beverages are included in the consumer sector which ranks second. However, it is a very small constituent component, namely seven of the total forty-five companies or only fifteen percent. Meanwhile, the performance of unethical stocks based on data from the Indonesian stock exchange shows a negative return for the last five years. This is thought to be caused by the tightening policy on the trade in cigarettes and alcoholic beverages. Then the proposed hypothesis is as follows;

H1: The performance of the SRI-Kehati stock index is higher than the performance of the unethical stock portfolio

Shares in the environmental social governance category have similarities with stocks in the socially responsible investment category. In theory, environmental social governance shares have a more comprehensive valuation regarding the company's concern for the environment, and society and have good corporate governance. Historically, environmental social governance stocks emerged after socially responsible investment stocks, namely in mid-2021. Indonesia has three stocks in the environmental social governance category, namely ESG Leaders, ESG Sector Leaders IDX KEHATI, and ESG Quality 45 IDX KEHATI. ESG Leaders is an index that contains 30 stocks with a good environmental social governance assessment. The ESG Sector Leaders IDX KEHATI contains stocks with environmental social governance performance assessment results above the sector average, as well as having good liquidity with an industry classification that refers to the IDX Industrial Classification (IDX-IC). Meanwhile, the ESG Quality 45 IDX KEHATI measures the best 45 stocks from the results of environmental social governance and financial performance assessments of companies, as well as having good liquidity. The selection of the constituents of the environmental social governance index begins with determining the eligible stocks to enter the index by considering the financial performance and liquidity of the shares, and excluding the shares of companies whose core business is in the tobacco, weaponry, related to pornography, alcohol, coal mining, nuclear, elements of gambling, pesticides, and related to Genetically Engineered Products (www.idx.co.id). Based on the screening of environmental social governance stocks, sin stocks have the opposite concept of environmental social governance stocks.

Given the very young age of the index, research that discusses the performance of environmental social governance stocks is still very difficult to find. However, based on data from the Indonesia Stock Exchange, it can be concluded that the performance of the environmental social governance index is not much different from the SRI-Kehati index. The trend of ethical investment development in this decade is increasing as evidenced by the increasing number of ethical investors around the world (EUROSIF, 2014; USSIF, 2018). A significant increase in the number of ethical investors will provide changes to price behavior and ultimately affect ethical stock returns. Amory in his research found that countries with high

pleasure scores tend to invest funds in sin investments (Amory, 2016). In contrast, countries that score high on self-control are more likely to refrain from investing in sin stocks. The tendency to refrain from investing in sin stocks indirectly leads investors to invest more in ethical stocks. Therefore, the demand for sin stocks is low, so prices and returns will likely be low.

H2: The performance of the ESG Leaders stock index is higher than the performance of the unethical stock portfolio

H3: The performance of the ESGS Kehati stock index is higher than the unethical stock portfolio performance

H4: The performance of the ESGQ Kehati stock index is higher than the performance of the unethical stock portfolio

If socially responsible investment and environmental social governance shares have similarities in responding to environmental and social issues, Sharia stocks focus on religious-based screening. To become a Sharia stock, a stock needs to go through screening and purifying. Screening is related to business lines that are following Islamic religious regulations, while purifying is related to reducing company revenues with non-halal income. One of the criteria for screening sharia shares is shares that do not move in something that is haram and makruh, such as cigarette products, alcoholic beverages, gambling, and pornography. Judging from these criteria, it can be said that Sharia shares are contrary to sin shares. Indonesia has several types of Sharia stocks including the Jakarta Islamic Index 30 (JII30), Jakarta Islamic Index 70 (JII70), and the Indonesian Sharia Stock Index or ISSI (Habibi, Normasyhuri, & Anggraeni, 2022).

Indonesia is a country with the largest Muslim population. Along with the development of the Sharia economy, Muslim awareness has also developed to allocate their funds to investment instruments that comply with Sharia. This tendency at the same time reduces investment in sin stocks. This is evidenced by the increasing number of Islamic stocks and indexes every year. This is in line with research done by Mahastanti which shows that more religious individuals are more likely to fully invest their funds in Sharia-based stocks and show greater tolerance for negative returns on Sharia-based stocks (Mahastanti, Asri, Purwanto, & Junarsin, 2021). The findings show that Muslim investors who are more devout to Islamic teachings emphasize metaphysical returns on their

investment decisions. Chew and Li added that subjects who are religious show a higher level of avoidance of sin stocks (Chew & Li, 2017).

H5: JII30's performance is higher than unethical stock portfolio performance

H6: JII70's performance is higher than unethical stock portfolio performance

H7: ISSI's performance is higher than unethical stock portfolio performance

RESEARCH METHOD

This study aims to measure and compare the performance of all constraint stock indices against all unethical stocks. This is done to provide a more comprehensive picture for investors in their investment decisions. First, it provides an overview of the individual returns of each unethical stock. Then form an unethical stock portfolio, and calculate its performance using the risk-adjusted return, Sharpe, and Treynor methods. The researcher then compares the performance of the unethical stock portfolio with all constraint stock indices. The data needed is data on monthly closing share prices of all companies that are members of the SRI Kehati index, ESG Leaders, ESGS Kehati, ESGQ Kehati, ISSI, and all unethical stocks. All stock data is taken from Bloomberg. The selected period is from July 2012 – July 2022. The risk-free used is the Indonesian interest rate obtained from the official website of Bank Indonesia. The market return used is the Composite Stock Price Index (JCI).

$$Risk\ Adujusted\ Return = \frac{Ri}{Deviation\ Standard} \quad \text{.....(1)}$$

$$Sharpe\ ratio = \frac{Ri - Rf}{Deviation\ Standard} \quad \text{.....(2)}$$

$$Treynor\ ratio = \frac{Ri - Rf}{Beta} \quad \text{.....(3)}$$

To sharpen the analysis, data envelopment analysis was carried out. Inputs are all risk measurements and outputs are all return measurements (Rubio, Maroney, & Hassan, 2018). Data Envelopment Analysis uses the assumption of constant return to scale (CRS) and aims to maximize output, namely return. Therefore the Data Envelopment Analysis model chosen is CCR-O (Kim, Lee, Park, Zhang, & Sultanov, 2015); (Badoi, 2016). DEA CCR-O analysis using MaxDEA 8 software.

$$Max: e_j(u,v) = \frac{weighted\ sum\ of\ outputs}{weighted\ sum\ of\ inputs} = \frac{\sum_r u_r Y_{rj}}{\sum_i v_i X_{ij}} \quad \text{.....(4)}$$

$$st. \frac{\sum_r u_r Y_{rj}}{\sum_i v_i X_{ij}} \leq 1 \quad \forall\ j \text{ .....(5)}$$

$$u_r v_i \geq 0 \quad \forall\ i,r \text{ .....(6)}$$

The selection of unethical stocks is carried out following the definition of the stock, namely shares of companies engaged in tobacco, gambling, adult entertainment, weapons, and alcoholic beverages. There are seven unethical stocks including HMSP, GGRM, WIIM, ITIC, RMBA, MLBI, and DLTA. Meanwhile, the constraint stock indices used the SRI-Kehati index, ESG Leaders (ESGL), ESGS Kehati (ESGS), ESGQ Kehati (ESGX), JII30, JII70, and ISSI obtained from data from the Indonesian stock exchange.

RESULTS AND DISCUSSION

In this section, we provide an overview of the individual returns of each unethical stock over the past ten years. As a comparison, the return market, namely the Indonesia Composite Index (ICI), is also included. The Indonesia Composite Stock Price Index measures the performance of all stocks listed on the main board and development boards of the Indonesia Stock Exchange. Based on figure 1 it can be seen that the movement of the unethical stock is quite volatile. In 2013, 2016, and 2018 it was seen that several unethical stocks achieved returns far above market returns, namely DLTA, MLBI, HMSP, and WIIM. Meanwhile, in 2021, the returns for all unethical stocks will not be able to outperform market returns. The highest return throughout the research period was obtained by DLTA in 2013 and the lowest return was obtained by ITIC in 2021. The average share return for unethical stock is 0.33%. This number is lower than the average market return of 6.58%.

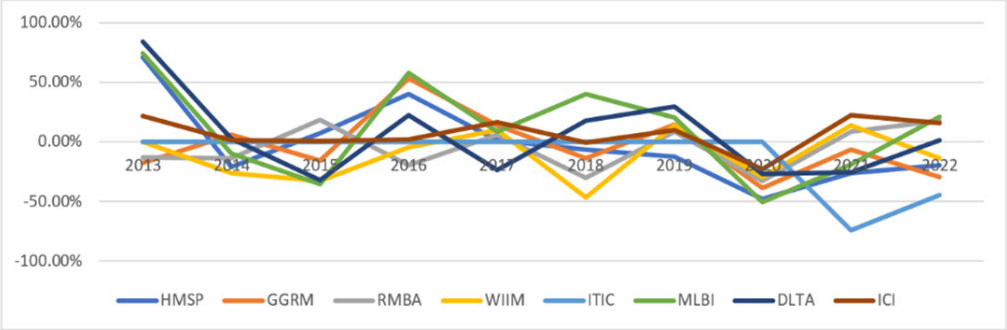

Figure 1: Unethical Stock Individual Return

To be able to see the performance, the return needs to be compared with the risk. Risk measurement uses the deviation standard. Deviation standard measures market volatility and predicts trends in financial markets. The more frequently a stock experiences price changes and the daily rate of return, the higher the standard deviation. During the study period, unethical stocks show a higher deviation standard than the Indonesian composite index. RMBA shares reached the highest deviation standard in 2021. ITIC shows the lowest deviation standard in 2020. The average deviation standard for unethical stock is 34.34%. This number is higher than the average market return of 12.72%. This indicates that unethical stock is a risky investment instrument.

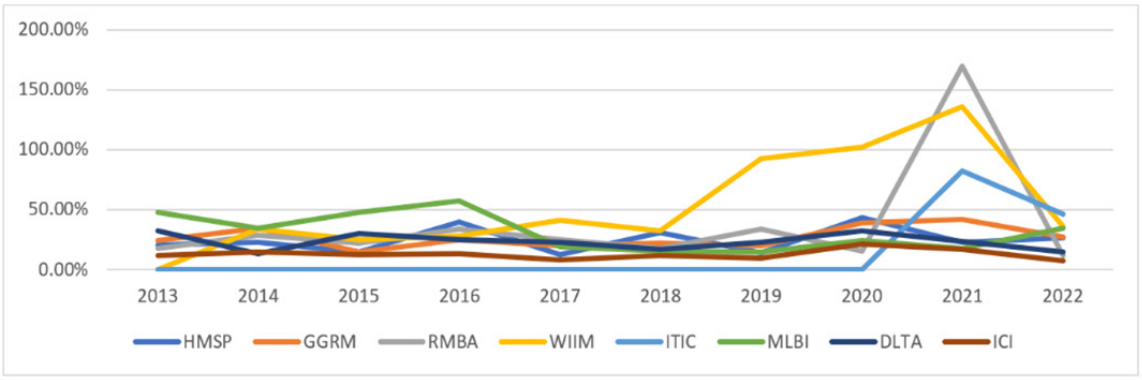

Figure 2: Unethical Stock Deviation Standard

The research was continued by forming a portfolio of unethical stocks with a proportion of 20% for each of HMSP, GGRM, RMBA, MLBI, and DLTA stocks. WIIM and ITIC shares were not used due to data limitations. WIIM shares conducted an initial public offering (IPO) at the end of 2012 and ITIC carried out an IPO in mid-2019 so they cannot be used. This portfolio is named UNE. The average return of SRI-Kehati, ISSI, and ICI is higher than the average return of UNE. Meanwhile, the average return of JII30 and JII70 is lower than the average return of UNE. The highest return during the research period was obtained by UNE in 2013 and the lowest return was obtained by UNE in 2020. If you pay attention to all portfolios experiencing negative returns in 2020 where in that year the first pandemic occurred in Indonesia. The average deviation standard of the UNE portfolio is higher than all stock constraint indices. The highest deviation standard was obtained by UNE in 2013 while the lowest deviation standard was obtained by ISSI in 2021. The average market risk of SRI-Kehati is higher than the average market risk of UNE, ESGL, JII30, JII70, and ISSI. The highest beta was obtained by SRI-Kehati in 2016 while the lowest beta was obtained by UNE in 2021. The ESGS and ESGX indices are not included in the calculation considering that the index is still very new, which was launched at the end of 2021, so it has not been a year. However, researchers still provide an overview of the total return, namely ESGS 0.91% and ESGX 0.53%. When compared to unethical stock portfolio returns, ESGS and ESGX returns are still higher. There are some limitations of the ESGL and JII70 data indexes as these two indexes were launched after 2013.

Table 1.
Comparison of Return and Risk of Unethical and Constraint Indices

	Year	UNE Index	Constraint Indices					ICI
			SRI-Kehati	ESGL	JII30	JII70	ISSI	
Return	2013	34.19%	24.84%	-	21.31%	-	24.79%	21.83%
	2014	-5.24%	5.85%	-	-0.78%	-	-2.73%	1.24%
	2015	-11.09%	4.35%	-	0.30%	-	-1.15%	0.66%
	2016	33.74%	2.90%	-	5.69%	-	5.08%	2.16%
	2017	-0.98%	21.31%	-	7.96%	-	11.62%	16.21%
	2018	0.69%	-5.60%	-	-12.65%	-	-6.46%	-0.52%

	2019	13.86%	20.59%	-	4.26%	3.98%	7.37%	9.65%
	2020	-37.71%		-	-21.80%	-21.17%	-22.10%	-22.85%
	2021	-2.77%	4.58%	-	1.97%	8.62%	18.66%	22.02%
	2022	-3.54%	21.62%	12.79%	5.56%	1.97%	16.54%	15.47%
Mean		2.12%	7.56%	12.79%	1.18%	-1.65%	5.16%	6.58%
Max		34.19%	24.84%	-	21.31%	8.62%	24.79%	22.02%
Min		-37.71%	-24.87%	-	-21.80%	-21.17%	-22.10%	-22.85%
Deviation	2013	17.25%	11.93%	-	11.99%	-	10.99%	11.93%
Standard	2014	15.34%	14.99%	-	12.87%	-	13.38%	14.99%
	2015	16.81%	12.28%	-	14.27%	-	11.98%	12.28%
	2016	20.03%	8.34%	-	15.56%	-	14.82%	13.14%
	2017	8.43%	8.34%	-	10.98%	-	8.73%	8.34%
	2018	9.90%	11.62%	-	12.67%	-	10.67%	11.62%
	2019	10.35%	9.25%	-	10.74%	10.93%	8.93%	9.25%
	2020	19.94%	21.00%	-	26.10%	26.08%	21.31%	21.00%
	2021	39.38%	16.93%	-	20.55%	20.61%	15.87%	16.93%
	2022	15.75%	7.76%	14.01%	10.70%	10.29%	7.74%	7.76%
Mean		17.32%	16.01%	14.01%	14.64%	16.98%	12.44%	12.24%
Max		39.38%	6.67%	-	7.54%	7.53%	6.15%	21.00%
Min		8.43%	3.30%	-	3.09%	2.97%	2.23%	7.76%
Beta	2013	0.31	1.10	-	0.90		0.89	
	2014	0.79	1.05	-	0.78		0.86	
	2015	-0.12	1.27	-	1.12		0.95	
	2016	0.66	1.51	-	1.17		1.10	
	2017	-0.05	1.51	-	1.28		1.00	
	2018	0.57	1.08	-	1.02		0.86	
	2019	0.67	1.12	-	1.03	1.11	0.93	
	2020	0.83	1.07	-	1.13	1.16	0.97	
	2021	1.01	1.18	-	1.04	1.12	0.94	
	2022	0.69	0.04	1.36	1.15	1.16	0.77	
Mean		0.54	1.09	1.36	1.06	1.13	0.93	
Max		1.01	1.51	-	1.28	1.16	1.10	
Min		-0.12	0.04	-	0.78	1.11	0.77	

Source: Processed Data, 2022

Based on Table 2, it can be seen that the order of performance with the method of risk-adjusted return and Treynor ratio shows consistent results. The

best performances were obtained sequentially by the SRI-Kehati, ESGL, ISSI, JII30, JII70, and UNE portfolios. While the Sharpe ratio resulted SRI-Kehati as the highest performance, then followed by ISSI, ESGL, and JII30. JII70 and UNE. These results support all the proposed hypotheses that the performance of SRI-Kehati, ISSI, ESGL, JII30, and JII70 outperformed the UNE portfolio. This is inversely proportional to the capital market conditions in developed countries where unethical stocks always beat constraint stocks. These different results are supported by De Jong's research which explains that share ownership can be influenced by three different elements: legal factors, political power, and cultural dimensions (De Jong & Semenov, 2006). Salaber adds that another factor that has a significant effect on share ownership is religion (Salaber, 2013). Fauver has shown that in some countries, individuals and institutions avoid investing in sin stocks, while in other countries investors do not avoid these stocks (Fauver & McDonald IV, 2014). In countries where people see the company as a sin company, the valuation of this company falls compared to the rating of this company in countries where it is not seen as a sin company. In countries where people do not view certain companies as sinful companies, the valuation of companies does not differ significantly from that of non-sins. In the end, this will certainly have an impact on stock performance.

Table 2.

Comparison of Unethical and Constraint Indices Performance

	UNE Index	**Constraint Indices**				
		SRI Kehati	**ESGL**	**JII30**	**JII70**	**ISSI**
Risk Adj Return	0.0012	0.9345	0.9129	0.2007	0.0406	0.6123
Sharpe	-0.2994	0.2040	0.0910	-0.2338	-0.2719	0.1056
Treynor	-0.0844	0.4726	0.0668	-0.0494	-0.0522	-0.0039

Source: Processed Data, 2022

To sharpen the analysis, the researcher conducted a data envelopment analysis based on each index for the last ten years. This analysis did not involve

the JII70 and ESGL indices due to data limitations. The results show that a perfect efficient score of 1.00 was obtained by the SRI Kehati index. The efficiency scores are SRI Kehati, ISSI, UNE, and JII30 respectively. This result is quite consistent with the performance measurement using the Sharpe ratio, Treynor ratio, and risk-adjusted return methods which explain that SRI Kehati shares perform the best followed by other indices. SRI Kehati also appears as a reference in the benchmark column four times. This means that if UNE, JII30, and ISSI will increase their output, they must refer to SRI-Kehati as a benchmark. The Return To Scale (RTS) column shows the index output response if there is an increase in input, namely whether the output will increase, decrease or constant. Based on Table 10, if there is an increase in input or this case the risk of the UNE, ISSI, or JII30 portfolio, there will be an increase in output or return. Meanwhile, if SRI-Kehati experiences an increase in risk, the return will remain. Finally, this research contributes to the study of the capital market by providing new insights into the performance of sin stocks in Indonesia. Practically, these research findings give investors and traders useful information for the decision-making process. It promotes and advises investors to allocate their funds in ethical investment. Especially for ethical investors in Indonesia do not hesitate to allocate their funds to ethical investments because it has already been empirically proven that ethical investment outperformed sin stocks. Thus they do not need to sacrifice any opportunity cost. They can fulfill their financial and social goal.

Table 3.
Efficiency Score

DMU	Score	Benchmark	RTS
UNE Index	0.45	SRI-Kehati (0.627723)	Increasing
SRI-Kehati	1.00	SRI-Kehati (1.000000)	Constant
JII30	0.17	SRI-Kehati (0.914513)	Increasing
ISSI	0.88	SRI-Kehati (0.777293)	Increasing

Source: Processed data, 2022

CONCLUSION

Ethical investment which includes socially responsible investment, environmental social governance, and religion-based stock is a category of investment instrument that is increasing in popularity following the increase in demand for it. However, its performance in developed countries is often recorded as no better than the opposite stock category, namely sin stocks. Therefore investors suffer from missed opportunity costs. The purpose of this study is to compare the performance of unethical stocks and ethical stocks in Indonesia, which has a totally different culture and religion that may lead to different characteristics of investors. The results of the study were following what had been predicted the fact was the opposite. The performance of unethical stocks underperformed socially responsible investment, environmental social governance investment, and even religion-based investment. This is thought to be influenced by cultural factors and religious values adopted by the community. To provide a more comprehensive picture, the researcher also tests the efficiency of each index. The SRI-Kehati index shows the highest efficiency than the others.

The implications of this research are beneficial for academics and practitioners. For academics, this research contributes to filling the gap by providing insight that there are differences in stock performance in this different country category. Building on these core results, future research can explore the antecedents of unethical stock underperformance in developing countries. For practitioners, the results of this study can be a consideration in making investment decisions in the context of developing countries. In other words, we can say that investing in ethical stocks in Indonesia has two benefits, utilitarian and expressive benefits (Statman, 2004). Utilitarian benefit refers to return and expressive benefits refer to investor satisfaction due to their involvement in solving environmental, social, and governance issues. Also, investor satisfaction is due to the allocation of funds to stocks that are following religious values and teachings.

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