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Analysis of Capital Asset Pricing Models: Evidence from the Bank Sector on the Indonesia Stock Exchange (IDX)

Sermaye Varlıkları Fiyatlama Modellerinin Analizi: Endonezya Menkul Kıymetler Borsası (IDX) Bankacılık Sektöründen Kanıt

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ABSTRACT

In recent years, The development of the digital economy is increasingly advanced, creating new risks for banks because many banking branch offices have experienced a decline in their functionality which eventually had to be closed and had an impact on the rate of return that investors will receive. The objective of this research is to analyze the risk and return of the banking sector financial industry on the IDX, to find out efficient and inefficient stocks and to analyze stocks that can provide the greatest return on investment to investors. This type of research is quantitative research originating from secondary data, namely closing price data on stocks on the Indonesian Stock Exchange (IDX). The number of samples used was 43 banks which were taken using a non-probability sampling technique, especially purposive sampling which was listed on the Indonesia Stock Exchange for the period February 2019 to August 2022. The analytical tool used was the Capital Asset Pricing Model (CAPM). The results showed that of the 43 bank financial sector industries that were used as research samples, there were 18 stocks with a β_i value < 1 and 25 stocks with a β_i value > 1. Shares of the bank Woori Saudara Indonesia 1906 Tbk (SDRA) are stocks that have the smallest β_i value with The lowest $E(r_i)$ and shares of Bank Rakyat Indonesia Tbk (AGRO) are the shares that have the highest β_i value with the largest $E(r_i)$. Analysis of efficient and inefficient stocks shows that the number of efficient shares is 28 shares and the number of shares that are inefficient is as much as 15 shares. Of the 28 efficient stocks, Bank Jago Tbk (ARTO) shares are the ones that provide the most profit, namely 0.20280 or 20.28% when compared to other stocks.

Anahtar Kelimeler:

Risk,

Getiri,

Sermaye Varlıkları Fiyatlama Modeli

Jel Kodları:
G21, G24

ÖZET

Son yıllarda, Dijital ekonominin gelişimi giderek daha fazla ilerlemekte ve bankalar için yeni riskler yaratmaktadır. Bu nedenle birçok bankacılık şubesi nihayetinde kapanmak zorunda kalan işlevlerindeki bir azalış yaşadı ve ve yatırımcıların alacağı getiri oranını etkilenmiştir. Bu araştırmanın amacı, finans endüstride olan bankacılık sektörünün IDX üzerindeki risk ve getirisini analiz etmek, verimli ve verimsiz hisse senetlerini bulmak ve yatırımcılara en yüksek yatırım getirisini sağlayabilecek hisse senetlerini analiz etmektir. Bu araştırma türü, ikincil verilerden, yani Endonezya Menkul Kıymetler Borsası'ndaki (IDX) hisse senetlerine ilişkin kapanış fiyatı verilerinden kaynaklanan nicel araştırmadır. Özellikle amaçlı örneklem ile Şubat 2019 - Ağustos 2022 dönemi için Endonezya Borsasında işlem gören tesadüfi olmayan örneklem kullanarak 43 bankanın verileri kullanılmıştır. Kullanılan analitik araç, Sermaye Varlık Fiyatlandırma Modeli'dir (CAPM). Sonuçlar, araştırma örneklemi olarak kullanılan finans endüstride olan 43 banka β_i değeri < 1 olan 18 hisse senedi ve β_i değeri > 1 olan 25 hisse senedi olduğunu göstermiştir. Woori Saudara Indonesia 1906 Tbk (SDRA) bankasının hisseleri en düşük E(r_i) ile en küçük β_i değerine sahip hisse senetleridir ve Bank Rakyat Indonesia Tbk (AGRO) hisseleri en yüksek β_i değerine ve en büyük E(r_i) sahip hisselerdir. Etkin ve etkin olmayan hisse senetleri incelendiğinde, etkin hisse sayısının 28 adet, etkin olmayan hisse sayısının ise 15 adet hisse olduğu görülmektedir. 28 etkin hisse senedinden Bank Jago Tbk (ARTO) hissesi diğer hisse senetlerine göre en çok getiri sağlayan (%0,20280 veya %20,28) hissedir.

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1.INTRODUCTION

Investment is a business carried out by companies or individuals to gain profits and increase the wealth they have. One of the instruments used as a means of investment is stocks. If someone invests in a company or limited liability company (PT), then that person is referred to as an investor who has ownership shares of the company's assets. Stocks are usually traded on the capital market because the capital market is a place used to collect funds from the public to be channeled into productive sectors. which is long-term. In selecting investments, investors must be careful because every business contains risk, between risk and return has a linear (unidirectional) relationship, which means that the greater the expected return, the greater the risk (Sartono, 2005) or in other words, securities with a higher beta should have more expected return than security with a lower beta (Rui et al., 2018). The results of research conducted (Giva, 2015) on companies listed on the Nairobi Stock Exchange explain that there is a moderate correlation between risk and return.

In general, every individual is rational and does not like risk. This is reflected in the attitude that each individual will ask for an additional greater profit for each increase in the level of risk faced or in other words if individuals are faced with various choices, the individual prefers to obtain the same level of profit with less risk (Sartono, 2005). Therefore, both companies and individuals must find new ways of investing to minimize risk and maximize returns, especially investments in the financial sector (banking) which have a higher level of risk. Currently, the development of the digital economy is progressing which creates new risks for banks because many banking branch offices have experienced a decline in their functionality which eventually had to be closed because most customers switched to using online transactions. According to data from the Financial Services Authority (OJK, 2021), there has been a decrease in bank branch offices by 2,593 in the last 4-year period, namely from 2017-2021 and this has had an impact on banking stock prices.

The problems faced by banks today certainly have an impact on the rate of return that will be received by investors because risk and return are two inseparable things. One model that can assist investors in analyzing risk and return is the Capital Asset Pricing Model (CAPM). CAPM uses a theoretical basis that describes the relationship between systematic risk and returns in the market which can be used to measure the size of the return and risk on each stock (Nurhan et al., 2017; Markowski, 2020; Rammadhan, 2020; Tlemsani et al., 2020; Neill, 2021). This model defines risk performance and stock returns. To analyze the CAPM, there are several variables that must be known, namely individual stock returns (r_i), market returns (r_m), risk-free rates of return (r_f), systematic risk rates (β_i) and expected returns $E(r_i)$.

The research contribution is expected to be a reference for other researchers relevant to this research and provide information to investors in making investment decisions on stocks that provide maximum returns and minimum levels of risk. researchers are also motivated to research the capital asset pricing model because this model provides a solution to investors, especially in the banking industry which is currently experiencing many problems so that investors experience losses.

From the description of the background that has been stated previously, the problem in this study is how is the relationship between the risks and returns of the bank financial sector industry on the IDX, what stocks are efficient and inefficient and which stocks can provide the greatest level of profit to investors in investing? The objective of this research is to analyze the risk and return of the banking sector financial industry on the IDX, to find out efficient and inefficient stocks and to analyze stocks that can provide the greatest return on investment to investors.

2.LITERATURE REVIEW

2.1.Modern Portfolio Theory

Modern portfolio theory is a theory created by Harry Markowitz in the early fifties. The theory introduces the measurement of asset risk and develops methods for combining them into a risk-efficient portfolio, thereby creating an important basis for the further evolution of financial theory. The level of return and risk from investment activities are two basic things in an investment. Therefore, it is necessary to analyze the average calculation which describes the expected return of an asset while the standard deviation is a measure of the risk of each investment. To minimize risk, investors generally don't put their money in just one asset but combine many assets into one portfolio (Czekierda, 2007):

$$E(r_p) = \sum x_i E\,(r_i) \tag{1}$$

Where: $E(r_p)$ = Expected return on the portfolio. x_i = Weight of stock i in the portfolio, $E(r_i)$ = Expected return on asset i. Calculating the risk of each investor's portfolio is not easy because perfectly correlated portfolios are rare. According to Markowitz, if there is a merger of stocks into a portfolio, it will reduce portfolio risk so the term diversification is known as shown in the following figure (Brealey et al., 2009).

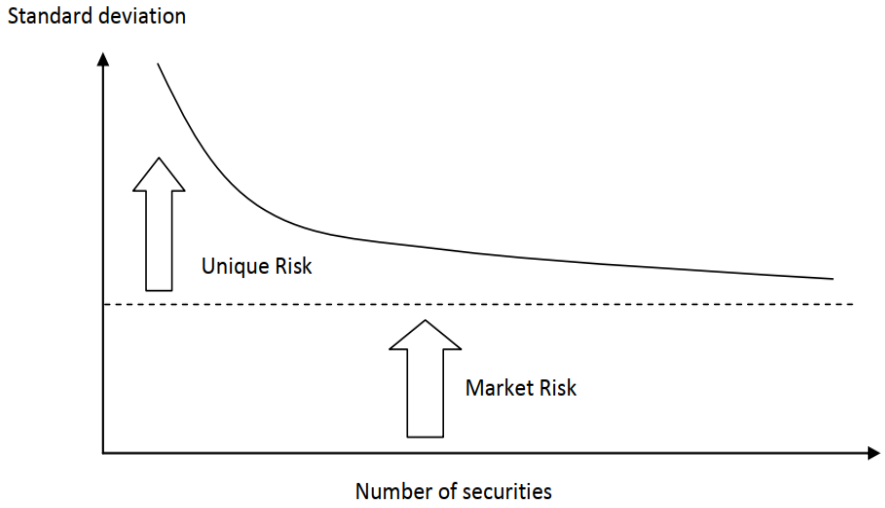

Figure 1. How Diversification Reduces Risk

The figure 1 shows that there are two risks that investors will face when making an investment, namely unique risk and market risk. Unique risk is a risk that can be diversified while the market risk is a risk that cannot be diversified. when an investor has an increasing number of shares in a portfolio, the unique risk will decrease. The following formula used is (Czekierda, 2007):

$$\sigma(p) = \sqrt{x_1^2\sigma_1^2 + x_2^2\sigma_2^2 + 2(x_1x_2\sigma_{12}} \quad (2)$$

Where: $\sigma(p)$ = Portfolio standard deviation, ${\sigma_1}^2$ = Variance of stock 1, ${\sigma_2}^2$ = Variance of stock 2, x_2 = Weight of stock 2 in the portfolio, x_1 = Weight of stock 1 in the portfolio, and σ_{12} = Covariance between stocks 1 and 2. If the number of shares in the portfolio increases, the variables and covariance in the formula equation will increase. To minimize risk and maximize expected return, equations 1 and 2 are used to calculate it and the results are as shown in the following figure (Czekierda, 2007):

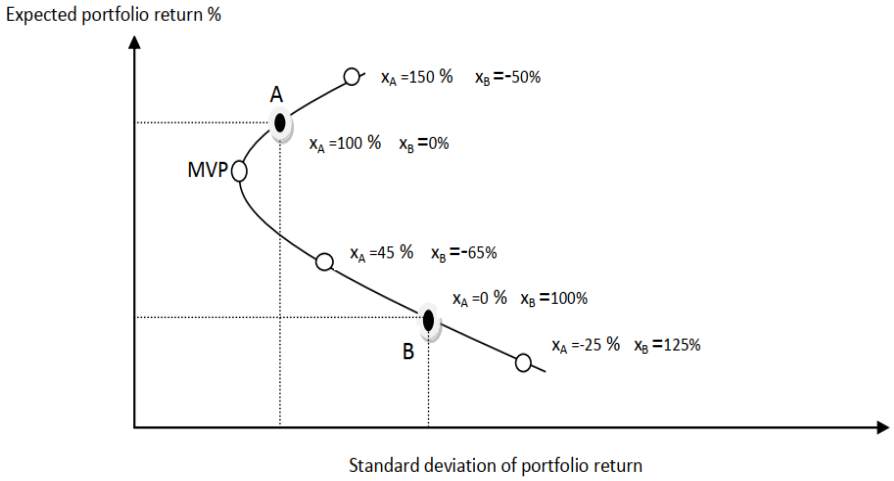

Figure 2. Combination Line for Securities A and B for the Case of Zero Correlation

The picture above explains that there are two points with different assets, namely points A and B. By using equations 1 and 2 then connecting the two points will produce a combination line. The shape of the combination line depends on the level of correlation between stocks. This bell-shaped curve is associated with the case when parts A and B have no correlation with each other. The following curve is a curve that describes if there are several stocks that are included in the portfolio (Czekierda, 2007):

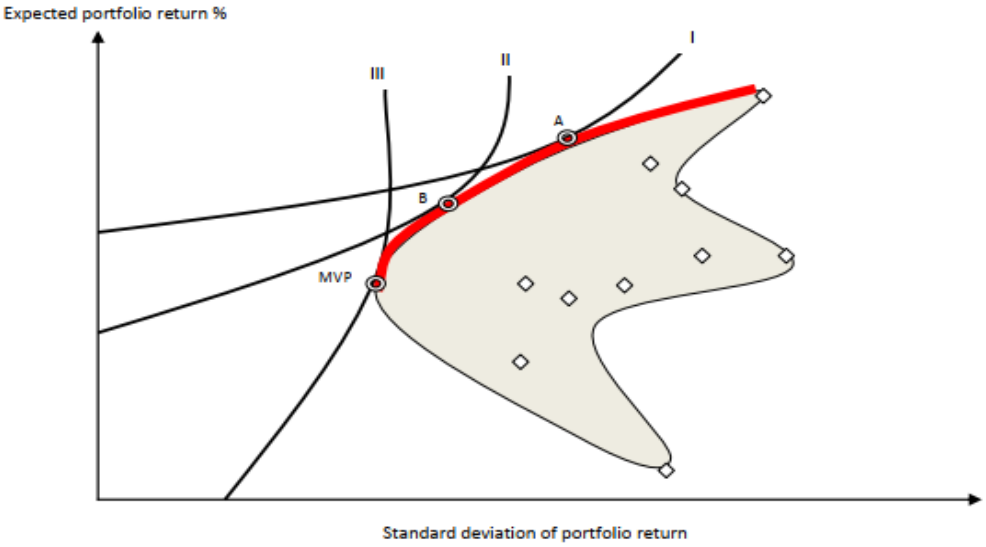

Figure 3. Optimal Choices of Investment Portfolio

The square dots in the shaded box are the stocks that provide the rate of return expected by each investor. When choosing a portfolio, investors want to achieve the highest possible expected return according to their risk preferences. However, no rational investor would invest in a portfolio below the minimum variance portfolio (MVP) because higher returns can be achieved with the same risk. The part of the feasible market set with a red curve is called the efficient frontier because it contains the portfolios defined by Markowitz as efficient portfolios. The main feature of these portfolios is that they offer the best possible expected return with a certain amount of risk. Now it is possible for us to see which portfolios will be chosen. According to common practice in microeconomics, the investors' preferences will be marked with utility functions represented by indifference curves I-III. An investor with indifference curve III is definitely a risk-loving one since he chooses portfolio A with high return and high risk. An investor with indifference curve II can tolerate some risk and thus chooses portfolio B while an investor with utility function I is most the risk-averse of them all and chooses minimum variance portfolio

2.2.Risk

Risk is the degree of uncertainty that exists in future events. Every investor does not like risk so they will try their best to avoid it, but investors always expect maximum profit. Usually, investors will secure investments that carry a low amount of risk because they have the opportunity to generate returns. Risk and investment are two things that cannot be separated, meaning that investors who decide to invest their funds in a number of assets or securities must be prepared to accept risk. The size of the risk to be borne by investors depends on the capital invested. The greater the investment capital, the greater the risk that will be borne by investors. Therefore, to minimize this risk, investors must know the performance of each share that will be occupied to make an investment. The stock performance of each industry or company can be seen from the annual report and the value of the company's shares.

The modern portfolio theory put forward by Markowitz explains that risk and return have a unidirectional relationship so that the greater the risk borne by investors, the greater the rate of return obtained (Alwi et al., 2022; Rasyad & Matoati, 2022; Suryanarayana, 2021; Giva, 2015; Akpo & Esuike, 2015). However, Markowitz further revealed that if the risk is considered a problem for investors who do not like risk, then risk can be minimized by investing in an optimal stock portfolio or diversification, even though not all risks can be eliminated by diversification. Diversified risk is divided into 2, namely systematic risk and unsystematic risk. Systematic risk is a risk that is always there and cannot be reduced by diversification, while unsystematic risk is a risk that can be reduced or eliminated by diversification, so it is also called market risk (r_m) (Husnan & Creativity, 2015). The main measure of investment industry risk is the standard deviation which tells how much an investment will fluctuate from its average return (Pacho, 2014). The equation used to calculate stock risk (β_i) is:

$$\beta_i = \frac{(Cov(r_i, r_m))}{Var(r_m)} \quad (3)$$

or

$$\beta_i = \frac{\sigma_i M}{\sigma^2 M} \quad (4)$$

Where: β_i = Systematic risk level of each stock, $\sigma_i M$ = Covariance between stock income and market income, $\sigma^2 M$ = Market Variance. The following is a risk assessment classification that refers to the β value of each stock.

Table 1. Classification of Beta Assessment

Measurement	Classification	Interpretation
$\boldsymbol{\beta = 1}$	Neutral shares	A 1% change in the Pm index causes a 1% change in $E(r_i)$.
$\boldsymbol{\beta < 1}$	Defensive shares	A change in the Pm index of 1% causes a change in $E(r_i)$ of less than 1%.
$\boldsymbol{\beta > 1}$	Aggressive shares	A change in the Pm index of 1% causes a change in $E(r_i)$ of greater than 1%.

Sources: Fabinu et al., (2017).

2.3.Returns

Return is a number of income or profits obtained by investors during a certain period from a number of investments that have been made. Each period the company will prepare financial reports as an accountability to various parties, both internal and external parties where the investor is one of the external parties who has the right to the financial reporting. The size of the return given to investors is usually influenced by the level of profit obtained by the company, which means that the greater the level of company profit, the greater the return distributed to investors (Nadyayani & Suarjaya, 2021). The rate of return obtained by investors will affect the company's stock price so that the share value is higher because more and more investors are interested in investing in the company (Hongkong, 2017; Ibrahim et al., 2022). The process of calculating the rate of return is (Nurhan et al., 2017):

Calculating Actual Return (r_i):

$$r_i = \frac{(P_t - P_{t-i})}{P_{t-1}} \quad (5)$$

Where: r_i = Stock return rate, P_t = Stock price period t (now), P_{t-i} = Stock Price Period t-1 (previous).

Calculating Risk-Free Return (r_f):

$$r_f = \frac{X_{SBI}}{N} \quad (6)$$

Where: r_f = Risk-Free Profit Rate, x = Average Risk-Free rate of return, N = Time (Month) in one year.

Calculating Return Market (r_m)

$$r_M = \frac{IHSG_t - IHSG_{t-1}}{IHSG_{t-1}} \quad (7)$$

Where: r_M = Market Profit Rate, $IHSG_t$ = Composite stock price index for the current period, $IHSG_{t-1}$ = Composite stock price index for the previous period.

2.4. Capital Asset Pricing Model

The Capital Asset Pricing Model (CAPM) is used to determine the level of risk and expected return on a number of investments. The Capital Asset Pricing Model (CAPM) was first put forward by Markowitz (1952) and developed by Sharpe, Lintner, and Mossin in the 1960s. This model also acts as a key element of how the market can assess the return of each security along with different levels of risk (Rui et al., 2018). Several research results also show that CAPM analysis is a very useful item in investment management tools and investors trust it to evaluate project profitability (Pacho, 2014; Chiang & Zhang, 2018; Widianingsih, 2019; Wahyuny & Gunarsih, 2020; Pramono et al., 2022). Every investor is expected to be able to estimate the return of each investment made

in order to minimize risk. However, the results of research in England which tested the validity of the CAPM in analyzing the feasibility of investing in the London Stock Exchange for the 2012-2020 period found that the CAPM could not be used as an analytical tool in investing in stocks (Pham, 2021).

CAPM analysis consists of several variables that are related to one another. So, to find out the comparison between actual return and expected return, it must be based on the calculation results of the systematic value or beta (β), market return (r_m), and risk-free assets (r_f). Beta is a determining factor in the CAPM concept because the risk level of a security is measured by the beta coefficient β, and the relationship between risk and return on individual security is described in the security market line (SML) as shown in the following figure: security market line (Sartono, 2005):

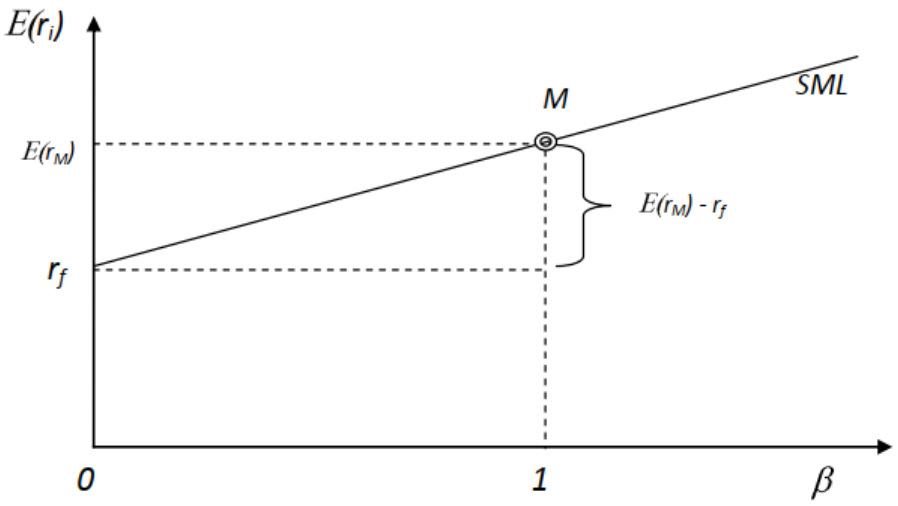

Figure 4. Securities Market Line (SML)

The figure 4 shows the relationship between the expected rate of return $E(r_i)$ and the level of systematic risk measured by Beta (β_i). β_i = 1 indicates that the expected rate of return is the same as the market rate of return $E(r_m) = E(r_i)$. If the beta in security is greater, the level of expected return will also be greater. Therefore, the SML equation can be written as follows:

$$E(r_i) = r_f + \beta_i[E(r_M) - r_f] \quad (8)$$

Where: $E(r_i)$ = Expected rate of return, r_f = Risk-free of return, β_i = Beta coefficient of an asset or a portfolio, and $E(r_M)$ = Expected return on the market portfolio.

3.METHODOLOGY

3.1. Data Types and Sources

This type of research used is quantitative research. This study uses secondary data sources derived from the closing prices of industrial financial sector banks on the IDX for the period February 2019 to August 2022 which are listed on the Indonesia Stock Exchange.

3.2.Population and Sample

The total population of the study was 47 industrial financial sector banks listed on the Indonesian stock exchange and a total sample of 43 industries was taken using non-probability sampling techniques, especially purposive sampling with the criteria of banks consistently trading shares and being listed on the Indonesia Stock Exchange for the period of February 2019 to August 2022.

Stock data from the banking sector financial industry is then inputted and processed using Microsoft Excel to calculate stock returns and systematic risk levels as benchmarks for the feasibility of investments to be made. If the actual return is greater than the expected return (Ri > E(Ri)) then the stock is efficient or in other words, the investor is eligible to invest, but if the actual return is smaller than the expected return (Ri < E(Ri)) then the stock it is not efficient or investors are not eligible to invest (Hasan et al., 2019).

3.3.Data analysis

The analysis technique used in this research is descriptive analysis with the Capital Asset Pricing Model (CAPM) model which links the level of risk and return so that investors know the right investment choices in the banking sector. The equation used in the CAPM analysis is:
Calculating Expected Return $E(r_i)$:

$$E(r_i) = r_f + \beta_i[E(r_M) - r_f] \quad (9)$$

4.RESULTS AND DISCUSSION

4.1.Research Results

The data for this study uses data on the closing price of shares in the financial sector industry for the period February 2019 to August 2022 on the Indonesia Stock Exchange, totaling 43 companies. The analytical tool used is the Capital Asset Pricing Model (CAPM) by carrying out several calculation stages to calculate the expected rate of return $[E(r_i)]$. The results of data analysis using the CAPM model for each variable in calculating the expected rate of return $[E(r_i)]$are presented in full in the following table 2:

Table 2. CAPM Calculation Results

No	Stock Code	r_i	r_m	r_f	β_i	$E(r_i)$
1	AGRO	0.0622	0.0036	0.0035	3.9988	0.0038
2	AGRS	-0.0045	0.0036	0.0035	0.7040	0.0036
3	ARTO	0.2065	0.0036	0.0035	2.6121	0.0037
4	BABP	0.0423	0.0036	0.0035	0.1381	0.0036
5	BACA	0.0003	0.0036	0.0035	0.1791	0.0036
6	BBCA	-0.0092	0.0036	0.0035	0.4493	0.0036
7	BBHI	0.1244	0.0036	0.0035	3.5942	0.0037
8	BBKP	0.0060	0.0036	0.0035	3.1174	0.0037
9	BBMD	0.0144	0.0036	0.0035	1.0703	0.0036
10	BBNI	0.0076	0.0036	0.0035	2.1720	0.0037
11	BBRI	0.0066	0.0036	0.0035	1.4374	0.0036
12	BBTN	0.0033	0.0036	0.0035	2.5614	0.0037
13	BBYB	0.0802	0.0036	0.0035	1.8287	0.0036
14	BCIC	-0.0089	0.0036	0.0035	-0.1465	0.0035
15	BDMN	-0.0176	0.0036	0.0035	2.1744	0.0037
16	BEKS	0.0109	0.0036	0.0035	0.9132	0.0036
17	BGTG	0.0448	0.0036	0.0035	2.2989	0.0037
18	BINA	0.0766	0.0036	0.0035	0.2039	0.0036
19	BJBR	-0.0031	0.0036	0.0035	1.2869	0.0036
20	BJTM	0.0047	0.0036	0.0035	1.5185	0.0036
21	BKSW	0.0125	0.0036	0.0035	0.5464	0.0036
22	BMAS	0.0546	0.0036	0.0035	1.4849	0.0036
23	BMRI	0.0096	0.0036	0.0035	1.4740	0.0036
24	BNBA	0.1050	0.0036	0.0035	2.4758	0.0037
25	BNGA	0.0028	0.0036	0.0035	1.5482	0.0036
26	BNII	0.0046	0.0036	0.0035	1.7160	0.0036
27	BNLI	0.0144	0.0036	0.0035	1.6234	0.0036
28	BRIS	0.0501	0.0036	0.0035	2.7497	0.0037
29	BSIM	0.0122	0.0036	0.0035	0.7089	0.0036
30	BSWD	-0.0051	0.0036	0.0035	-0.0733	0.0035
31	BTPN	0.0019	0.0036	0.0035	0.5142	0.0036

32	BTPS	0.0124	0.0036	0.0035	0.7740	0.0036
33	BVIC	0.0564	0.0036	0.0035	0.3389	0.0036
34	DNAR	0.0023	0.0036	0.0035	0.2090	0.0036
35	INPC	0.0320	0.0036	0.0035	1.9306	0.0036
36	MAYA	-0.0392	0.0036	0.0035	1.3275	0.0036
37	MCOR	-0.0068	0.0036	0.0035	1.4815	0.0036
38	MEGA	0.0088	0.0036	0.0035	0.2133	0.0036
39	NISP	-0.0053	0.0036	0.0035	0.2974	0.0036
40	NOBU	0.0009	0.0036	0.0035	0.2906	0.0036
41	PNBN	0.0135	0.0036	0.0035	1.6528	0.0036
42	PNBS	0.0168	0.0036	0.0035	1.0332	0.0036
43	SDRA	0.1667	0.0036	0.0035	-2.4484	0.0034

The results of calculating the actual return (r_i) of 43 industrial financial sector banks on the Indonesia Stock Exchange show that Bank Jago Tbk (ARTO) obtained the highest actual return value of 0.2065 or 20.65%. The lowest actual return is at Bank Mayapada International Tbk (MAYA) which is -0.0392 or 3.92% with an overall average value of 0.272 or 27.2%

The results of the calculations show that the market return rate (r_m) of the composite stock price index (IHSG) whose data was obtained from February 2019 to August 2022 shows that the market rate of return on industry financial sector bank stocks is on average 0.0036 or 0.36%, so Rm is considered not liquid because it is smaller than 1 (Jamil, 2018). For the risk-free return (r_f) of Indonesia's interest rate, it shows an average value of 0.0035 or 0.35%.

The average value of stock systematic risk (β_i) is 1.2554 greater than 1 (1.2554 > 1). This shows that overall 43 stocks from the banking sector financial industry are active in responding to any changes in market prices. Shares of bank Woori Saudara Indonesia 1906 Tbk (SDRA) have the smallest βi value of -2.4484 and shares of Bank Rakyat Indonesia Tbk (AGRO) have the highest (β_i) value. The expected rate of return [$E(r_i)$] indicates that the lowest expected rate of return [$E(r_i)$]in the banking financial sector industry occurs at the Woori Saudara Indonesia Tbk (SDRA) bank, which is equal to 0.0034 while the highest rate of return [$E(r_i)$] occurs) at Bank Rakyat Indonesia Tbk (AGRO) which is equal to 0.0038.

4.2. Security Market Line (SML)

The security market line (SML) image is used to relate the systematic risk value (β_i) to the expected rate of return [$E(r_i)$]. The SML line will connect the points of βi values and [$E(r_i)$]values starting from the smallest Beta (β_i) value. Complete (β_i) and [$E(r_i)$]data are presented in the following table:

Table 3. Systematic Risk (βi) and Expected Return E(Ri)

No	Stock Code	Company Name	(β_i)	$E(r_i)$
1	SDRA	Bank Woori Saudara Indonesia 1906 Tbk	-2.4484	0.00342
2	BCIC	Bank Jtrust Indonesia Tbk	-0.1465	0.00354
3	BSWD	Bank Of India Indonesia Tbk	-0.0733	0.00354
4	NOBU	Bank Nasionalnobu Tbk	0.2906	0.00356
5	NISP	Bank OCBC NISP Tbk	0.2974	0.00356
6	BABP	Bank MNC International Tbk	0.1381	0.00356
7	BACA	Bank Capital Indonesian Tbk	0.1791	0.00363
8	BINA	Bank Ina Perdana Tbk	0.2039	0.00362
9	DNAR	Bank Oke Indonesia Tbk	0.2090	0.00365
10	MEGA	Bank Mega Tbk	0.2133	0.00356
11	BVIC	Bank Victoria Indonesia Tbk	0.3389	0.00356
12	BBCA	Bank Central Asia Tbk	0.4493	0.00359
13	BTPN	Bank BTPN Tbk	0.5142	0.00357

14	BKSW	Bank QNB Indonesia Tbk	0.5464	0.00358
15	AGRS	Bank IBK Indonesia Tbk	0.7040	0.00358
16	BSIM	Bank Sinarmas Tbk	0.7089	0.00358
17	BTPS	Bank BTPN Syariah Tbk (S)	0.7740	0.00363
18	BEKS	Bank Pembangunan Daerah Banten Tbk	0.9132	0.00364
19	PNBS	Bank Panin Dubai Syariah Tbk (S)	1.0332	0.00363
20	BBMD	Bank Mestika Darma Tbk	1.0703	0.00360
21	BJBR	Bank Pembangunan Jawa barat & banten Tbk	1.2869	0.00363
22	MAYA	Bank Mayapada Internasional Tbk	1.3275	0.00363
23	BBRI	Bank Rakyat Indonesia (Persero) Tbk	1.4374	0.00358
24	BMRI	Bank Mandiri (Persero) Tbk	1.4740	0.00363
25	MCOR	Bank China Konstruktion Bank Indonesia Tbk	1.4815	0.00362
26	BMAS	Bank Maspion Indonesia Tbk	1.4849	0.00356
27	BJTM	Bank Pembangunan Jawa Timur Tbk	1.5185	0.00363
28	BNGA	Bank CIMB Niaga Tbk	1.5482	0.00360
29	BNLI	Bank Permata Tbk	1.6234	0.00363
30	PNBN	Bank Pan Indonesia Tbk	1.6528	0.00363
31	BNII	Bank Maybank Indonesia Tbk	1.7160	0.00364
32	BBYB	Bank Neo Commerce Tbk	1.8287	0.00364
33	INPC	Bank Arta Graha Internasional Tbk	1.9306	0.00362
34	BDMN	Bank Danamon Indonesia Tbk	2.1744	0.00366
35	BBNI	Bank Negara Indonesia (Persero) Tbk	2.1720	0.00366
36	BGTG	Bank Ganesha Tbk	2.2989	0.00371
37	BNBA	Bank Bumi Arta Tbk	2.4758	0.00374
38	BBTN	Bank Tabungan Negara (Persero) Tbk	2.5614	0.00368
39	ARTO	Bank Jago Tbk	2.6121	0.00369
40	BRIS	Bank Syariah Indonesia Tbk (S)	2.7497	0.00371
41	BBKP	Bank KB Bukopin Tbk	3.1174	0.00369
42	BBHI	Allo Bank Indonesia Tbk	3.5942	0.00374
43	AGRO	Bank raya Indonesia Tbk	3.9988	0.0038

The values of (β_i) and $[E(r_i)]$ in table 8 are then made into SML images to see the relationship between the two. The following is an image of the research SML:

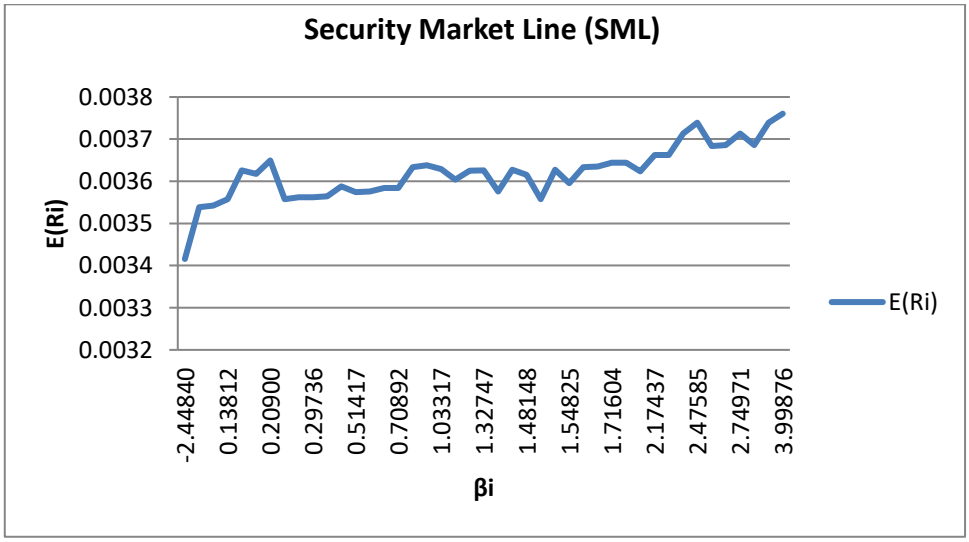

Figure 5. Security Market Line (SML)

The image of the Security Market line (SML) in the financial industry in the banking sector for the period February 2019 to August 2022 shows that (β_i) has a negative correlation with $[E(r_i)]$, so this research contradicts several previous studies which argue that (β_i) has a positive correlation with $[E(r_i)]$. The calculation results also show that of the 43 stocks used as research samples, there are 18 stocks with a (β_i) value < 1 and 25 stocks with a (β_i) value > 1.

4.3. Grouping of Shares and Stock Investment Decisions

Stock investment is carried out in order to obtain maximum profit, therefore investors must know which stocks are efficient and which stocks are not efficient. Efficient stocks are stocks that provide an actual rate of return greater than the expected rate of return ($r_i > E(r_i)$ (Hasan et al., 2019; Maharani et al., 2021). The following is a grouping of 43 efficient stocks and inefficient stocks in the banking sector financial industry for the period February 2019 to August 2022 so that investors can make the right decisions in investing.

Table 4. Efficient Stock and Inefficient Stock

No	Stock Code	r_i	$E(r_i)$	Stock Evaluation	Decision
1	AGRO	0.0622	0.0038	Efficient	Buy
2	AGRS	-0.0045	0.0036	Inefficient	Sell
3	ARTO	0.2065	0.0037	Efficient	Buy
4	BABP	0.0423	0.0036	Efficient	Buy
5	BACA	0.0003	0.0036	Inefficient	Sell
6	BBCA	-0.0092	0.0036	Inefficient	Sell
7	BBHI	0.1244	0.0037	Efficient	Buy
8	BBKP	0.0060	0.0037	Efficient	Buy
9	BBMD	0.0144	0.0036	Efficient	Buy
10	BBNI	0.0076	0.0037	Efficient	Buy
11	BBRI	0.0066	0.0036	Efficient	Buy
12	BBTN	0.0033	0.0037	Inefficient	Sell
13	BBYB	0.0802	0.0036	Efficient	Buy
14	BCIC	-0.0089	0.0035	Inefficient	sell
15	BDMN	-0.0176	0.0037	Inefficient	Sell
16	BEKS	0.0109	0.0036	Efficient	Buy
17	BGTG	0.0448	0.0037	Efficient	Buy
18	BINA	0.0766	0.0036	Efficient	Buy
19	BJBR	-0.0031	0.0036	Inefficient	Sell
20	BJTM	0.0047	0.0036	Efficient	Buy
21	BKSW	0.0125	0.0036	Efficient	Buy
22	BMAS	0.0546	0.0036	Efficient	Buy
23	BMRI	0.0096	0.0036	Efficient	Buy
24	BNBA	0.1050	0.0037	Efficient	Buy
25	BNGA	0.0028	0.0036	Inefficient	Sell
26	BNII	0.0046	0.0036	Efficient	Buy
27	BNLI	0.0144	0.0036	Efficient	Buy
28	BRIS	0.0501	0.0037	Efficient	Buy
29	BSIM	0.0122	0.0036	Efficient	Buy
30	BSWD	-0.0051	0.0035	Inefficient	Sell
31	BTPN	0.0019	0.0036	Inefficient	Buy
32	BTPS	0.0124	0.0036	Efficient	Buy
33	BVIC	0.0564	0.0036	Efficient	Buy
34	DNAR	0.0023	0.0036	Inefficient	Sell
35	INPC	0.0320	0.0036	Efficient	Buy
36	MAYA	-0.0392	0.0036	Inefficient	Sell

37	MCOR	-0.0068	0.0036	Inefficient	Sell
38	MEGA	0.0088	0.0036	Efficient	Buy
39	NISP	-0.0053	0.0036	Inefficient	Sell
40	NOBU	0.0009	0.0036	Inefficient	Sell
41	PNBN	0.0135	0.0036	Efficient	Buy
42	PNBS	0.0168	0.0036	Efficient	Buy
43	SDRA	0.1667	0.0034	Efficient	Buy

The following is a picture of efficient shares and inefficient shares:

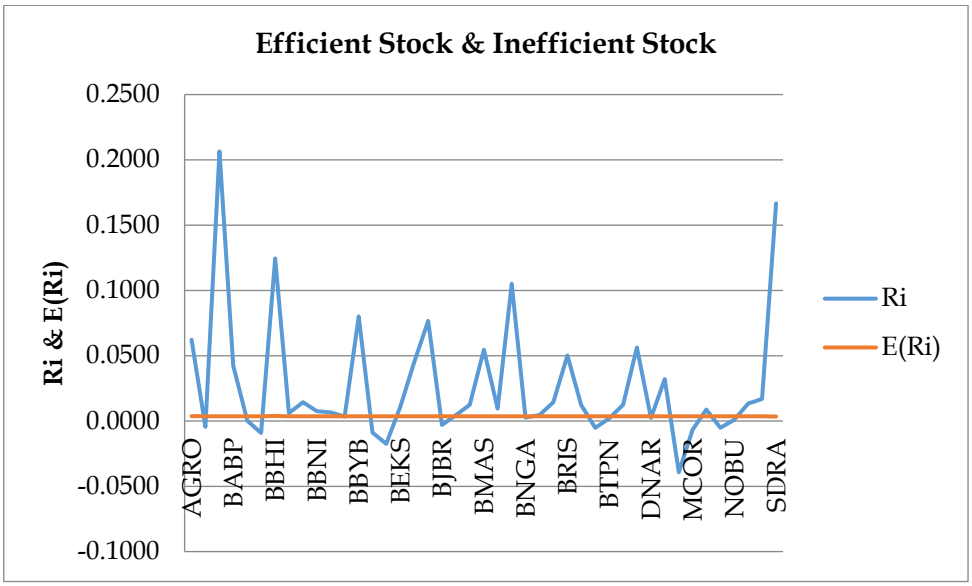

Figure 6. Efficient Stocks and Inefficient Stocks

Figure 6 shows efficient shares and inefficient shares. The blue line is the actual return (r_i) line and the red line is the expected return ($E(r_i)$) line. Stocks are efficient if the actual return value is greater than the expected return value [$r_i > E(r_i)$] so that it can be seen that the number of efficient shares is 28 shares and the number of inefficient shares is 15 shares.

4.4.Discussion

The results of data analysis using the capital asset pricing model (CAPM) show that the Actual return (r_i) value of the 43 banking sector financial industries, there are 34 industries that have a positive (r_i) value ($r_i > 0$) while the other 9 companies have a negative (r_i) value ($r_i < 0$). Actual return (r_i) with a positive value indicates that the investment in these stocks is able to provide actual profits, while (r_i), which has a negative value, indicates that these stocks cannot provide actual returns to investors in the time period studied. The shares with the highest (r_i) value were Bank Woori Saudara Indonesia 1906 Tbk (SDRA) shares, namely 0.1667 or 16.67%, while the lowest (r_i) values were obtained in Bank Mayapada International Tbk (MAYA) shares, namely -0.0392 or -3.92%. In calculating the market rate of return (r_m) for the period February 2019 - August 2022 it experienced fluctuations due to stock prices that were also uncertain and sometimes even decreased, but overall the market rate of return (r_m) had a positive annual average of 0.0036 or 0.36% which means that the JCI on the IDX is able to provide benefits to investors. While the value of the risk-free rate of return (r_f) during the study period decreased, this was because the value of the BI rate which was used as the basis for calculations continued to decrease, namely the (r_f) from February 2019 of 0.06 or 6%, down to 0.035 or 3.5% in the month of July 2022. This can reduce investor confidence in banks so that investors will withdraw their investments or deposits and transfer them to other stocks that are more profitable.

In calculating the level of systematic risk (β_i), it shows that of the 43 bank financial sector industries that were used as research samples, there were 18 shares with a (β_i) value < 1 and 25 shares with a (β_i) value > 1. The shares of the bank Woori Saudara Indonesia 1906 Tbk (SDRA) are the stock that has the lowest (β_i) value is -2.4484 which means that SDRA shares are not sensitive and do not follow the movement of market returns while the shares of Bank Rakyat Indonesia Tbk (AGRO) are stocks that have the highest (β_i)value of 3.9988 which

means that AGRO shares are active stocks and sensitive to movements in the market. The final stage in the CAPM analysis is to calculate the expected rate of return ($E(r_i)$), which is calculated from the sum of the risk-free rate of return (r_f) with the systematic risk level for each share (βi) which has previously been multiplied by the difference between the market rate of return (r_m) with a risk-free rate of return (r_f). The highest expected rate of return ($E(r_i)$) is in shares of Bank Raya Indonesia Tbk (AGRO) which is 0.0038 or 0.38% while the lowest ($E(r_i)$) is in shares of Bank Woori Saudara Indonesia 1906 Tbk (SDRA) which is equal to 0.0034 or 0.34% These results explain that the bank financial sector industry stocks that have the largest βi values get the highest $E(r_i)$ and stocks that have the smallest βi values get the lowest $E(r_i)$ values.

Based on the results of the CAPM analysis, it is known that of the 43 shares in the banking sector financial industry, there are 28 efficient shares and 15 inefficient shares. Investors should be able to choose stocks that provide the maximum level of profit among the 28 efficient stocks in making investments. Stocks with the greatest profit are obtained from the difference between the actual return (r_i) value and the expected return [$E(r_i)$] value, the results of which can be seen in the following table:

Table 5. Efficient Stock Rating

No	Stock Code	Company Name	r_i	$E(r_i)$	r_i - $E(r_i)$
1	ARTO	Bank Jago Tbk	0.2065	0.0037	0.20280
2	SDRA	Bank Woori Saudara Indonesia 1906 Tbk	0.1667	0.0034	0.16327
3	BBHI	Allo Bank Indonesia Tbk	0.1244	0.0037	0.12062
4	BNBA	Bank Bumi Arta Tbk	0.1050	0.0037	0.10136
5	BBYB	Bank Neo Commerce Tbk	0.0802	0.0036	0.07652
6	BINA	Bank Ina Perdana Tbk	0.0766	0.0036	0.07305
7	AGRO	Bank raya Indonesia Tbk	0.0622	0.0038	0.05841
8	BVIC	Bank Victoria Indonesia Tbk	0.0564	0.0036	0.05281
9	BMAS	Bank Maspion Indonesia Tbk	0.0546	0.0036	0.05101
10	BRIS	Bank Syariah Indonesia Tbk (S)	0.0501	0.0037	0.04641
11	BGTG	Bank Ganesha Tbk	0.0448	0.0037	0.04111
12	BABP	Bank MNC International Tbk	0.0423	0.0036	0.03872
13	INPC	Bank Arta Graha Internasional Tbk	0.0320	0.0036	0.02836
14	PNBS	Bank Panin Dubai Syariah Tbk (S)	0.0168	0.0036	0.01315
15	BNLI	Bank Permata Tbk	0.0144	0.0036	0.01077
16	BBMD	Bank Mestika Darma Tbk	0.0144	0.0036	0.01076
17	PNBN	Bank Pan Indonesia Tbk	0.0135	0.0036	0.00983
18	BKSW	Bank QNB Indonesia Tbk	0.0125	0.0036	0.00890
19	BTPS	Bank BTPN Syariah Tbk (S)	0.0124	0.0036	0.00882
20	BSIM	Bank Sinarmas Tbk	0.0122	0.0036	0.00857
21	BEKS	Bank Pembangunan Daerah Banten Tbk	0.0109	0.0036	0.00733
22	BMRI	Bank Mandiri (Persero) Tbk	0.0096	0.0036	0.00599
23	MEGA	Bank Mega Tbk	0.0088	0.0036	0.00527
24	BBNI	Bank Negara Indonesia (Persero) Tbk	0.0076	0.0037	0.00392
25	BBRI	Bank Rakyat Indonesia (Persero) Tbk	0.0066	0.0036	0.00298
26	BBKP	Bank KB Bukopin Tbk	0.0060	0.0037	0.00225
27	BJTM	Bank Pembangunan Jawa Timur Tbk	0.0047	0.0036	0.00102
28	BNII	Bank Maybank Indonesia Tbk	0.0046	0.0036	0.00100

After classifying efficient stocks that have a value of $r_i > E(r_i)$ (abnormal return), it can be seen that Jago Tbk (ARTO) shares are the most efficient stocks because they can provide the greatest difference between r_i and $E(r_i)$ which is 0.2161 or 21.6% which means that ARTO shares can provide a profit of 20.28% greater than the expected return of investors and shares of Bank Maybank Indonesia Tbk (BNII) are stocks that provide the smallest difference between r_i and $E(r_i)$, namely 0.00100 or 0.1% which means that BNII shares are only able to provide a profit of 0.1%. The results of this study can provide information to investors who wish to invest in industrial

bank financial sector stocks on the Indonesian Stock Exchange that there are 28 efficient stocks and of the 28 efficient stocks, ARTO shares are stocks that provide the greatest profit when compared to other stocks.

The results of this study are in line with the theory put forward by Markowich and the results of research conducted by (Giva, 2015) at the Nairobi Securities Exchange (NSE), explaining that there is a significant relationship between risk and return. Because that βi has a unidirectional (linear) relationship with $[E(r_i)]$, which means that the greater the βi, the greater the $[E(r_i)]$ and Meanwhile, several other studies have found the opposite, such as research conducted by Alwi et al., 2022, explaining that of the 24 stocks studied, there were 23 stocks that provided actual returns that were smaller than expected returns, so the returns obtained by PT Jiwasraya were not as expected. Hasan et al. (2019) found that there is a non-linear relationship between systematic risk and expected stock returns. The research results of Z. (Hasan et al., 2012) who explained that the Capital Asset Pricing Model (CAPM), is a valid indicator of systematic risk, but the CAPM analysis in their research was inconsistent and could not find complete support from the CAPM model. (Husein & Hasanah, 2017), and Rui et al., (2018) cannot prove Markowitz's portfolio theory. This is explained by the number of beta market (β_m) beta value below 1 indicating that fluctuations in stock returns do not follow the movement of market fluctuations.

5.CONCLUSION

The results of the analysis using the capital asset pricing model (CAPM) in the banking sector financial industry for the period February 2019 – August 2022 or for 45 months, it can be concluded that the stocks that obtained the highest actual return (r_i) values were Bank Woori Saudara Indonesia 1906 Tbk (SDRA) shares. namely 0.1667 or 16.7% while the lowest actual return (r_i) value was obtained on Bank Mayapada International Tbk (MAYA) shares which amounted to -0.0392 or -3.92%. In calculating the level of systematic risk (β_i), it shows that of the 43 bank financial sector industries that were used as research samples, there were 18 shares with a (β_i) value < 1 and 25 shares with a (β_i) value > 1. The shares of the bank Woori Saudara Indonesia 1906 Tbk (SDRA) are stocks that have the lowest (β_i) value of -2.4484 and an Expected return $E(r_i)$ value of 0.0034 or 3.4%, while Bank Rakyat Indonesia Tbk (AGRO) shares are stocks that have the highest βi value of 3.9988 with a return rate of 0.0038 or 3.8% which means meaning that stocks that have the smallest systematic risk provide the lowest rate of return and conversely stocks that have the largest systematic risk provide the highest returns so that the relationship between systematic risk (β_i) and Expected return $E(r_i)$ is linear. Analysis of efficient and inefficient stocks shows that the efficient number of shares is 28 shares, and the number of inefficient shares is 15 shares. Of the 28 efficient stocks, ARTO shares are the ones that provide the most profit, namely 0.20280 or 20.28% when compared to other stocks.

The researcher recommends that investors pay attention to efficient stocks for investing because efficient stocks will provide a greater rate of return compared to inefficient stocks such as ARTO shares. The limitation of this research is that this study only uses the financial sector in the banking industry, totaling 43 shares for the period February 2019 - August 2022. the banking industry as a sample but can take other sectors on the Indonesian Stock Exchange (IDX). The research obstacle is data that is spread in various places so it takes a long time to collect and process research data. This paper suggests a different assets pricing model and takes into consideration of some related variables in predicting future stock returns. This research provides important implications to investors, analysts, stock brokers, speculators, fund managers, practitioners, relevant authorities, and the government.

AUTHORS' DECLARATION

This paper complies with Research and Publication Ethics, has no conflict of interest to declare, and has received no financial support.

AUTHORS' CONTRIBUTIONS

All sections are written by the author.

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The Effect of Social Capital on Client's Relationship Satisfaction

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ABSTRACT

The purpose of the current study is to measure the effect of social capital on client's relationship satisfaction. In addition, it aims to determine the effect of cognitive, relational and structural social capital on client's relationship satisfaction. To this end, a survey was conducted on 364 clients in Düzce. In the SPSS analysis program, "Independent Sample t-Test", "One Way Analysis of Variance (ANOVA)", "Pearson Correlation Analysis" and "Regression Analysis" methods were used. As a result of the analysis, a positive correlation was determined between cognitive, relational and structural social capital levels, intention to become a client again and relationship satisfaction. In addition, it was determined that the social capital levels and relationship satisfaction levels of the participants varied depending on their demographic and professional characteristics.

Anahtar Kelimeler:
Sosyal Sermaye,
İlişki Memnuniyeti,
Serbest Muhasebeci Mali Müşavir
Jel Kodları:
M40, M41

ÖZET

Bu araştırmanın amacı; sosyal sermayenin müşterilerin ilişki memnuniyetine olan etkisini ölçmektir. Ayrıca bilişsel, ilişkisel ve yapısal sosyal sermayenin müşterilerin ilişki memnuniyetine etkisini belirlemektir. Bu amaçlarla Düzce ilinde 364 mükellef üzerinde anket gerçekleştirilmiştir. SPSS analiz programı ile "Bağımsız Örneklem t-Testi", "Tek Yönlü Varyans Analizi (ANOVA)", "Pearson Korelasyon Analizi" ve "Regresyon Analizi yöntemlerinden yararlanılmıştır. Yapılan analizler sonucunda bilişsel, ilişkisel ve yapısal sosyal sermaye düzeyleri ile, yeniden müşteri olma niyeti ve ilişki memnuniyetleri arasında pozitif bir ilişki tespit edilmiştir. Ayrıca katılımcıların demografik ve mesleki özelliklerine göre sosyal sermeye düzeylerinin ve ilişki memnuniyet düzeylerinin farklılaştığı tespit edilmiştir.

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1. INTRODUCTION

In the service sector, it is almost impossible to completely eliminate and prevent the occurrence of errors during service production (Riaz & Khan, 2016). Errors that may arise cause various dissatisfaction in clients and then serious consequences can be encountered like client losses. One of the most critical risks in the aforementioned process is the correction of such service errors by other competitors and their turning them into an advantage for themselves (Allan et al., 2014). Due to the fact that clients express their dissatisfaction more than their satisfaction, professionals causing dissatisfaction in clients will experience loss of potential future clients. Elimination of these dissatisfactions that may arise will be possible by improving the relationships between those who produce services or products and the clients who buy and consume them.

As a result of the above-mentioned situation, the importance of social capital become apparent. Social capital has become a concept that is frequently investigated and researched by social sciences in recent years. It plays an important role in achieving the goals of the company. Social capital is expressed as one of the main assets of social organizations (Putnam, 1995). In another definition, it is expressed as the examination of relations based on trust between individuals and institutions from an economic perspective (Karagül & Masca, 2005: 37).

Social capital is considered a resource unique to the person. For this reason, inequalities that may arise in the distribution of other types of economic and cultural capital among people are seen as a problem that increases the imbalances in the sphere of influence of the concept of social capital (Braun, 2002: 9). The supplier providing a product or service ensures that his/her relationship with clients progresses more positively through the financial advantages and quality services he/she offers to his/her clients (Sharma et al., 2014). In addition, client-employee relationships also affect the behavior of clients positively or negatively (Chirawattanakij & Ractham, 2015). In summary, client-firm and client-employee relationships are of great importance in terms of social capital.

The relationship between the client, the company where the product or service is produced and the employee develops much faster as a result of the improvement of the product / service received by the client. The developing relationship is seen as one of the factors that form the basis of social capital. Researchers have found that the results of the service improvement assessment are primarily related to commitment (Cambra-Fierro et al., 2015), relational norms (Tsai et al., 2014), trust (Pizzutti dos Santos and Basso, 2012), relationship type (Wan et al., 2011), relationship quality (Grégoire and Fisher, 2006) and brand loyalty (Aaker et al., 2004). It has also been found that the harmony between the two parties in the context of client-company relationships has a positive effect on the client's goal of satisfaction (DeWitt and Brady, 2003). However, the role of client-employee relationships in improving service has been less studied than that of client-company relationships (Yagil & Luria, 2016).

There are some important gaps in the service improvement literature that researchers have acknowledged. First, little research has been done on how client-employee relationships affect relationship satisfaction (Yagil & Luria, 2016). Second, client-employee relationships have many dimensions, and the existing research has investigated client-employee relationships from a very narrow perspective (Jones & Taylor, 2012). For example, researchers have taken into account compliance (DeWitt & Brady, 2003), trust (Pizzutti dos Santos and Basso, 2012), relationship length (Yagil & Luria, 2016) and a number of interactions (Park & Ha, 2016). These dimensions, which have been taken into account, very often affect the service improvement process and subsequent relationship satisfaction within the concept of social capital.

Social capital can be at cognitive, relational and structural levels (Jones & Taylor, 2012). The effect of cognitive social capital, relational social capital and structural social capital on relationship satisfaction has not yet been taken into account. Generally, the higher the level of satisfaction in the relationship between the client and the supplier is, the greater the client's loyalty and commercial gain will be. Therefore, the current study attempts to identify the effect of the above-mentioned concepts on relationship satisfaction and uses a three-factor client-employee relationship model to determine the individual effect of three types of social capital (Jones & Taylor, 2012). Relationship satisfaction can affect the behavior of the client from time to time (Conway & Fitzpatrick, 1999). For this reason, the study also evaluates the effect of relationship satisfaction on negative word of mouth. If the client is not satisfied with his/her relationship with the employee from whom he/she purchases the product-service, he/she may begin to share this dissatisfaction with the people around him/her. This might result in negative word of mouth.

The purpose of the current study is to measure the effect of social capital on client's relationship satisfaction. In addition to this main purpose, the study has some sub-goals such as determining the effect of cognitive, relational and structural social capital on client's relationship satisfaction, determining the effect of negative word of mouth on the relationship between clients and certified public accountants, making some suggestions on the potential behavior of clients by determining the interaction between the intention of becoming a client again and social

capital and helping solve the problems in the sector by determining the interaction of the profession of public accounting with social capital and its sub-dimensions in Turkey. The study was conducted on the clients of the certified public accountants in Düzce. The study aims to share suggestions and information that can help researchers who will work in the field in the future and groups that can benefit from it in the sector.

2. CONCEPT OF SOCIAL CAPITAL

2.1. Definition Of The Concept Of Social Capital

Although social capital does not have a very old history as a concept, it is stated that the origin of the concept goes back to the works of Durkheim, Marx and even Aristotle (Abdioğlu & Yavuz, 2013: 30). The first thing that can be said about the concept of social capital, which has started to be used quite widely, is that it covers everything other than material assets in society (Abdioğlu & Yavuz, 2013: 29).

The concept was formed by combining the concepts of "social" belonging to social sciences and "capital" belonging to economics (Yüksel, 2015: 15). It can be addressed as social since it is based on relations between people and communities and it can be considered as capital as it contributes to social production and influences economic development (Tüysüz, 2011: 125). Even the fact that it incorporates these two words, which seem to be distant from each other, is a subject that attracts the attention of researchers.

There are many different definitions of social capital, which is an important concept due to the role it plays in society: Pierre Bourdieu (1997) defines social capital as a resource that the so-called elites benefit from. One of the most remarkable definitions is that social capital is the norms, rules, networks, communication and mutual trust of society that affect economic development (Narayan & Woolcock, 2000: 5). Whiteley (2000), on the other hand, refers to the concept of social capital as the desire of people to trust their family members, their citizens living together in the same country and other people in general. From a general perspective, social capital is expressed as the contribution of trust-based relations between individuals to the accomplishment of goals that bring individuals together (Erbil, 2008: 10). When all definitions are considered, social capital is explained as the value created by the values, norms, social networks and traditions that form societies, keep people together and affect their economic, political and cultural development and the relations that are maintained on the basis of trust between individuals and groups (Çalışkan et al., 2014: 314).

Social capital plays an important role in ensuring trust between people. According to Yüksel (2015), social capital refers to the bonds and communication between employees, the goals that employees should achieve and mutual trust. In addition to these, social capital has been conceptually expanded to include everything because it benefits from many different areas (Ağcasulu, 2017: 126).

The concept of social capital has become a subject of interest to social sciences and social scientists, especially in the last thirty years. The concept of social capital is drawn on in a wide range of areas such as education, health and human relations. Therefore, it has become a much-preferred research topic recently. It has emerged as a very popular research area since 1990 (Ağcasulu, 2017: 126). One of the important factors that laid the groundwork for the emergence of the concept is that traditional social sciences, which include the abovementioned types of capital such as physical and human capital, have excessively centered on the individuality of people. Social capital was born as a reaction to the situation described and started to be developed (Ağcasulu, 2017: 115). It has continued to be of interest to researchers for a long time and a consensus has been reached on many points about the concept. However, there are still some points on which no consensus has been reached among people who are interested in the subject. Because it is a type of capital that cannot be controlled by people, very different definitions and views have been proposed. These differences are also seen as the richness of the concept and it is estimated that the research on the subject will continue for many years to come.

The concept of social capital consists of many components. Researchers also make use of these components in their definitions of the concept. In general, the concept of social capital is accepted to consist of three components; communication networks, norms and sanctions, as shown in Table 1.

Table 1. Three Components of Social Capital

	COMMUNICATION NETWORKS	NORMS	SANCTIONS
FUNCTION	Network members – having access to information, utilization of information and support	Rules and conditions - reciprocity, expectation of cooperation, trust and compliance of behaviour	Rewarding – punishing
SAMPLES			
Traditional Communities	Neighbourhood, borrowing, protection and caring	Reciprocity and protection of neighbour's property against strangers	Recognition and respect - gossip and social exclusion
New York Diamond Market	Diamond merchants	Giving a bag of rough diamonds for inspection of diamonds	Acceptance, rejection and exclusion
Highway Law	Other highway drivers - faster travel and information	Language of sign and cooperation	Anger of strangers, being thanked, getting caught by the police

Source: Yüksel, 2015: 29.

One of the most important dimensions of social capital is trust. It is seen as a necessity that individuals who come together in a group, organization or other formation need in order to maintain their existence and achieve their shared goals (Töremen, 2002: 570). Luhmann (2002) emphasizes that social systems consist of processes of communication of individuals with each other rather than the activities they do. For this reason, society can exist when interpersonal communication is established (Şan & Şimşek, 2011: 103). Castle (2002) stated that in addition to trust, individuals' mutual expectations and information exchange are features of social capital (as cited in Kösemen, 2010: 17).

3. METHODOLOGY

3.1. Population and Sample

The population and the sample of the study consist of the taxpayers who are residing in Düzce and who officially purchase services from the certified public accountants registered in Düzce SMMMO and keep books on the basis of Balance Sheet (1st Class) and according to the Operating Account Method (2nd Class). The number of 1st and 2nd class taxpayers in Düzce is 8500. The reason for conducting the study in Düzce is the constraints in terms of cost and time. Due to the Covid-19 pandemic along with these constraints and due to the difficulty of reaching the whole population, the sample was limited to 364 people. The margin of error arising from the sample at the 95% confidence interval in a population of 8,500 people and a sample of 364 people was found to be 5.03%.

3.2. Data Collection Tools

In order to collect the data, the questionnaire technique was preferred as the data collection tool. The questionnaire items prepared by using 7-point Likert scale were administered to the taxpayers who keep books on the basis of the Balance Sheet and according to the Operating Account Method in Düzce.

3.3. Research Methods and Hypotheses and Model

Whether the variables fit the normal distribution was tested with the skewness and Kurtosis coefficients and the variables that fit the normal distribution were given with their mean and standard deviation values. Parametric methods were used because the variables used in the study had a normal distribution. Therefore, the "Independent Samples t-Test" was used to analyze the differences between two groups and the "One-Way Analysis of Variance (ANOVA)" test was used to analyze the differences between 3 or more groups. The relationships between the variables were examined with the "Pearson Correlation Analysis". The effect of the participants' social capital levels, intention to become a client again and negative word-of-mouth levels on relationship satisfaction was tested with "Regression Analysis".

Statistical analyses were conducted in the IBM SPSS Statistics analysis program. The significance level was taken as 0.05.

- **Hypothesis 1.** There is a significant correlation between social capital and relationship satisfaction.
- **Hypothesis 2.** The level of social capital varies significantly depending on the demographic characteristics of the participants.
- **Hypothesis 3.** The level of relationship satisfaction varies significantly depending on the demographic characteristics of the participants.
- **Hypothesis 4.** There is a significant correlation between the level of social capital and the intention to become a client again.
- **Hypothesis 5.** There is a significant correlation between social capital and negative word of mouth.
- **Hypothesis 6.** There is a significant correlation between the intention to be a client again and relationship satisfaction.
- **Hypothesis 7.** There is a significant correlation between relationship satisfaction and negative word of mouth.
- **Hypothesis 8.** The level of negative word of mouth varies significantly depending on the demographic characteristics of the participants.
- **Hypothesis 9.** The intention to become a client again varies significantly depending on the demographic characteristics of the participants.

The above hypotheses were formed based on the research model and analysis results. The model of the study is shown in Figure 1 below. As shown in the model, the multifaceted interaction and relationship between the dimensions draw attention.

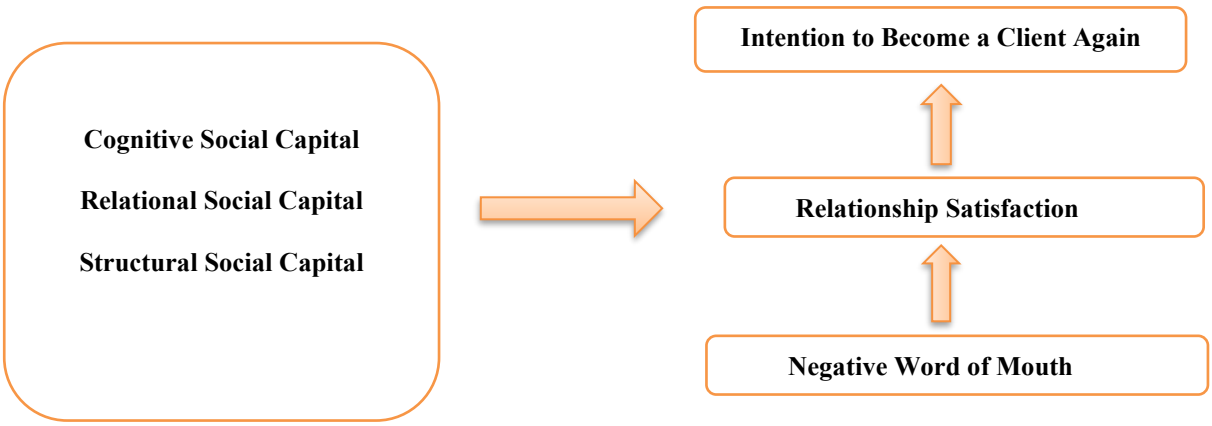

Figure 1. Research Model

3.4. Development of the Data Collection Tool and Collection of the Data

The structural social capital and cognitive social capital measurement in the questionnaire is based on four items adapted from Nahapiet & Ghoshal (1998); Jones & Taylor (2012). The measurement of the relational social capital is based on the scale taken from Carey et al. (2011); Jones and Taylor (2012); Villena et al. (2011). In addition, relationship satisfaction was measured with seven items adapted from Gregoire & Fisher (2006); Schumann (2012). Negative Word of Mouth was measured by the scale developed and used by Blodgett et al. (1997); Thelen & Shapiro (2012). The intention to become a client was measured with the scale of Blodgett et al. (1997). In addition, all the questionnaire items were developed on a seven-point Likert-type scale. Before data collection began, the questionnaire was tested in a pilot study to ensure its reliability.

The data collection process was carried out between 25.11.2021 and 05.01.2022. The questionnaires were administered face-to-face until 28.12.2021. Due to the Covid-19 pandemic and some of the participants' inability to participate at the desired level due to being busy during working hours, the process was prolonged and therefore,

the questionnaire administration process was completed by reaching the rest of the sample via the link created by designing the questionnaire on Google Forms as of 29.12.2022.

3.5. Data Analysis

In line with the purpose of the study, statistical analyses were conducted within the context of the data obtained by using the questionnaire method and the characteristics of the data reached. IBM SPSS analysis program was used in the analysis of the collected data. The findings obtained as a result of the analyses were interpreted. Findings related to these analyses are interpreted in the fourth section.

4. FINDINGS and INTERPRETATIONS

4.1. Demographic Findings

Table 2. Characteristics of the Participants

		Frequency	Percentage
Gender	Female	86	23.6
	Male	278	76.4
Age	25 years old and younger	57	15.7
	26-35 years old	114	31.3
	36-45 years old	117	32.1
	46-55 years old	47	12.9
	56 years old and older	29	8
Area of Work	Purchase-Sale	174	47.8
	Service	162	44.5
	Manufacturing	28	7.7
Length of the Relationship with the Certified Public Accountant	2 years and less	71	19.5
	2-5 years	105	28.8
	More than 5 years	188	51.6
Type of the Taxpayer	Taxpayer Keeping Books on the Basis of Balance Sheet	183	50.3
	Taxpayer Keeping Books According to the Operating Account Method	181	49.7

Table 2 includes the demographic information of the participants. There are a total of 364 participants, 23.6% are female and 76.4% are male. Of the participants, 15.7% are 25 years old and younger, 31.3% are 26-35 years old, 32.1 are 36-45 years old, 12.9% are 46-55 years old and 8% are 56 years old and older. Moreover, 47.8% of the participants work in the purchase-sale sector, 44.5% work in the service sector and 7.7% work in the manufacturing sector. In addition, 19.5% of the participants have been working with their current certified public accountants for 2 years and less, 28.8% for 2-5 years, 51.6% for 5 years and more. Finally, 50.3% of the participants keep books on the basis of the Balance Sheet and 49.7% of the participants keep books according to the Operating Account Method.

4.2. Findings of the Reliability Analysis

Table 3. Results of the Reliability Analysis

	Cronbach Alpha
Cognitive Social Capital	0.895
Relational Social Capital	0.892
Structural Social Capital	0.860
Negative Word of Mouth	0.842
Intention to Become a Client Again	0.940
Relationship Satisfaction	0.787

If the reliability coefficient is $0.60\alpha \leq 0.80$, the scale is reliable, and if it is $0.80\alpha \leq 1.00$, the scale is highly reliable**.** Obtained Crα Coefficients show that the scale used is quite reliable.

4.3. Descriptive Statistics

Table 4. Examination of the Levels of the Dimensions of Social Capital and Related Concepts

	N	Mean	Standard Deviation	Skewness	Kurtosis
Cognitive Social Capital	364	5.35	1.35	-.72	.19
Relational Social Capital	364	5.53	1.23	-.88	.52
Structural Social Capital	364	5.37	1.49	-.81	-.11
Negative Word of Mouth	364	2.81	1.73	.58	-.83
Intention to Become a Client Again	364	3.97	1.02	-.30	.11
Relationship Satisfaction	364	5.31	1.15	-.45	.12

Table 4 includes the descriptive statistics of the scale dimensions used in the study. The cognitive social capital levels of the participants are 5.35±1.35, relational social capital levels are 5.53±1.23, structural social capital levels are 5.37±1.49, negative word of mouth levels are 2.81± 1.73, intention to become a client again levels are 3.97±1.02 and relationship satisfaction levels are 5.31±1.15. In addition, since the skewness and kurtosis values of the scale dimensions used in the study are between +2 and -2, it is understood that all the dimensions are normally distributed and parametric methods should be used.

4.4. Findings of Difference Tests

Difference tests (t-test and ANOVA) were applied to determine whether the dimensions were perceived differently depending on demographic characteristics.

Table 5. Examination of the Participants' Levels of the Dimensions of Social Capital and Related Concepts by Gender

	Gender	n	Mean	Std. Dev.	p value
Cognitive Social Capital	Female	86	5.26	1.18	0.409
	Male	278	5.38	1.40	
Relational Social Capital	Female	86	5.29	1.02	**0.017**
	Male	278	5.61	1.28	
Structural Social Capital	Female	86	4.88	1.48	**0.001**
	Male	278	5.52	1.46	
Negative Mouth of Word	Female	86	3.15	1.65	**0.041**
	Male	278	2.71	1.74	
Intention to Become a Client Again	Female	86	3.78	1.12	0.051
	Male	278	4.02	0.98	
Relationship Satisfaction	Female	86	5.19	0.90	0.207
	Male	278	5.35	1.22	

$p<0.05$, Independent Samples t-Test

According to Table 5, the relational social capital levels, structural social capital levels and negative word-of-mouth levels of the participants vary significantly by gender ($p<0.05$). The negative word-of-mouth levels of the female participants are higher than those of the male participants. The relational social capital and structural social capital levels of the male participants are higher than those of the female participants. The cognitive social capital, intention to become a client again and relationship satisfaction levels of the participants do not vary significantly by gender ($p>0.05$).

Table 6. Examination of the Participants' Levels of the Dimensions of Social Capital and Related Concepts by Age

	Age	N	Mean	Std. Dev.	p value	Pair-wise comparison r
Cognitive Social Capital	25 years old and younger	57	5.1	1.4	0.438	
	26-35 years old	114	5.4	1.2		
	36-45 years old	117	5.4	1.4		
	46-55 years old	47	5.5	1.4		
	56 years old and older	29	5.3	1.4		
Relational Social Capital	25 years old and younger	57	5.1	1.5	**0.017**	36-45 years old > 25 years old and younger
	26-35 years old	114	5.5	1.2		
	36-45 years old	117	5.8	1.1		
	46-55 years old	47	5.6	1.2		
	56 years old and older	29	5.6	0.9		
Structural Social Capital	25 years old and younger	57	4.7	1.7	**0.001**	36-45 years old, 46-55 years old > 25 years old and younger
	26-35 years old	114	5.3	1.5		
	36-45 years old	117	5.6	1.3		
	46-55 years old	47	5.7	1.5		
	56 years old and older	29	5.5	1.2		
Negative Word of Mouth	25 years old and younger	57	2.9	1.6	**0.005**	26-35 years old > 46-55 years old, 56 years old and older
	26-35 years old	114	3.2	1.7		
	36-45 years old	117	2.8	1.9		
	46-55 years old	47	2.3	1.4		
	56 years old and older	29	2.0	1.4		
Intention to Become a Client Again	25 years old and younger	57	3.8	0.9	0.598	
	26-35 years old	114	4.0	1.1		
	36-45 years old	117	4.0	1.0		
	46-55 years old	47	4.0	1.0		
	56 years old and older	29	3.8	0.9		
Relationship Satisfaction	25 years old and younger	57	5.0	1.3	0.088	
	26-35 years old	114	5.3	1.1		
	36-45 years old	117	5.5	1.1		
	46-55 years old	47	5.4	1.2		
	56 years old and older	29	5.2	0.8		

$p<0.05$, One-Way Analysis of Variance (ANOVA)

According to Table 6, the relational social capital levels, structural social capital levels and negative word-of-mouth levels of the participants vary significantly by age ($p<0.05$). The relational social capital levels of the participants aged 36-45 are higher than those aged 25 and under. The structural social capital levels of the participants aged 36-45 or 46-55 are higher than those aged 25 and under. The participants in the 26-35 age group have higher negative word-of-mouth levels compared to the participants in the 46-55 and 56+ age groups. The cognitive social capital, intention to become a client again and relationship satisfaction levels of the participants do not vary significantly by age ($p>0.05$).

Table 7. Examination of the Participants' Levels of the Dimensions of Social Capital and Related Concepts by Area of Work

	Area of Work	n	Mean	Std. Dev.	p value	Pair-Wise Comparison
Cognitive Social Capital	Purchase-Sale	174	5.45	1.28	0.051	
	Service	162	5.18	1.39		
	Manufacturing	28	5.74	1.43		
Relational Social Capital	Purchase-Sale	174	5.68	1.14	**0.030**	Manufacturing, Purchase-Sale > Service
	Service	162	5.34	1.27		
	Manufacturing	28	5.74	1.39		
Structural Social Capital	Purchase-Sale	174	5.58	1.36	**0.002**	Purchase-Sale, Manufacturing > Service
	Service	162	5.06	1.58		
	Manufacturing	28	5.82	1.40		
Negative Word of Mouth	Purchase-Sale	174	2.75	1.77	0.201	
	Service	162	2.96	1.68		
	Manufacturing	28	2.37	1.70		
Intention to Become a Client Again	Purchase-Sale	174	4.00	0.94	0.520	
	Service	162	3.90	1.10		
	Manufacturing	28	4.10	1.01		
Relationship Satisfaction	Purchase-Sale	174	5.41	1.13	0.051	
	Service	162	5.14	1.13		
	Manufacturing	28	5.63	1.35		

$p<0.05$, One-Way Analysis of Variance (ANOVA)

According to Table 7, the relational social capital and structural social capital levels of the participants vary significantly by area of work ($p<0.05$). The relational social capital levels of the participants working in the Purchase-Sale and Manufacturing sectors are higher than those of the participants working in the Service sectors. On the other hand, the structural social capital levels of the participants working in the Purchase-Sale and Manufacturing sectors are higher than those of the participants working in the Service sectors. The cognitive social capital, negative word of mouth, intention to become a client again and relationship satisfaction levels of the participants do not vary significantly by area of work ($p>0.05$).

Table 8. Examination of the Participants' Levels of the Dimensions of Social Capital and Related Concepts by Length of the Relationship with the Certified Public Accountant

	Length of the Relationship with the Certified Public Accountant	n	Mean	Std. Dev.	p value	Pair-Wise Comparisons
Cognitive Social Capital	2 years and less	71	4.81	1.22	**<0.001**	More than 5 years >2 years and less, 2-5 years
	2-5 years	105	5.19	1.44		
	More than 5 years	188	5.65	1.26		
Relational Social Capital	2 years and less	71	4.81	1.37	**<0.001**	More than 5 years > 2-5 years > 2 years and less
	2-5 years	105	5.39	1.23		
	More than 5 years	188	5.89	1.04		
Structural Social Capital	2 years and less	71	4.30	1.57	**<0.001**	More than 5 years > 2-5 years > 2 years and less
	2-5 years	105	5.19	1.46		
	More than 5 years	188	5.87	1.21		
Negative Word of Mouth	2 years and less	71	3.28	1.58	**<0.001**	More than 5 years < 2 years and less, 2-5 years
	2-5 years	105	3.12	1.69		
	More than 5 years	188	2.47	1.74		
	2 years and less	71	3.62	0.95	**<0.001**	

Intention to Become a Client Again	2-5 years	105	3.89	1.04		More than 5 years >2 years and less
	More than 5 years	188	4.14	0.99		
Relationship Satisfaction	2 years and less	71	4.66	1.14	**<0.001**	More than 5 years > 2-5 years > 2 years and less
	2-5 years	105	5.18	1.11		
	More than 5 years	188	5.63	1.07		

p<0.05, One-Way Analysis of Variance (ANOVA)

According to Table 8, the cognitive social capital, relational social capital, structural social capital, negative word of mouth, intention to become a client again and relationship satisfaction levels of the participants vary significantly depending on the length of the relationship with the certified public accountant ($p<0.05$). The cognitive social capital levels of the participants who have a relationship with the certified public accountant for 5 years or more are higher than those who have a relationship for 2 years or less or between 2 and 5 years. The negative word-of-mouth levels of the participants who have a relationship with the certified public accountant for 5 years or more are lower than those who have a relationship for 2 years or less or between 2 and 5 years. The participants who have a relationship for 5 years or more have the highest levels of relational social capital, structural social capital, intention to become a client again and relationship satisfaction, while those with a relationship for 2 years or less have the lowest.

Table 9. Examination of the Participants' Levels of the Dimensions of Social Capital and Related Concepts by the Type of Bookkeeping

	Type of Bookkeeping	N	Mean	Std. Dev.	p value
Cognitive Social Capital	Bookkeeping on the Basis of Balance Sheet	183	5.53	1.28	**0.013**
	Bookkeeping According to the Operating Account Method	181	5.18	1.39	
Relational Social Capital	Bookkeeping on the Basis of Balance Sheet	183	5.72	1.16	**0.004**
	Bookkeeping According to the Operating Account Method	181	5.35	1.27	
Structural Social Capital	Bookkeeping on the Basis of Balance Sheet	183	5.66	1.34	**0.001**
	Bookkeeping According to the Operating Account Method	181	5.07	1.57	
Negative Word of Mouth	Bookkeeping on the Basis of Balance Sheet	183	2.73	1.77	0.361
	Bookkeeping According to the Operating Account Method	181	2.90	1.69	
Intention to Become a Client Again	Bookkeeping on the Basis of Balance Sheet	183	4.05	1.02	0.117
	Bookkeeping According to the Operating Account Method	181	3.88	1.01	
Relationship Satisfaction	Bookkeeping on the Basis of Balance Sheet	183	5.42	1.12	0.077
	Bookkeeping According to the Operating Account Method	181	5.20	1.18	

p<0.05, Independent Samples t-Test

According to Table 9, the cognitive social capital, relational social capital and structural social capital levels of the participants vary significantly depending on the type of bookkeeping ($p<0.05$). The cognitive social capital, relational social capital and structural social capital levels of the participants who keep books on the basis of the balance sheet are higher than the participants who keep books according to the operating account method. The negative word of mouth, intention to become a client again and relationship satisfaction levels of the participants do not vary significantly depending on the type of bookkeeping ($p>0.05$).

As a result, the social capital, negative word of mouth, intention to become a client again and relationship satisfaction levels vary significantly depending on the demographic characteristics. Therefore, the H2, H3, H8 and H9 hypotheses developed in the study are accepted.

4.5. Correlation Analysis Findings

Table 10. Relationship between the Social Capital Levels and Relationship Satisfaction of the Participants

		Relationship Satisfaction	Intention to Become a Client Again	Negative Word of Mouth
Cognitive Social Capital	r	.727**	.432**	-.294**
	p	**<0.001**	**<0.001**	**<0.001**
Relational Social Capital	r	.833**	.479**	-.331**
	p	**<0.001**	**<0.001**	**<0.001**
Structural Social Capital	r	.757**	.478**	-.336**
	p	**<0.001**	**<0.001**	**<0.001**

p<0.05, Pearson Correlation Analysis

In Table 10, the relationship between the participants' social capital levels and relationship satisfaction was tested with Pearson Correlation Analysis. There is a correlation between the cognitive, relational and structural social capital levels of the participants and their intention to become a client again and relationship satisfaction ($p<0.05$). As the cognitive, relational and structural social capital levels of the participants increase, their intention to become a client again and relationship satisfaction increase, while their negative word-of-mouth levels decrease. As a result, the H4 and H5 hypotheses developed in the study are accepted.

4.6. Regression Analysis Findings

Table 11. The Effect of the Participants' Social Capital Levels on their Relationship Satisfaction

Model Dependent Variable: Relationship Satisfaction	Non-standardized Coefficients		Standardized Coefficients		
	B	**Std. Error**	**Beta**	**T**	**Sig.**
(Constant)	.552	.184		3.005	.003
Cognitive Social Capital	.137	.037	.160	3.688	**.000**
Relational Social Capital	.501	.052	.535	9.634	**.000**
Structural Social Capital	.085	.040	.109	2.121	**.035**
Negative Word of Mouth	.003	.019	.005	.168	.867
Intention to Become a Client Again	.199	.036	.176	5.561	**.000**
Sig.			**0.000**		
F			205.282		
Adjusted R^2			0.738		

In Table 11, the effect of the participants' social capital levels on their relationship satisfaction was tested with regression analysis. As a result of the analysis, it is understood that their social capital levels are effective in their relationship satisfaction ($p<0.01$). Cognitive social capital, relational social capital and structural social capital positively and significantly affect relationship satisfaction ($p<0.05$). In other words, as the social capital levels of the participants increase, their relationship satisfaction also increases. The intention to become a client again, which is another independent variable in the study, also affects relationship satisfaction ($p<0.01$). As their intention to become a client again increases, their relationship satisfaction also increases. The last independent variable, negative word of mouth, is not effective on relationship satisfaction ($p>0.05$). In the regression model, the independent variables were found to explain 73.8% of the variance in the dependent variable. As a result, the H1 and H6 hypotheses developed in the study are accepted whereas the H7 hypothesis is rejected.

5. RESULTS

5.1. Results

The profession of certified public accounting includes a group of professionals who offer services to taxpayers in many different areas. However, due to the E-Transformation process, which is one of the most important realities of today, and many similar factors, workflow is one of the most affected areas. Members of the accounting

profession are also greatly affected by this situation and they experience important developments in many points from workflow processes to the level of their relationship with their clients and they feel the need to update themselves. The high number of the mentioned developments has also increased the situations in which the members of the profession should act sensitively. At the forefront of these situations is the preservation of the business relationship between them and their clients and the satisfaction level of their clients. The studies to be carried out by the members of the profession on these issues will help them to continue their commercial relations with their clients with a high level of satisfaction and will prevent customer losses by providing an advantage over their competitors. It will also enable the establishment of business relations with new clients. The results of the study aim to inform the researchers on these issues as well.

When the results of the study were examined, it was understood that there were many details. It was observed that the gender of the client has a significant effect on his/her expectations from the profession and the points with which he/she will be satisfied. It was understood that the female clients are more willing than the male clients in expressing their dissatisfaction. However, gender was found to have no significant effect on cognitive social capital which refers to sharing values, attitudes and beliefs so that common understandings can be developed and which focuses on performing activities directed to common goals and the intention to become a client again which is related to the continuation of the business relationship by the client. It was also understood that gender differences do not cause significant differences in client satisfaction. It was concluded that gender causes significant differences in relational social capital which is related to feelings such as loyalty and trust and also to the level of expectation and structural social capital that significantly affects client loyalty. The emergence of dissatisfaction and its negative effect on client loyalty is seen at a higher rate among female clients.

It was understood that when the age of the client increases, the business and private relationship with the member of the profession becomes stronger. Thus, it can be concluded that there is an increase in negative speech with the decreasing age. It was understood that abstract concepts such as loyalty and trust are damaged more quickly in the clients operating in the service sector than in the clients operating in the purchase-sale and manufacturing sectors. As the duration of the service received by the client from the professional member increases, the level of social capital increases as well. In summary, as time passes, the bond between the two parties is getting stronger and the level of dissatisfaction and the level of expressing this dissatisfaction decreases.

When examined in terms of the type of bookkeeping, it was revealed that the clients who keep books on the basis of a balance sheet act more in compliance with the members of the profession and develop more common understandings and that their expectation levels and loyalty levels are higher than the clients who keep their books according to the operating account method. When all these results are considered together, it can be accepted that the sub-dimensions of social capital and the concepts it is associated with have a positive relationship among themselves, apart from negative word of mouth. Moreover, the effects of these dimensions except for the negative word of mouth have positive and significant effects on the level of satisfaction with the relationship between the client and the member of the profession. It has been revealed in previous studies that social capital has an important effect on people's business life. As a result of this study, it was seen that social capital has a positive effect on the relationships of certified public accountants with their clients.

5.2. Suggestions

5.2.1. Suggestions for Researchers

- The current study was conducted in the central district of Düzce and its other districts. Similar studies can be conducted with larger samples in different provinces by using the same questionnaire.
- The answers given by the female participants differed from the answers given by the male participants in many dimensions. For this reason, it may be more beneficial to increase the proportion of women among the participants who will participate in future studies.
- It was observed that the participation of the clients operating in the manufacturing sector is relatively low in the current study. Increasing this rate in new studies to be conducted may be useful in terms of diversifying the results.
- It was observed that the participants gave quick and careless answers from time to time due to the fact that they were working in their workplaces during the day. For this reason, times outside working hours can be preferred for participants to answer the questionnaire items. In this way, more accurate results can be obtained.

5.2.2. Suggestions for the Members of the Profession

As a result of the study, it was revealed that the concept of social capital significantly and positively affects the relationship between the members of the profession and their clients. For this reason, strengthening the communication with clients and developing special relations by strengthening feelings such as sincerity and trust outside the business relationship will prevent client losses and pave the way for gaining new and conscious clients. Another notable finding is that the clients in the service sector have a more fragile bond with their certified public accountants than the clients in the purchase-sales and manufacturing sectors. In order to strengthen this fragile structure, it can be said that it would be beneficial to better understand the expectations of the employers in these sectors and to act in such a way as to satisfy these expectations within the framework of professional ethics.

As a result of the workload of certified public accountants, it is often not possible for them to engage in activities aimed at enhancing the social capital between them and their clients. Activities such as visits to clients, conversations outside the work and spending time for social activities that can be done to increase the satisfaction level of clients will allow the enhancement of social capital. As a result of the study, it was understood that female clients have higher expectations and are more courageous in expressing their dissatisfaction. In addition, it was observed that as a result of expressing their dissatisfaction, there is a lower level of intention to become a client again among the female participants compared to the male participants. Thus, studies can be carried out on the differing expectations of female clients and client retention can be ensured by strengthening the social capital bond.

It was observed that the clients' levels of social capital and its sub-dimensions became stronger over time. This means that it is necessary to be more sensitive about the expectations of clients with whom a new business relationship has been established. It was also revealed in the study that the negative word-of-mouth levels of the clients in the younger age groups are higher than of other age groups. In addition, it was understood that the relational social capital and cognitive social capital levels of the younger clients are lower compared to older age groups. For this reason, studies can be carried out to reduce the negative word-of-mouth levels of clients in younger age groups and to increase their levels of other social capital sub-dimensions. At this point, it may be advantageous for younger workers working in the offices of certified public accountants with younger clients more closely and intensely and to carry out activities to strengthen the social capital for protecting and strengthening the business relationship. Deficiencies in the social relations of certified public accountants due to reasons such as workload and lack of experience are also factors affecting the level of social capital. In this context certified public accountants' receiving training about how to establish social relationships to strengthen the social capital with their clients can be useful.

As a result of the current study, it was understood that the cognitive, relational and structural social capital levels of the clients keeping their books on the basis of the balance sheet are higher than those who keep books according to the operating account method. As it can be understood from the sub-dimensions, the concept of social capital has a higher and more important place in the clients who keep books on the basis of the balance sheet. These sub-dimensions are related to issues such as carrying out activities for common purposes by sharing intangible concepts such as values, attitudes and beliefs, conducting joint works, as well as issues such as loyalty, trust and client loyalty. In this connection, it was understood that the mentioned actions are performed more in the client group who keeps books on the basis of the balance sheet. One of the strongest reasons for this situation is that taxpayers who keep books according to the operating account method today generally have small businesses and work with limited capital, and therefore they act with the belief that the payment they make to certified public accountants is an extra payment for their businesses. As a result, they generally welcome lower payment offers and it is seen that their social capital is at a lower level than the clients who keep books on the basis of a balance sheet. Increasing communication between the clients and accountants in this group, raising their awareness and providing incentives for a certain period of time by the public authority, especially in terms of fees, will contribute to the increase in the level of social capital. In light of these results, it can be suggested that professionals who want to establish a business relationship with a high level of social capital should focus on working with the client group who keep books on the basis of the balance sheet.

On the basis of the business relationship between clients groups and their certified public accountants lies taxation and accordingly financial expenditures. By the nature of commercial relationships, when it comes to expenditures, positive emotions such as happiness and satisfaction of people tend to decrease. In summary, while making money is a satisfying action, spending money is an action that increases the level of dissatisfaction. For this reason, especially the client groups with low-level education and awareness can develop negative attitudes towards certified public accountants due the expenditures incurred by them. In this connection, raising the awareness of

the client groups having negative attitudes towards accounting services about the fact that accounting services are necessary for the existence of the business can be helpful in developing more positive attitudes towards them.

In addition to being an academic profession, the profession of certified public accounting is an honourable and sacred profession in which moral values have a very important place and there is a high level of sensitivity to professional ethics. Since the members of the profession act as intermediaries between the taxpayer and the public authority, they carry out an activity whose importance is indisputable. It is a profession practiced by qualified people who have serious responsibilities, who have completed a serious education process and many challenging exams and have played a major role in the collection of taxes which are one of the most important income sources of the state. For these reasons, the members of the profession should always prioritize the moral values of the profession and should fulfil the above-mentioned responsibilities by adhering to these values throughout their professional life.

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The Compliance of ESG Equity Funds in the U.S.

ABD'deki ESG Sermaye Fonlarının Uyumu

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ABSTRACT

This paper assesses the level of adherence of the U.S. equity index funds to best practices from an Environmental, Social and Governance (ESG) perspective. The sample includes 27 ESG index funds and the study period spans from 1 August 2017 to 31 July 2022. A simple research approach is employed. First, the correlations of index funds with the S&P 500 Index, as well as, with three alternative broad market ESG indexes, are computed. Corresponding betas are estimated too. Then, the portion of the S&P 500 stocks with severe or high Morningstar ESG risk scores held by each fund is calculated. The findings reveal an average correlation of ESG index funds with the S&P 500 Index of 0.90. Similar correlation figures with the other indexes are computed. Betas with all indexes are very high, approximating unity. Moreover, about 26% of the funds invest more than 5% of their assets in S&P 500 stocks with high or severe ESG risk. The findings combined indicate that, to a large extent, ESG index funds just track the S&P 500 Index, while marketing themselves as being ESG compliant. The latter can be indicative of some level of "greenwashing" on behalf of index funds.

Anahtar Kelimeler:
Endeks Fonları,
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Greenwashing,
S&P 500 Endeksi

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ÖZET

Bu çalışma ABD hisse senedi endeksi fonlarının Çevresel, Sosyal ve Yönetişim (ESG) perspektifinden en iyi uygulamalara uyum düzeyini değerlendirmektedir. Örneklem 27 ESG endeks fonunu içermekte ve çalışma dönemi 1 Ağustos 2017 ile 31 Temmuz 2022 arasındadır. Basit bir araştırma yaklaşımı uygulanmaktadır. İlk olarak, endeks fonlarının S&P 500 Endeksi ve ayrıca üç alternatif geniş piyasa ESG endeksi ile korelasyonları hesaplanmıştır. Karşılık gelen betalar da tahmin edilmektedir. Ardından, S&P 500 hisselerinin her bir fonun elinde bulundurduğu ciddi veya yüksek Morningstar ESG risk skorları olan kısmı hesaplanmıştır. Bulgular, ESG endeks fonlarının S&P 500 Endeksi ile 0,90'lık ortalama bir korelasyonunu ortaya koymaktadır. Diğer endekslerle benzer korelasyon değerleri hesaplanmıştır. Tüm endekslere sahip betalar çok yüksektir ve topluluğan yaklaşmaktadır. Ayrıca, fonların yaklaşık %26'sı varlıklarının %5'inden fazlasını yüksek veya ciddi ESG riski olan S&P 500 hisselerine yatırmaktadır. Sonuç olarak ESG endeks fonlarının kendilerini ESG uyumlu olarak pazarlarken büyük ölçüde sadece S&P 500 endeksini izlediğini göstermektedir. İkincisi, endeks fonları adına bir düzeyde "greenwashing" göstergesi olabilir.

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1. INTRODUCTION

Over the last years, an increasingly growing number of consumers seek products and services from companies which pay particular attention to the environmental and social footprint of their activities, as well as, to their governance practices. This trend does not concern only the consumer markets, but also refers to the investments in stocks, mutual funds, Exchange Traded Funds (ETFs) and other similar investing tools.[1]

"Responsible investing" means that an investor is no longer concerned solely about the financial return on their investments. On the contrary, a large body of investors is now interested in the environmental, social and governance aspects (ESG) of their investments.[2] The motivations of these investors vary. For instance, some investors are driven by their ethical, religious, environmental and social values. Other investors want to make an impact through their investments.[3] A third category of investors tries to exploit opportunities for returns relating to ESG risks. No matter what the motivation of each responsible investor is, nowadays ESG investment products, such as mutual funds and ETFs, have attracted trillions of dollars and they are expected to attract even more money in the near future.[4]

A significant issue with ESG investments is whether they are responsible indeed. In other words, the key question arising is whether mutual funds and ETFs (or others), which market themselves as being ESG compliant, do their best to adhere to the best ESG practices. The risk here is that such funds may claim that they do as much as they can to promote ESG practices, basically for marketing purposes, but, in fact, their actions indicate that they do not. This somehow misleading behavior has been called "greenwashing" (TerraChoice, 2007).

Greenwashing practices are not unique to investment companies. First of all, such behavior has been observed in consumer products and services. For instance, a company which is involved in the fashion industry may advertise itself as being ESG responsible, but, in reality, its manufacturing practices are far from being ESG compliant.[5] In stock investments, a mutual fund or an ETF, which presents itself as being ESG compliant, may invest in companies that have failed the ESG testing.

In any case, the consequences of greenwashing can be material. In this respect, TerraChoice (2007), notes that greenwashing in the consumer markets may mean that customers end up with inferior products from an ESG perspective. Moreover, in the competitive retail markets, a company applying greenwashing practices may gain market share at the expense of other companies which do not. Cynicism and doubt can be another issue. Cynicism and doubt entail that customers and investors believe that "they are all the same" and, consequently, every environmental claim must be false.

In this paper, we examine whether index funds in the United States apply some level of greenwashing. Two significant issues are assessed in this respect. The first one is whether index funds just track the S&P 500 Index, as it is often believed that they do so. The second issue concerns the level of index funds' exposure to the components of the S&P 500 Index, especially to those with poor ESG profiles.

There are several articles in the financial press which question the ESG compliance of index funds and ETFs. Sabrina Haumann from the "Cooler Future", examines whether three significant ESG ETFs traded in the U.S. are actually as green as they claim to be.[6] She finds that the examined ESG ETFs invest in stocks from the S&P 500 Index, which is not famous for their ESG practices. Steve Johnson from the *Financial Times* reports that ETFs tracking "low carbon", "climate change" or "Paris-aligned" indexes put little of their money into the greenest firms while increasing their exposure to firms with deteriorating ESG performance.[7] Tim Quinson from

[1] An exchange-traded fund (ETF) is a type of pooled investment security that operates much like a mutual fund. Typically, the majority of the existing ETFs worldwide track a particular index, sector, commodity, or other assets, but unlike mutual funds, ETFs can be purchased or sold on a stock exchange as a regular stock.

[2] In a similar context, the investors who invest in products that abide by the moral principles of Islam (the so-called Islamic Finance or 'Shari'ah-compliant' investments, support the idea that one shouldn't make money from money. This means that wherever possible, one should avoid getting involved in interest, i.e., return, neither by paying it nor by receiving it.

[3] Impact investing is a strategy that seeks to generate specific beneficial social or environmental effects along with financial gains. Impact investing can be implemented with numerous asset classes and may result in many specific outcomes. In any case, the point of impact investing is to use money and investment capital for positive social results. Investors who follow impact investing consider the commitment of a company to corporate social responsibility or the duty to positively serve society as a whole.

[4] According to *Forbes*, total assets invested in ESG funds are expected to exceed $50 trillion by 2025. Refer to https://www.forbes.com/advisor/investing/greenwashing-esg/.

[5] *Forbes* reports that the fashion brand H&M is currently being sued in the New York federal court for making false claims that its Conscious Collection is sustainable, while, in fact, the company uses more water to manufacture items in this collection than in its regular clothes.

[6] Refer to https://www.coolerfuture.com/blog/green-etf.

[7] Refer to https://www.ft.com/content/1587ee6d-e1da-489c-bee5-2199701c12a3.

Bloomberg notes that "*Many Big ESG Funds Are Just Glorified Market Trackers*".[8] All of the above could be indicative of greenwashing behavior on behalf of the particular ESG funds.

In addition, the *Economist* examined the 20 biggest ESG funds in the world and found that each of them held investments in fossil fuel producers, while others held stakes in oil producers, coal mining, gambling, alcohol and tobacco.[9] Similarly, Amenc et al. (2021) identify greenwashing risks in the construction of portfolios that represent popular climate strategies. Similar issues have been raised by InfluenceMap (2019 & 2021). These reports show that many funds remain intentionally invested in fossil fuel firms and are actively engaged with them to drive impact.

In this study, we examine the greenwashing issue with data from 27 ESG index funds traded in the United States. The study period spans from 1 August 2017 to 31 July 31 2022. From a methodological perspective, we employ a simple approach. First, we compute the correlations in returns between index funds and the S&P 500 Index. The betas of index funds with the S&P 500 Index are estimated, too. Correlations and betas will indicate the level of index funds' exposure to this index and verify (or not) whether ESG funds are just market trackers. For the controlling purposes, we compute correlations and betas with three alternative ESG indexes from the broad U.S. stock market. Then, we break down the holdings of each index fund in the sample to detect S&P 500 stocks with high or severe Morningstar ESG risk, as well as stocks which have attracted criticism for their ESG practices, such as Tesla and Amazon.com.

Our results reveal a strong correlation of the examined index funds with the S&P 500 Index. The average correlation in the sample is 0.90. In addition, the average beta with the S&P 500 Index approximates unity. These figures show that the average index fund in the sample tracks very closely the S&P 500 Index. This finding verifies the concerns that have been expressed in the financial press that, to a large extent, ESG funds are just market trackers. Furthermore, the analysis of index funds' holdings shows that about 26% of the examined funds (7 out of 27 funds) invest more than 5% of their assets in S&P 500 Index companies with severe or high ESG risk. In addition, five of the examined funds invest in companies which have attracted significant doubt about their ESG practices. Overall, our results indicate that, to some extent, the ESG index funds in the U.S. may be involved in some sort of greenwashing.

This study, which is one of the first studies in the field, has been motivated by the strong interest in ESG investment products over the last years, as well as the concerns that have been expressed in the financial press and the academia about the genuineness of the green claims made by ESG mutual funds and ETFs. We believe that our results contribute significantly to the existing literature. More specifically, the finding that about one-quarter of the examined index funds possibly apply greenwashing practices verifies the relevant concerns raised in the financial press and the academic literature. Therefore, based on our results, investors, and consumers in general, need to be skeptical about the green claims made by several providers of investment, as well as consuming, products. In other words, investors and consumers should not take for granted that a "green" product or a "green" investment or a "green" company always do as they say so, from an ESG perspective.

Moreover, our results justify the regulatory action that is currently being taken in the United States and abroad (and might trigger even more action) to identify companies that use ESG as a marketing ploy to exploit the best intentions of investors.[10] Finally, we believe that our study will induce other researchers to evaluate the greenwashing practices in the ESG funds industry, using bigger samples and covering a wider spectrum of countries and regions.

The remainder of this article is structured as follows: Section 2 offers the literature review. Section 3 describes the sample of the study. Section 4 provides the ESG profiles of index funds in the sample. Section 5 discusses the correlations and the systematic risk of ESG index funds with the S&P 500 Index and the three alternative ESG market indexes considered. The analysis of index funds' holdings is provided in Section 6. Conclusions are offered in Section 7.

[8]Refer to: https://www.bloomberg.com/news/newsletters/2022-02-02/many-big-esg-funds-are-just-glorified-market-trackers?utm_medium=cpc_search&utm_campaign.

[9] Refer to https://www.economist.com/leaders/2021/05/22/sustainable-finance-is-rife-with-greenwash-time-for-more-disclosure.

[10] For instance, the Securities and Exchange Commission (SEC) in the US recently closed a comment period on two proposed rules (17 CFR Parts 232, 270 and 274 - Release No. IC-34593; File No. S7-16-22) that would specifically tackle the greenwashing issue. The proposals would create consistent standards, such as enhanced disclosures to shareholders. The SEC has also created an ESG enforcement task force to identify violations in disclosure and compliance related to ESG funds. Please, refer to https://www.forbes.com/advisor/investing/greenwashing-esg/.

2. LITERATURE REVIEW

Several studies have accentuated the so-called "Six Sins of Greenwashing" [e.g., TerraChoice (2007) and Dimitrieska et al. (2017)]. The first sin is that of the "hidden trade-off", which is committed when a product is considered to be green based on just one or a few of its attributes, while other, possibly more, important environmental attributes of the product are neglected. The second sin is that of "no proof", which means than an environmental claim cannot be verified by easily accessible supporting information. The third sin is that of "vagueness". This sin is committed when poorly defined or extremely broad environmental claims are made. The fourth sin is that of "irrelevance", which is committed when real but unimportant environmental claims are made. The fifth sin is that of the "lesser of two evils". This sin means that true green claims are made about a product which, however, may distract the consumers from the greater environmental risks relating to the product's category as a whole (e.g., organic cigarettes). The last sin of greenwashing is that of "fibbing", which is committed when false environmental claims are made.

In the financial sector, Mahtani et al. (2018) from Deutsche Bank combined ESG issues and artificial intelligence to form an investment strategy (a new α-Dig system), which is able to identify positive ESG indicators in news articles and reports, such as the words "settlement" and "resolve". The models show that companies with these ESG indicators outperform the broader European index by two percentage points within six months. The tool developed by Deutsche Bank can also help in the detection of greenwashers, by applying machine learning, algorithms and natural language processing techniques to assess information about carbon-related issues released from companies which may be indicative of greenwashing. The research team concludes that their tool is quite significant for making a prediction of the likelihood that a company would fulfill its sustainability promises in the next year given its prior year's sustainability report.

According to the Universal Owner (2021) Vanguard, which is the second-largest asset manager in the world, claimed that its investment strategy would stick to the Sustainable Development Goals for the protection of the planet that have been adopted by the United Nations. However, in reality, Universal Owner notes that Vanguard still holds stakes in fossil fuel companies whose revenue, to a large extent, is made from thermal coals and tar sands. Based on this observation, the ESG funds of Vanguard cannot be considered to be at the forefront of a move toward decarbonization. On the contrary, they seem to be good examples of greenwashing.

Amenc et al. (2021) show that stylized equity strategies which are constructed with the use of firm-level emissions data, fail to deliver consistency with ESG impact objectives. As a result, institutional fund portfolios representing popular climate strategies, especially those that correspond to net-zero alignment strategies, are not free from greenwashing risks, largely because they exhibit attractive climate metrics at the portfolio level through implementing flawed construction strategies. Unfortunately, it seems that the investment industry, despite its claims, does little to direct capital to companies that do their best to assist the climate transition.

Yi Li et al. (2022) employ natural language processing (NLP) to extract common definitions to create a list of words or phrases that accurately define ESG funds. The effort of the study is to help eliminate misleading marketing, fund naming, and prospectus language in mutual funds and ETFs. The study concluded that the linguistic patterns found in mutual fund and ETF prospectus language have a relatively low correlation with the ESG rating of the funds and that one cannot tell the difference between a prospectus for true ESG vs. greenwashing mutual funds and ETFs. In fact, ESG funds hold dozens of fossil fuel extraction companies and coal-fired utilities.

Contrary to the above findings, Curtis et al. (2021), try to address concerns that ESG funds present distinctive regulatory concerns in comparison to the mutual fund market as a whole, either because they are not doing what they are supposed to do, or because their financial performance is inferior to that of the non-ESG funds. In doing so, they provide evidence that ESG funds do offer investors something different from traditional funds, in terms of portfolio construction and voting. In fact, they do so without causing investors systematically to sacrifice economic performance.

Finally, Clements (2022) claims that greenwashing in the ESG ETFs is less of a problem relative to the issue of "comparability". The author emphasizes that there is limited evidence that greenwashing is widespread in ESG

ETFs and notes that the avoidance of extensive greenwashing practices is due to the reputational costs involved and the competition among ESG ETFs to attract the new ESG-directed capital flows.

3. METHODOLOGY, HYPOTHESES DEVELOPMENT AND SAMPLE

3.1. Correlation and Systematic Risk Analysis

In this section, we first assess the correlation of ESG index funds with the S&P 500 Index, which has been chosen as a proxy for the entire stock market in the U.S. This index is chosen as the main benchmark in our correlation analysis because this is a widely used benchmark in numerous studies in the financial literature that compare the performance (or other features) of stocks, mutual funds, ETFs and other investments in the US to the broad market index. The main hypotheses of our analysis are expressed as follows:

H_0: There is no relationship between ESG funds and the S&P 500 Index.

H_1: There is a relationship between ESG funds and the S&P 500 Index.

As far as the components of the S&P 500 Index are concerned, the index holds 7 companies with severe Morningstar ESG risk and 53 companies with high scores of this risk.[11] In our analysis, we assume that an ESG index fund should avoid investing in stocks with high or severe ESG risk scores despite their financial prospects. When an index fund does invest in such companies, while promoting itself as being ESG compliant, we may infer that this fund possibly applies some sort of greenwashing.

For the controlling purposes, we compute correlations between the returns of index funds and those of three alternative ESG indexes covering the broad stock market in the U.S. These indexes are the MSCI USA ESG Select Index,[12] the S&P 500 ESG Index,[13] and the S&P United States LargeMidCap ESG Index.[14] We use these three ESG indexes assuming that an ESG index fund, due to its nature, should be more correlated with such an index rather than the S&P 500 Index. If the opposite is the case, we may conclude that some level of greenwashing is the case in the market of index funds.

In addition to the correlation analysis, we use OLS time series regression analysis to estimate the systematic risk, i.e., betas, of each index fund with the S&P 500 Index and the ESG indexes considered in our study.

3.2. Holdings Analysis

In this section, we perform an assets-based comparative analysis of ESG index funds' holdings against the components of the S&P 500 Index in order to detect stocks of this index with high or severe Morningstar ESG risk scores that are held by the ESG index funds. If such stocks are held by an ESG fund, we may infer that this fund adopts some sort of greenwashing practices.

3.3. The Sample

The sample of the study is described in this section. Our sample includes 27 ESG index funds that are traded in the U.S.. The total number of the U.S. ESG index funds is significantly higher than that in our sample. More

[11] We have found the Morningstar ESG Risk Score of each company in the S&P 500 Index on www.sustainalytics.com/investor-solutions/analytic-reporting-solutions/morningstar-sustainability-rating-for-funds. Indicatively, companies in the S&P 500 Index with severe ESG risk score are the General Electric Company and the Marathon Oil Corporation and companies with high ESG risk scores are the Exxon Mobil Corporation, the Boeing Company, the Chevron Corporation, and the Amazon Company.

[12] The MSCI USA ESG Select Index targets companies with positive ESG factors. It aims to maximize its exposure to ESG factors, subject to an expected tracking error of 1.8% and other constraints. It is designed to over-weight companies with high ESG ratings and under-weight companies with low ratings. Tobacco and controversial weapons companies, as well as major producers of alcohol, gambling, firearms, military weapons and nuclear power, are not eligible for inclusion in this index. The index was launched on 01 September 2010. The prices of this index have been found on the Bloomberg database.

[13] The S&P 500 ESG Index is a broad-based, market-cap weighted index that is designed to measure the performance of securities meeting sustainability criteria, while maintaining similar overall industry group weights as the S&P 500. The index excludes companies with disqualifying UN Global Compact scores and business involvement in tobacco, controversial weapons and thermal coal. The index was launched in January 2019 and has 319 constituents, which translates to around 38% exclusions from the parent index. Prices over the entire five-year study period before the launch of the index are computed by the index provider with hypothetical back-tested data and found on the Bloomberg database.

[14] The S&P United States LargeMidCap ESG Index is a broad-based, market-cap-weighted index that is designed to measure the performance of securities meeting sustainability criteria, while maintaining similar industry group weights as the S&P United States LargeMidCap Index. The index was launched on 06 May 2019. Prices over the entire five-year study period before the launch of the index are computed by the index provider with hypothetical back-tested data and found on the Bloomberg database.

specifically, according to the Forum for Sustainable and Responsible Investments in the United States (USSIF), there are 185 responsible funds that are offered by its institutional member firms.[15] These funds cover a wide spectrum of investments from domestic and international equity of various capitalization levels, fixed income and balanced choices, i.e., a mixture of equities and fixed income securities. The total assets under managed by these 185 funds as of 31 July 2022, approximated 116 billion dollars.

In our analysis, we focus solely on domestic equity index funds and cover a five-year period spanning from 1 August 2017 to 31 July 2022, to have sufficient data for our tests. By excluding fixed income, balanced and international choices, we remained we 58 index funds, many of which are offered in multiple shares. From funds with multiple shares, we chose the one with the longest history, i.e., with the oldest inception. All the applied selection criteria resulted in 27 index funds making the cut.

However, despite the relatively small number of funds that will be covered by our study, we deem that our sample is quite representative of the entire market of the 185 index funds mentioned above. We deem so because the sum of assets managed by these 27 index funds as of 31 July 2022, amounted to 67 billion dollars, or else, 58% of total assets held by ESG index funds at that date. This percentage indicates that, actually, our sample is sufficient enough for the purposes of our analysis.

Table 1 presents the profiles of ESG index funds, which include their ticker, name, type, inception month, assets under management as of 31/07/2022, management fee, and the average return over one year, three years and five years during the study period.[16]

In regard to type, the majority of index funds (18 out of 27 funds) are focused on large-cap stocks. When it comes to the trading history of the selected funds, the Parnassus Mid Cap Growth Fund (PARNX) is the oldest one (it was launched at the end of 1984). On the other hand, the Pax ESG Beta Dividend Fund (PAXDX) and the Pax Large Cap Fund (PAXLX) are the youngest, with about 5.5 years in the market. In addition, 11 funds were launched in the ’80s and the ’90s. This element could be indicative of an early interest in ESG investments about 30 or 40 years ago. However, it could be the result of an index fund changing its investment target to being ESG compliant after its initial launch many years ago.

With respect to assets, the average ESG index fund in the sample held about 2.5 billion dollars at the end of July 2022. This is a relatively big number. However, the median term of assets under management amounts to 644 million dollars, showing that most of the index funds in the sample hold significantly lower assets than the average term. The biggest index fund in the sample is the Parnassus Core Equity Fund (RPBLX), which has been around for about 30 years. This fund invests in large-cap stocks and at the end of July 2022 held about 27 billion dollars. The smallest fund in the sample is the Trillium Small/Mid Cap Mutual Fund (TSMDX), whose assets under management in July 2022 amounted to just 36 million dollars. This is a relatively young fund which invests in medium and small-cap stocks.

As far as management fees are concerned, Table 1 reports a respective average ratio of 0.60%. This percentage is lower in comparison to those of the traditional actively open-ended mutual funds. However, this average management fee is quite higher than that of the corresponding ESG ETFs.[17] The lowest management fee in the sample is 0.20% and it is charged by the Domini Social Equity Fund (DSEFX). This fund was launched in June 1991. The maximum management fee in the sample is very big at 2%, charged by the Aspiration Redwood Fund (REDWX), one of the youngest funds in the sample.[18]

Finally, when it comes to performance, all the ESG index funds in the sample present negative average returns over the last year of the study period, following the entire stock market which has been severely affected by Ukraine’s invasion by Russia, ensued energy crisis, and the inflation levels worldwide which rocketed in 2022.[19] However, the medium-term and the long-term returns of the examined index funds in the three-year and five-year periods as of 31 July 31 2022, are positive, with average terms approximating 11% for both periods. A last note

[15] Many of these 185 funds are offered in multiple shares, i.e., institutional, investors, etc., and are counted twice, thrice, and so on, in the total number of the existing ESG index funds in the U.S.. Refer to https://charts.ussif.org/mfpc/?.
[16] Tickers, names, types, inception months, management fees and returns have been found on https://charts.ussif.org/mfpc/?.
[17] In an unpublished study of ours, we have seen that the average expense ratio of ESG ETFs in the U.S. is 0.28%, being quite lower than that of the index funds examined in the current study.
[18] The fact that the youngest fund charges the highest management fees and vice versa is in line with the findings of the literature on mutual funds which show that there is a negative relationship between the age of a fund and the costs it charges investors with. In fact, we run a simple cross-sectional regression of index funds management fees on their age as of 31 July 2022 and we obtained a negative slope, which however is statistically insignificant.
[19] The S&P 500 Index lost about 14% of its value during the period 8/1/2021-7/31/2022.

about returns is that there is a wide dispersion in the sample with extreme return records ranging from 3.1% to 16.7% in the three-year period and from 5.2% to 17.2% in the five-year period.

Table 2 presents the benchmarks of the examined ESG index funds and provides information on the approach followed by each fund towards meeting the desired ESG criteria, especially with respect to investments in "sensitive" sectors such as alcohol, animal welfare, defense weapons, gambling and tobacco. Based on the focus of each index fund, companies that are frequently excluded are those operating in sectors such as adult entertainment, alcohol, tobacco, cannabis, gambling, chemical and biological weapons, cluster munitions, anti-personnel landmines, nuclear weapons, conventional military weapons, civilian firearms, nuclear power, and coal, oil, or gas. However, these sectors are not banned by all index funds.

The combination of the differences in historical returns and the variations in the ESG approach undertaken by each fund entails that all ESG index funds are not similar to each other, both from an ESG and a financial perspective. Therefore, concerned investors should be very careful when choosing among ESG products and focus on funds that serve their investment purposes.

3.4. ESG Profile of Index Funds

The ESG profiles of the examined index funds as of 31/07/2022 are provided in Table 3. Profiles include the Morningstar metrics of ESG Risk Score, Carbon Risk Score and Fossil Fuel Involvement. The ESG risk scores range from Negligible (0.00-9.99), to Low (10.00-19.99), Medium (20.00-29.99), High (30.00-39.99), and Severe (40.00 or above). The carbon risk score is a number between 0 and 100, with the less score being the better in ESG terms. This score is computed as the asset-weighted sum of the carbon risk scores of the fund's holdings, averaged over the trailing 12 months. Finally, the fossil fuel Involvement is a fund's asset-weighted percentage exposure to fossil fuels, averaged over the trailing 12 months.[20]

The average (median) Morningstar ESG Risk Score in the sample is 20.30 (19.96). In addition, 12 index funds present low ESG risk scores and the rest 15 funds have medium ESG risk scores. When it comes to carbon risk, the average and median terms are low at 5.75 and 5.23, respectively. In addition, there is no individual fund whose carbon exceeds 10. In regard to fossil fuel involvement, the average (median) percentage is 2.5% (0.8%). In addition, about half of the funds (13 out of 27) present fossil fuel involvement figures that are lower than 1% (six funds present nil fossil fuel involvement). On the other hand, there are two index funds whose fossil fuel involvement exceeds 10%, with the highest being equal to 18.2%.

Overall, the data in Table 3 indicate a rather mediocre ESG performance on behalf of the examined index funds. More than half of them are awarded medium ESG risk scores by Morningstar. Their carbon risk is low, but it is not nil. This is also the case for their fossil fuel involvement. To our view, the Morningstar ESG risk metrics could be indicative of some level of greenwashing committed by some of the examined index funds.

4. EMPIRICAL RESULTS

4.1. Correlation and Systematic Risk Analysis

The correlations between the returns of ESG index funds and the return of the S&P 500 Index are presented in Table 4. To avoid issues of noise that are frequently observed when using daily data, we also compute correlations with weekly returns too.[21] The average correlation in daily returns is 0.90. In addition, 18 funds have correlations with the S&P 500 Index of 0.90 or higher, while the lowest correlation in the sample is 0.65. The correlations obtained with weekly data are similar.

In sum, both the daily and weekly correlations indicate that the examined index funds follow very closely the S&P 500 Index as if they were supposed to track it. According to experts writing in the financial press, being closely invested in the S&P 500 Index is not that good for a fund from an ESG perspective. In any case, following the S&P 500 Index the way the index funds in our sample do may be indicative of some greenwashing on behalf of these funds.

[20] The Morningstar ESG metrics and methodological details have been found on www.morningstar.com.
[21] The returns of index funds and the S&P 500 Index have been computed in percentage terms with close prices found on www.nasdaq.com.

The correlations of index funds' daily and weekly returns with the ESG indexes are essentially equal to those obtained for the S&P 500 Index. The differences in correlations among the four indexes considered, if any, do not exceed one basis point (bps). This element may entail that the "constructors" of the ESG indexes in the U.S. do not do their best to differentiate their ESG benchmarks from the broad market index. In other words, we may conclude that investing in the ESG index funds or in the S&P 500 Index itself is actually the same thing. If this inference is true, then it may be considered that some of the examined index funds apply greenwashing.

This inference is further supported by the estimates of index funds' betas with the S&P 500 Index found in Table 5.[22] We point out that in passively managed mutual funds and ETFs, beta can be used as a tool for assessing the degree of a fund's replication of an index. In particular, a beta of 1 indicates a full replication of the underlying index.

The results in Table 5 are very supportive of the idea of a close tracking of the S&P 500 Index by the examined index funds. The average beta obtained for the daily (weekly) returns is 0.97 (1.00). The lowest daily and weekly betas in the sample with the S&P 500 Index are 0.84 and 0.83, respectively. The highest are 1.10 and 1.22. In addition, while the majority of individual betas (either those estimated with daily returns or those obtained via using weekly returns) are statistically significantly different from unity, the differences are not that material from an economic perspective (not exceeding 5 bps in many cases).

Overall, the analysis of index funds' betas with the S&P 500 Index indicates a high level of correlation between them, as shown through the correlation analysis above. Based on our results, the criticism of the ESG funds by the financial press and the academia that they just track the S&P 500 Index cannot be considered unjustified. In fact, it seems that the ESG index funds in the U.S. are highly aligned with the performance of the S&P 500 Index.

As we did with correlations, we estimate the betas of ESG index funds with the three alternative ESG indexes used in our analysis for controlling purposes. Following the patterns in correlations, betas with those indexes are not significantly different from those obtained for the S&P 500 Index. Therefore, once again, the high resemblance between the S&P 500 Index and the three ESG indexes is verified. Consequently, the inference about some level of greenwashing on behalf of index funds is verified too.

4.2. Holdings Analysis

The outcomes of the holdings' analysis are reported in Table 6. The table shows the portion of each index fund's holdings of stocks with severe, high, medium, low and negligible ESG Morningstar risk, along with the portion of the non-S&P 500 Index assets held by each ETF.[23]

With respect to the severe ESG risk, the exposure of the examined index funds to such stocks is rather immaterial. The average exposure in the sample is just 0.15%. In addition, there are only two funds (the Amana Growth Fund-AMAGX and the Calvert U.S. Large Cap Value Responsible Index Fund-CFJAX),[24] whose exposure to stocks from the S&P 500 Index with severe ESG risk exceeds 1% (2.06% at a maximum). Moreover, 21 funds hold no stocks with severe ESG risk.

When it comes to the exposure to high ESG risk, the analysis indicates that the examined index funds do not totally refrain from such stocks. In particular, the average weighting of the S&P 500 Index stocks with high risk is 3.37%, which is not that big. However, there are six funds in the sample which invest 5% of their assets or more in stocks with high ESG risk. One of them (the Amana Growth Fund-AMAGX) also invests 2.06% of its assets in stock with severe ESG risk. The highest exposure to stocks with high risk is 11.03% (shown by the Amana Income Fund-AMANX).

Combining the exposures to stocks with severe and high ESG risk results in seven index funds (or 26% of the

[22] Betas are estimated with a simple time-series regression model via which the daily (or the weekly) return of each index fund is regressed on the corresponding return of the market index.

[23] It should be noted that in 13 cases, the components of index fund's portfolio are not fully disclosed publicly. The portion of the non-disclosed stocks is noted in the "Unknown" column of Table 6.

[24] The top-five holdings of AMAGX are Apple (10.11%), Intuit (5.7%), ASML Holding NY (4.82%), Adobe (3.82%), and Estee Lauder (3.72%). The top-five holdings of CFJAX are JPMorgan Chase (2.78%), Bank of America (2.03%), Verizon Communications (1.67%), Walmart (1.48%), and Wells Fargo (1.46%).

entire sample) investing 5% of their assets or more in stocks with poor ESG profiles.[25] This finding may indicate that the index funds, which are exposed to stocks from the S&P 500 Index with severe and high ESG risk but classify themselves as being ESG compliant, employ some sort of greenwashing.

As further testing of the possible negligence on behalf of some ESG index funds with respect to their duty to seek companies with the best ESG practices, we examine whether these funds are exposed to well-known companies which have received criticism about their ESG practices. The companies considered are Tesla, Inc. and Amazon.com. The first one was ineligible for inclusion in the S&P 500 ESG Index, during the rebalancing of the index at the end of April 2022, due to its low S&P DJI ESG score relative to its global industry group peers.[26] The second has been recently included in the "Dirty Dozen" list of the most dangerous employers in the U.S. by the National Council on Occupational Safety and Health even though it was among the first companies to announce plans to reduce their emissions to zero by 2050.[27]

As we see in Table 6, 5 out of the 27 index funds in the sample invest in Tesla or Amazon or both. This means that about one-fifth of the examined ESG funds are in some breach of their ESG goals. This choice may be justified from a financial perspective. However, most ESG investors would probably feel more comfortable if the managers of their funds are more concerned about adhering to the best ESG principles and choosing companies with ESG profiles of undoubtedly high standards.

Overall, it seems rather weird that an ESG index fund cannot avoid investing in companies with malpractices from an ESG perspective. To our view, an index fund that claims that it abides by ESG principles should refrain itself from investing in companies with poor ESG performance. According to the results of the holdings' analysis, this is not the case for several index funds in our sample. These results verify the inferences that we have already reached through the correlation and systematic risk analyses in the previous section, that is, to some extent, the ESG index funds in the United States are possibly involved in greenwashing practices.

5. CONCLUSION

This paper examines whether the ESG index funds in the U.S. apply greenwashing practices. Greenwashing refers to funds or companies that promote themselves as being ESG compliant but, in reality, they do not do their best to meet their green promises. In mutual funds, greenwashing translates into investing in companies with poor ESG performance. In our study, we use a sample of 27 index funds and cover a period spanning from 1 August 2017 to 31 July 2022. The sample represents 58% of total assets held by the institutional member firms of the Forum for the Sustainable and Responsible Investments in the U.S. at the end of July 2022. Our examination of greenwashing includes correlation and systematic risk analyses of index funds with the S&P 500 Index and three alternative ESG indexes. In addition, the holdings of each ESG index fund are scanned against the components of the S&P 500 Index to detect stocks of this index with severe or high Morningstar ESG risk scores that are held by the ESG index funds.

The results reveal a very high correlation in returns between ESG index funds and the S&P 500 Index, as well as with the alternative ESG indexes used for controlling purposes. The differences in correlations among the four market indexes used are essentially nil, indicating that those who construct the ESG indexes, to a large extent, just follow the S&P 500 Index.

This inference is further verified by the estimations of the systematic risk of index funds with the S&P 500 Index and the other three indexes. On average, betas approximate unity, implying a rather full replication of the S&P 500 Index on behalf of the examined index funds. These results are in line with the concerns expressed in the

[25] This sum could be bigger if we were able to search among the portion of the undisclosed stocks held by 13 funds in our sample.

[26] Margaret Dorn from the S&P Dow Jones Indices provides explanations on why Tesla, Inc. has been banned from the S&P 500 ESG Index. In particular, the S&P DJI ESG Score of Tesla has deteriorated due to its lack of low carbon strategy and codes of business conduct. In addition, claims of racial discrimination and poor working conditions at Tesla's Fremont factory have been made. Tesla has received further criticism for its handling of the NHTSA investigation after multiple deaths and injuries were linked to its autopilot vehicles. Refer to: https://www.indexologyblog.com/2022/05/17/the-rebalancing-act-of-the-sp-500-esg-index/.

[27] Refer to https://www.cnbc.com/2021/08/29/amazons-biggest-hardest-to-solve-esg-issue-may-be-its-own-workers.html.

financial press that ESG funds are just market trackers.

Our findings entail that, to some degree, following ESG indexes is not different from following the S&P 500 Index. If this is really the case, the ESG index funds that adopt such investment practices possibly apply some sort of greenwashing. This conclusion is also confirmed via analyzing the holdings of the ESG index funds. The analysis revealed that several funds hold 5% of their assets or more in S&P 500 Index stocks with severe and high ESG risk profiles. In addition, some of them invest in companies which are not famous for their ESG practices (such as Tesla, Inc. and Amazon.com).

Overall, all the tests we applied revealed that the ESG index funds in the U.S. do not fully abide by the ESG principles as they should do. On the contrary, it seems that some greenwashing is the case in the ESG index funds industry in the U.S. This fact entails that the ESG-concerned investors may end up with investments which do not meet their criteria for responsible investing. Therefore, investors should be careful when forming their investing choices, while more regulatory control may be needed.

The research on greenwashing practices by ESG funds can be expanded in several ways. The fixed income niche of the market could be examined, as well as the equity segment with an international focus. The analysis could also include alternative ESG metrics, such as those of MSCI, as well as ETFs and other ESG investment products. However, it could probably be more interesting to implement a comparative analysis of the ESG compliance in the fund industry between Europe and the United States. This comparison would be of particular interest due to the stronger regulatory action undertaken in Europe relative to the U.S. In addition, for just one of the few times in the history of stock markets, Europe and not the U.S. leads the global ESG market. Due to this element, a comparison between the two continents is highly desired.

AUTHORS' DECLARATION

This paper complies with Research and Publication Ethics, has no conflict of interest to declare, and has received no financial support.

AUTHORS' CONTRIBUTIONS

All sections are written by the author.

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APPENDIX

Table 1. Profiles of the Index Funds

Ticker	Name	Type	Inception	AUM ($M) @ 7/31/222	Managemet Fee (%)	1 yr Avg %	3 yr Avg %	5 yr Avg %
AMAGX	Amana Growth Fund	Large Cap	Feb, 1994	3,238	0.67	-7.86	16.74	17.23
AMANX	Amana Income Fund	Large Cap	June, 1986	1,547	0.76	-1.24	12.03	10.96
REDWX	Aspiration Redwood Fund	Large Cap	Nov, 2015	136	2.00	-7.56	10.86	10.91
CSIEX	Calvert Equity Fund	Large Cap	Aug, 1987	5,856	0.55	-6.61	13.87	16.68
CSXAX	Calvert U.S. Large Cap Core Responsible Index Fund	Large Cap	June, 2000	4,117	0.24	-9.43	13.05	12.76
CGJAX	Calvert U.S. Large Cap Growth Responsible Index Fund	Large Cap	June, 2015	388	0.24	-11.21	15.91	16.03
CFJAX	Calvert U.S. Large Cap Value Responsible Index Fund	Large Cap	June, 2015	1,778	0.24	-6.62	9.23	8.49
DSEFX	Domini Social Equity Fund	Large Cap	June, 1991	917	0.20	-12.65	12.46	10.77
GCEQX	Green Century Equity	Large Cap	June, 1991	515	0.25	-8.64	12.82	12.45
NBSRX	Neuberger Berman Socially Resp	Large Cap	Mar, 1994	1,501	0.47	-8.77	11.19	9.91
PRBLX	Parnassus Core Equity Fund	Large Cap	Aug, 1992	26,956	0.57	-7.52	12.43	13.27
PARWX	Parnassus Endeavor Fund	Large Cap	Apr, 2005	4,756	0.66	-9.24	16.47	12.52
PAXDX	Pax ESG Beta Dividend Fund	Large Cap	Dec, 2016	104	0.65	-5.96	9.00	9.87
PXWGX	Pax ESG Beta Quality Fund	Large Cap	June, 1997	285	0.63	-6.22	11.41	11.34
PAXLX	Pax Large Cap Fund	Large Cap	Dec, 2016	1,421	0.65	-7.21	16.15	14.45
MGNDX	Praxis Growth Index Fund	Large Cap	Apr, 2007	510	0.25	-9.30	15.49	15.44
MVIAX	Praxis Value Index	Large Cap	Apr, 2011	384	0.25	-2.48	9.24	9.19
WSEFX	Walden Equity Fund	Large Cap	June, 1999	247	0.75	-4.55	11.85	12.77
CCAFX	Calvert Mid Cap Fund	Mid-Sm Cap	Oct, 1994	277	0.77	-12.03	4.64	7.50
CCVAX	Calvert Small Cap Fund	Mid-Sm Cap	Sep, 2004	2,783	0.80	-6.63	7.03	9.07
PARMX	Parnassus Mid Cap Fund	Mid-Sm Cap	Apr, 2005	7,174	0.70	-10.72	6.00	7.77
PARNX	Parnassus Mid Cap Growth Fund	Mid-Sm Cap	Dec, 1984	781	0.61	-26.44	3.10	5.21
PXSCX	Pax Small Cap Fund	Mid-Sm Cap	Mar, 2008	644	0.75	-14.79	7.25	5.56
MMSCX	Praxis Small Cap Fund	Mid-Sm Cap	Apr, 2007	160	0.30	-10.15	8.57	7.57
TSMDX	Trillium Small/Mid Cap Mutual Fund	Mid-Sm Cap	Aug, 2015	36	0.75	-9.62	9.08	8.08
WAMFX	Walden Midcap Fund	Mid-Sm Cap	July, 2011	100	0.75	-1.82	9.22	10.96
WASMX	Walden SMID Cap Innovations Fund	Mid-Sm Cap	June, 2012	114	0.75	-2.85	9.55	10.45
Average				**2,471**	**0.60**	**-8.45**	**10.91**	**11.01**
Median				**644**	**0.65**	**-7.86**	**11.19**	**10.91**
Min				**36**	**0.20**	**-26.44**	**3.10**	**5.21**
Max				**26,956**	**2.00**	**-1.24**	**16.74**	**17.23**
Data Source: SIF - The Forum for Sustainable and Responsible Investments (https://charts.ussif.org/mfpc/?).								

Note: This table presents the profiles of ESG Index Funds, which include their ticker, name, type, inception month, assets under management (AUM) as of 31 July 2022, the management fee , and the average return over one, three and five years (during the period 1 August 2017 to 31 July 2022).

Table 2. Benchmarks of Index Funds

Ticker	Benchmark Name	ESG Approach
AMAGX	S&P 500 Composite Total Return	It applies business sector and ESG screens to eliminate companies primarily involved in certain activities including interest, gambling, pork, fossil fuel extraction, alcohol, tobacco, pornography and weapons.
AMANX	S&P 500 Composite Total Return	It applies Business sector and ESG screens to eliminate companies primarily involved in certain activities including interest, gambling, pork, fossil fuel extraction, alcohol, tobacco, pornography and weapons.
REDWX	S&P 500 Composite Total Return	It seeks to identify material Key Performance Indicators (KPIs) that are industry specific, and can be indicators of superior sustainability performance (68 sustainability factors across 21 industries).
CSIEX	S&P 500 Composite Total Return	Sectors of restricted/exclusionary investment are those of alcohol, animal welfare, defense weapons, gambling and tobacco.
CSXAX	Calvert U.S. Large Cap Core Responsible Index	Sectors of restricted/exclusionary investment are those of alcohol, animal welfare, defense weapons, gambling and tobacco.
CGJAX	Calvert U.S. Large Cap Growth Responsible Index	Sectors of restricted/exclusionary investment are those of alcohol, animal welfare, defense weapons, gambling and tobacco.
CFJAX	Calvert U.S. Large Cap Value Responsible Index	Sectors of restricted/exclusionary investment are those of alcohol, animal welfare, defense weapons, gambling and tobacco.
DSEFX	S&P 500 Composite Total Return	It focuses on universal human dignity and environmental sustainability and seeks to avoid investment in companies that are the worst contributors to climate change, and to include companies with strong energy efficiency measures or that offer climate solutions. It also engages directly with our holdings on a range of climate change issues.
GCEQX	S&P 500 Composite Total Return	It is fossil fuel-free, low-carbon investment option that avoids carbon-intensive companies. It does not invest in companies that explore for, extract, produce, manufacture or refine coal, oil or gas or produce or transmit electricity derived from fossil fuels or transmit natural gas or have material carbon reserves.
NBSRX	S&P 500 Composite Total Return	The management team simultaneously performs ESG research to identify companies with leadership criteria in areas of environmental impact, workplace practices, community relations, supply chain and product integrity.
PRBLX	S&P 500 Composite Total Return	Sectors of restricted/exclusionary investment are those of alcohol, animal welfare, defense weapons, gambling and tobacco. It also avoids investing in companies that derive significant revenue from business with Sudan.
PARWX	Russell 1000 Value Index	Sectors of restricted/exclusionary investment are those of alcohol, animal welfare, defense weapons, gambling and tobacco. It also avoids investing in companies that derive significant revenue from business with Sudan.
PAXDX	Russell 1000	Combination of positive and restricted/exclusionary strategies in alcohol and animal welfare. No investment in tobacco and defense weapons.
PXWGX	Russell 1000	Combination of positive and restricted/exclusionary strategies in alcohol, animal welfare and gambling. No investment in tobacco and defense weapons.
PAXLX	S&P 500 Composite Total Return	Restricted/exclusionary strategies in animal welfare. No investment in alcohol, gambling, tobacco and defense weapons.
MGNDX	MSCI U.S. Prime Market Growth Index	Restricted/exclusionary strategies in animal welfare. No investment in alcohol, gambling, tobacco and defense weapons.
MVIAX	MSCI US Prime Market Value Index	Restricted/exclusionary strategies in animal welfare. No investment in alcohol, gambling, tobacco and defense weapons.
WSEFX	S&P 500 Composite Total Return	Sectors of restricted/exclusionary investment are those of alcohol, animal welfare, defense weapons, gambling and tobacco.
CCAFX	Russell Mid Cap Growth	Sectors of restricted/exclusionary investment are those of alcohol, animal welfare, defense weapons, gambling and tobacco.
CCVAX	Russell 2000 Value	Sectors of restricted/exclusionary investment are those of alcohol, animal welfare, defense weapons, gambling and tobacco.

PARMX	Russell Midcap Index	Restricted/exclusionary investments in alcohol, defense weapons, gambling and tobacco. Positive investment in animal welfare.
PARNX	Russell Mid Cap Growth	Restricted/exclusionary investments in alcohol, defense weapons, gambling and tobacco. Positive investment in animal welfare.
PXSCX	Russell 2000	Combination of positive and restricted/exclusionary strategies in alcohol, gambling and animal welfare. No investment in tobacco and defense weapons.
MMSCX	Russell 2000	Restricted/exclusionary investments in animal welfare and no investments in alcohol, defense weapons, gambling and to tobacco.
TSMDX	S&P 1000	No Screens in alcohol. Combination of positive and restricted/exclusionary strategies in animal welfare, defense weapons, and gambling. No investment in tobacco.
WAMFX	Russell Midcap	Restricted/exclusionary investments in alcohol, defense weapons, gambling, animal welfare and tobacco.
WASMX	Russell 2500	Restricted/exclusionary investment in alcohol, defense weapons, gambling and tobacco. Combination of positive and restricted/exclusionary strategies in animal welfare.
Data Source: SIF - The Forum for Sustainable and Responsible Investments (https://charts.ussif.org/mfpc/?).		

Note: This table presents the benchmarks of ESG index funds and the followed ESG approach.

Table 3. ESG Profiles of Index Funds

Ticker	Morningstar ESG Risk		Carbon Risk Score	Fossil Fuel Involvement %
AMAGX	17.90	Low	3.11	0.46
AMANX	21.15	Medium	6.30	3.00
REDWX	19.46	Medium	5.54	0.00
CSIEX	17.21	Low	3.34	0.00
CSXAX	20.93	Medium	5.53	1.84
CGJAX	19.96	Low	3.87	0.59
CFJAX	22.59	Medium	8.90	3.67
DSEFX	19.78	Low	4.25	0.47
GCEQX	18.87	Low	4.43	0.12
NBSRX	19.07	Low	4.42	2.43
PRBLX	18.34	Low	4.49	2.28
PARWX	18.72	Low	4.04	0.00
PAXDX	20.38	Medium	8.71	18.21
PXWGX	18.23	Low	4.36	1.17
PAXLX	19.28	Low	4.93	0.00
MGNDX	18.93	Low	3.25	0.60
MVIAX	20.88	Medium	8.11	11.59
WSEFX	19.97	Low	5.85	3.51
CCAFX	20.34	Medium	7.64	5.69
CCVAX	24.93	Medium	N/A	0.00
PARMX	19.70	Low	6.90	2.86
PARNX	18.84	Low	3.90	0.00
PXSCX	25.49	Medium	N/A	0.00
MMSCX	24.65	Medium	N/A	2.79
TSMDX	21.15	Medium	9.65	0.83
WAMFX	20.16	Medium	7.77	5.09
WASMX	21.25	Medium	8.65	0.00
Average	**20.30**		**5.75**	**2.49**
Median	**19.96**		**5.23**	**0.83**
Min	**17.21**		**3.11**	**0.00**
Max	**25.49**		**9.65**	**18.21**

Source: www.morningstar.com.

Note: This table presents the ESG profiles of Index Funds as of 31/07/2022 which include the Morningstar ESG Risk Score, the Carbon Risk Score and the percentage of the Fossil Fuel Involvement.

Table 4. Correlations

Ticker	Panel A: Daily Returns				Panel B: Weekly Returns			
	Index 1	**Index 2**	**Index 3**	**Index 4**	**Index 1**	**Index 2**	**Index 3**	**Index 4**
AMAGX	0.92	0.92	0.93	0.93	0.91	0.92	0.92	0.92
AMANX	0.91	0.90	0.90	0.90	0.90	0.90	0.90	0.89
REDWX	0.92	0.91	0.91	0.91	0.93	0.93	0.92	0.92
CSIEX	0.93	0.93	0.93	0.93	0.92	0.93	0.91	0.92
CSXAX	0.99	0.98	0.99	0.99	0.99	0.99	0.99	0.99
CGJAX	0.96	0.96	0.96	0.97	0.96	0.96	0.96	0.96
CFJAX	0.92	0.91	0.91	0.91	0.92	0.91	0.91	0.90
DSEFX	0.65	0.65	0.65	0.65	0.62	0.63	0.63	0.63
GCEQX	0.99	0.98	0.99	0.99	0.99	0.99	0.99	0.99
NBSRX	0.91	0.91	0.90	0.90	0.91	0.91	0.91	0.91
PRBLX	0.93	0.93	0.93	0.93	0.93	0.92	0.93	0.93
PARWX	0.88	0.87	0.87	0.87	0.88	0.87	0.87	0.86
PAXDX	0.72	0.72	0.72	0.72	0.69	0.69	0.68	0.68
PXWGX	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PAXLX	0.88	0.87	0.87	0.87	0.89	0.89	0.88	0.89
MGNDX	0.95	0.95	0.96	0.96	0.95	0.94	0.95	0.95
MVIAX	0.92	0.90	0.91	0.90	0.92	0.91	0.91	0.90
WSEFX	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
CCAFX	0.89	0.89	0.88	0.88	0.89	0.89	0.88	0.88
CCVAX	0.86	0.85	0.84	0.84	0.86	0.86	0.85	0.85
PARMX	0.94	0.94	0.93	0.93	0.94	0.95	0.94	0.94
PARNX	0.89	0.89	0.89	0.89	0.90	0.90	0.89	0.90
PXSCX	0.85	0.84	0.84	0.83	0.88	0.88	0.86	0.86
MMSCX	0.79	0.79	0.78	0.77	0.81	0.81	0.80	0.79
TSMDX	0.91	0.91	0.90	0.90	0.92	0.92	0.91	0.90
WAMFX	0.92	0.92	0.91	0.91	0.93	0.93	0.92	0.92
WASMX	0.92	0.92	0.91	0.90	0.93	0.93	0.92	0.91
Average	**0.90**	**0.89**	**0.89**	**0.89**	**0.90**	**0.90**	**0.89**	**0.89**
Median	**0.92**	**0.91**	**0.91**	**0.90**	**0.92**	**0.91**	**0.91**	**0.90**
Min	**0.65**	**0.65**	**0.65**	**0.65**	**0.62**	**0.63**	**0.63**	**0.63**
Max	**0.99**	**0.98**	**0.99**	**0.99**	**0.99**	**0.99**	**0.99**	**0.99**

Note: This table presents the correlation estimates of each ESG Index Fund with the S&P 500 Index (Index 1), the MSCI USA ESG Select Index (Index 2), the S&P 500 ESG Index (index 3), and the S&P United States Large-Mid-Cap ESG Index (Index 4).

Table 5. Betas

Ticker	Panel A: Daily Returns								Panel B: Weekly Returns							
	Index 1	T-test	Index 2	T-test	Index 3	T-test	Index 4	T-test	Index 1	T-test	Index 2	T-test	Index 3	T-test	Index 4	T-test
AMAGX	0.94[a]	-5.93	0.94[a]	-5.56	0.93[a]	-6.38	0.93[a]	-6.80	0.89[a]	-4.26	0.90[a]	-4.22	0.90[a]	-4.08	0.90[a]	-4.22
AMANX	0.84[a]	-14.70	0.84[a]	-14.38	0.83[a]	-15.25	0.82[a]	-15.75	0.83[a]	-6.47	0.84[a]	-6.51	0.84[a]	-6.35	0.83[a]	-6.52
REDWX	1.10[a]	7.55	1.10[a]	6.93	1.08[a]	6.15	1.08[a]	5.72	1.22[a]	6.99	1.22[a]	7.13	1.21[a]	6.48	1.20[a]	6.28
CSIEX	0.93[a]	-7.43	0.93[a]	-6.94	0.92[a]	-8.07	0.91[a]	-8.59	0.91[a]	-3.83	0.91[a]	-3.76	0.91[a]	-3.78	0.90[a]	-3.89
CSXAX	1.01[b]	2.52	1.01	1.51	1.00	0.98	1.00	-0.11	0.99	-0.52	0.99	-0.83	1.00	-0.30	0.99	-0.62
CGJAX	1.05[a]	6.32	1.06[a]	6.05	1.05[a]	6.41	1.05[a]	6.51	1.00	0.06	1.00	0.07	1.01	0.50	1.01	0.50
CFJAX	0.94[a]	-5.33	0.93[a]	-5.57	0.93[a]	-6.39	0.92[a]	-7.10	0.97	-1.06	0.96	-1.32	0.96	-1.35	0.95[c]	-1.60
DSEFX	0.97	-0.82	0.97	-0.78	0.97	-0.99	0.97	-1.07	0.97	-0.42	0.98	-0.27	0.98	-0.30	0.98	-0.30
GCEQX	1.02[a]	4.50	1.02[a]	3.37	1.01[b]	2.91	1.01[c]	1.73	1.00	0.08	1.00	-0.18	1.00	0.42	1.00	0.16
NBSRX	0.95[a]	-4.25	0.95[a]	-3.96	0.94[a]	-5.00	0.93[a]	-5.52	0.99	-0.48	0.99	-0.51	0.99	-0.48	0.98	-0.64
PRBLX	0.94[a]	-6.29	0.93[a]	-6.23	0.93[a]	-6.91	0.92[a]	-7.45	0.92[a]	-3.55	0.91[a]	-3.71	0.92[a]	-3.42	0.92[a]	-3.58
PARWX	1.07[a]	4.61	1.07[a]	3.89	1.06[a]	3.41	1.05[b]	2.90	1.11[a]	3.01	1.10[b]	2.57	1.10[b]	2.59	1.10[b]	2.40
PAXDX	0.89[a]	-4.77	0.88[a]	-4.98	0.88[a]	-5.22	0.87[a]	-5.49	0.87[b]	-2.33	0.86[b]	-2.41	0.86[b]	-2.38	0.86[b]	-2.44
PXWGX	0.95[a]	-4.25	0.94[a]	-4.29	0.94[a]	-4.86	0.93[a]	-5.28	0.97	-0.97	0.97	-1.02	0.97	-0.94	0.97	-1.03
PAXLX	0.98	-1.09	0.98	-1.19	0.97[c]	-1.67	0.97[b]	-2.06	1.06[c]	1.63	1.06[c]	1.69	1.06[c]	1.60	1.05	1.55
MGNDX	1.06[a]	5.89	1.05[a]	5.16	1.05[a]	5.96	1.05[a]	6.02	1.01	0.50	1.01	0.38	1.02	1.09	1.02	1.02
MVIAX	0.91[a]	-8.37	0.90[a]	-8.60	0.89[a]	-9.26	0.88[a]	-9.91	0.95[b]	-2.07	0.94[b]	-2.39	0.94[b]	-2.25	0.93[b]	-2.53
WSEFX	0.96[a]	-6.92	0.95[a]	-6.62	0.95[a]	-7.88	0.94[a]	-8.70	0.96[b]	-2.86	0.95[a]	-3.06	0.96[b]	-2.71	0.95[a]	-3.01
CCAFX	0.93[a]	-4.83	0.93[a]	-4.74	0.92[a]	-5.69	0.92[a]	-6.10	1.00	0.13	1.00	0.07	1.00	-0.08	0.99	-0.22
CCVAX	0.95[b]	-2.80	0.95[b]	-2.80	0.93[a]	-3.86	0.93[a]	-4.28	1.00	-0.08	0.99	-0.17	0.98	-0.41	0.98	-0.56
PARMX	0.89[a]	-11.52	0.90[a]	-11.05	0.88[a]	-12.23	0.87[a]	-12.77	0.95[b]	-2.49	0.95[b]	-2.46	0.94[b]	-2.58	0.94[b]	-2.74
PARNX	1.03[b]	2.03	1.04[b]	2.75	1.02	1.38	1.02	1.49	1.05	1.46	1.06[c]	1.83	1.05	1.45	1.05	1.57
PXSCX	0.99	-0.84	0.99	-0.83	0.97[c]	-1.95	0.96[b]	-2.27	1.10[b]	2.75	1.10[b]	2.78	1.09[b]	2.29	1.09[b]	2.23
MMSCX	1.05[b]	2.28	1.05[b]	2.10	1.03	1.17	1.02	0.76	1.15[b]	2.83	1.14[b]	2.74	1.13[b]	2.44	1.12[b]	2.28
TSMDX	1.03[b]	2.58	1.03[b]	2.59	1.01	0.94	1.00	0.36	1.11[a]	3.57	1.11[a]	3.69	1.09[b]	2.93	1.09[b]	2.74
WAMFX	0.91[a]	-8.49	0.91[a]	-8.09	0.89[a]	-9.41	0.88[a]	-9.98	0.98	-0.88	0.98	-0.93	0.97	-1.14	0.96	-1.42
WASMX	0.94[a]	-5.42	0.94[a]	-4.95	0.92[a]	-6.54	0.91[a]	-7.14	1.01	0.27	1.01	0.43	1.00	-0.11	0.99	-0.37
Average	**0.97**		**0.97**		**0.96**		**0.95**		**1.00**		**1.00**		**1.00**		**0.99**	
Median	**0.95**		**0.95**		**0.94**		**0.93**		**0.99**		**0.99**		**0.99**		**0.98**	
Min	**0.84**		**0.84**		**0.83**		**0.82**		**0.83**		**0.84**		**0.84**		**0.83**	
Max	**1.10**		**1.10**		**1.08**		**1.08**		**1.22**		**1.22**		**1.21**		**1.20**	
a: statistically different from unity at 1% level; b: statistically different from unity at 5%; c: statistically different from unity significance at 10% level.																

Note: This table presents the beta estimates of each ESG Index Fund (single-factor model) against the S&P 500 Index (Index 1), the MSCI USA ESG Select Index (Index 2), the S&P 500 ESG Index (index 3), and the S&P United States Large-Mid-Cap ESG Index (Index 4) over the period 1 August 2017 to 31 July 2022. T-tests assess the differences of betas from unity.

Table 6. Analysis of ESG Index Funds' Holdings vs the S&P 500 Index

Ticker	Severe ESG Risk (%)	High ESG Risk (%)	Total Severe & High ESG Risk (%)	Medium ESG Risk (%)	Low ESG Risk (%)	Negligible ESG Risk (%)	Total S&P 500 Index Exposure	Other non-S&P 500 Holdings (%)	Unknown	Total Portfolio (%)	Invested in Tesla[1]	Invested in Amazon[2]
AMAGX	2.06	3.36	5.42	20.96	49.67	2.62	78.67	21.33	0.00	100.00	No	No
AMANX	0.00	11.03	11.03	29.53	34.10	2.51	77.17	22.83	0.00	100.00	No	No
REDWX	0.00	1.86	1.86	19.22	32.27	2.79	56.14	15.89	27.97	100.00	No	No
CSIEX	0.00	0.00	0.00	23.24	68.75	3.18	95.17	4.83	0.00	100.00	No	No
CSXAX	0.36	6.89	7.25	36.92	43.00	0.97	88.14	11.86	0.00	100.00	Yes	Yes
CGJAX	0.05	7.58	7.63	32.15	50.46	1.21	91.45	8.55	0.00	100.00	Yes	Yes
CFJAX	1.01	6.07	7.08	45.76	28.44	0.40	81.68	18.32	0.00	100.00	No	No
DSEFX	0.19	4.79	4.98	28.76	46.72	1.83	82.29	17.71	0.00	100.00	Yes	Yes
GCEQX	0.27	2.84	3.11	38.20	51.82	2.92	96.04	3.96	0.00	100.00	Yes	No
NBSRX	0.00	2.88	2.88	22.19	34.96	0.00	60.03	13.34	26.63	100.00	No	No
PRBLX	0.00	3.70	3.70	30.50	57.50	2.80	94.50	5.50	0.00	100.00	No	No
PARWX	0.00	2.20	2.20	38.50	47.40	1.50	89.60	10.40	0.00	100.00	No	No
PAXDX	0.00	0.00	0.00	7.35	8.22	0.00	15.57	21.56	62.87	100.00	No	No
PXWGX	0.00	1.54	1.54	11.42	31.27	0.00	44.23	3.99	51.78	100.00	No	No
PAXLX	0.00	4.04	4.04	22.61	30.63	0.00	57.28	1.94	40.78	100.00	No	Yes
MGNDX	0.00	8.94	8.94	11.29	37.47	1.81	59.51	1.30	39.19	100.00	Yes	Yes
MVIAX	0.00	3.79	3.79	18.26	6.41	4.08	32.54	1.46	66.00	100.00	No	No
WSEFX	0.00	8.17	8.17	18.26	33.28	2.96	62.67	3.16	34.17	100.00	No	No
CCAFX	0.00	2.30	2.30	24.24	33.93	0.00	60.47	39.53	0.00	100.00	No	No
CCVAX	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	100.00	No	No
PARMX	0.00	0.00	0.00	29.70	40.40	0.00	70.10	29.90	0.00	100.00	No	No
PARNX	0.00	0.00	0.00	18.90	41.20	0.00	60.10	39.90	0.00	100.00	No	No
PXSCX	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.80	44.20	100.00	No	No
MMSCX	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.05	84.95	100.00	No	No
TSMDX	0.00	3.54	3.54	5.45	8.63	0.00	17.62	34.28	48.10	100.00	No	No
WAMFX	0.00	3.64	3.64	13.44	21.18	0.00	38.26	8.99	52.75	100.00	No	No
WASMX	0.00	1.80	1.80	1.99	14.45	0.00	18.24	25.22	56.54	100.00	No	No
Average	**0.15**	**3.37**	**3.51**	**20.33**	**31.56**	**1.17**	**56.57**	**19.87**	**23.55**	**100.00**		
Median	**0.00**	**2.88**	**3.11**	**20.96**	**33.93**	**0.40**	**60.10**	**15.05**	**0.00**	**100.00**		
Min	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.30**	**0.00**	**100.00**		
Max	**2.06**	**11.03**	**11.03**	**45.76**	**68.75**	**4.08**	**96.04**	**100.00**	**84.95**	**100.00**		

[1] Investing in Tesla, Inc. is used as an indication of an Index Fund's non full-adherence to ESG principles because this company was ineligible for inclusion in the S&P 500 ESG Index, during the rebalancing of the index at the end of April, 2022, due to its low S&P DJI ESG Score.

[2] Investing in Amazon.com is used as a further indication of an Index Fund's non full-adherence to ESG principles because this company has attracted serious criticism about its practices which are not considered to be in line with the best ESG practices.

Note: This table presents a breakdown of ESG Index Funds' holdings vs the components of the S&P 500 Index based on the ESG Risk Scores awarded by Morningstar. Five ESG Risk categories are assumed by Morningstar for the components of the S&P 500 Index, namely Severe Risk, High Risk, Medium Risk, Low Risk, and Negligible Risk.

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Investigation of the Asymmetric Causality Relationship of Global Risks and Uncertainties on Renewable and Non-Renewable Energy Prices

Küresel Riskler ve Belirsizliklerin, Yenilenebilir ve Yenilenemez Enerji Fiyatları Üzerindeki Asimetrik Nedensellik İlişkisinin İncelenmesi

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ABSTRACT

This study examines the relationship between VIX Volatility Index, Geopolitical Risk and Natural Gas, Brent Oil and Green Energy between December 2016 and October 2022 with Hatemi-J Asymmetric Causality analysis. Variables were tested based on monthly data and using the analysis model. The obtained findings were examined by applying binary tests with the independent variables GPR and VIX index and the dependent variables GAS, BRENT and GREEN. While GPR and VIX index and GAS showed significance at the level of 1%, no significant relationship was found with BRENT. While GREEN did not have a significant relationship with GPR, it was found to be significant at the 5% level with the VIX index. When there was a positive increase in the GPR and VIX index, it was seen that the increase in GAS prices was positive. However, the same is not true for BRENT oil prices.

Anahtar Kelimeler:
Jeopolitik Risk,
Brent Petrol,
VIX Endeksi,
Yeşil Enerji
Jel Kodları:
C01, C12, E00

ÖZET

Bu çalışma VIX Volatilite Endeksi, Jeopolitik Risk ile Doğalgaz, Brent Petrol ve Yeşil Enerji arasındaki ilişkiyi Hatemi-J Asimetrik Nedensellik analizi ile Aralık 2016 ile Ekim 2022 yılları arasında incelemektedir. Değişkenler aylık veri baz alınarak ve analiz modeli kullanılarak test edilmiştir. Elde edinilen bulgular, bağımsız değişkenler olan GPR ve VIX endeksi ile bağımlı değişkenler GAS, BRENT ve GREEN ile ikili testler uygulanılarak aradaki bağlantılar incelenmiştir. GPR ve VIX endeksi ile GAS %1 düzeyinde anlamlılık gösterirken, BRENT ile hiçbir anlamlı ilişkiye rastlanılmamıştır. GREEN ise GPR ile anlamlı bir ilişki yokken VIX endeksi ile %5 düzeyinde anlamlı olduğu görülmüştür. GPR ile VIX endeksinde pozitif bir artış olduğu zaman GAS fiyatlarındaki artışta pozitif olduğu görülmüştür. Ancak aynı durum BRENT petrol fiyatları için geçerli değildir.

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1. INTRODUCTION

Energy is generally defined as the potential to do work (Karakoç et al., 2011: 3). It is a basic need input for the continuity of the vital cycle of human life and is the most important factor of a mechanism that directly or indirectly affects daily life (Aydin, 2010: 318). The continuity of the economic development of the countries is directly proportional to the continuous and sufficient energy source. It is the first input in the production phase in the economy and is the most important item that closely concerns the goods and services sector (Konak, 2019: 198).

Non-renewable energy sources are fossil energy sources of animal and plant origin. These are coal, oil, natural gas and uranium. Ease of transportation and transmission, export impact, environmental impact, flexible end-use and potential for substitution, etc. have different characteristics from each other (Bilginoğlu, 1991: 123). Non-renewable energy sources have three basic features. These are the resources; it is limited, geographically unevenly distributed and it causes environmental pollution. These features cause problems for countries to meet sufficient energy to ensure economic sustainability.

Renewable energy sources, on the other hand, are clean energy compared to non-renewable energy sources and are less harmful to humans and nature, and are natural energy sources obtained from the sun, wind, geothermal, hydraulic, biomass and sea (Emeksiz & Fındık, 2021: 157). Renewable energy is an alternative, clean energy source that is sourced from nature and renews itself continuously. Each country and region can find a secondary energy source and integrate it into their economy according to its absolute superiority (Ramachandra & Shruthi, 2007: 1461-1463). Especially thanks to the cost reductions in solar and wind energy and subsidy policies, the sector has achieved rapid growth (IEA, 2022).

These three factors emerge as the main problem of all economies. Owning energy resources, being in a strategic position and having easy access to energy have always been the most important policy items of economies. Therefore, the word energy geopolitics and energy security have played an important role in the world energy supply-demand exchange (Demir, 2010: 4380). Energy security can generally be defined as the availability of sufficient energy resources. The Oil Crisis in 1973 showed that easy access to energy is the most important step for economic development (Sevim, 2012: 4384). When we look at the year 2017, it is known that 73.5% of the world's electricity production is obtained from non-renewable energy sources, namely fossil fuels (petroleum, natural gas, coal and nuclear energy) (Qazi et al., 2019: 63837), as well as 25% of the global electricity production obtained from natural gas (IEA, 2022). In addition, the share of renewable energy, which is a substitute for non-renewable energy sources, in global electricity production in 2020 is 29% (IEA, 2021).

With the Industrial Revolution that started towards the end of the 18th century, the need for energy increased and accessibility to (Frederick, 2016: 9) energy became much more important with the emergence of mechanized industry and global production. The main problem of the 20th century has been the energy supply. Economic growth after 1990 has been based on non-renewable energy. In fact, in the period when energy consumption increased by 40%, 80% of energy use was non-renewable energy (Devezas et al., 2008: 3).

When we come to the 20th century, oil has been the main energy source of economies. The majority of non-renewable energy resource reserves are located in the Middle East geography. The instability in this region has been a problem for countries (Durğun & Durğun, 2018: 2). Reserve distribution is as follows: Middle East Region: 48.1%, Central and South America Region: 18.7%, North America: 14%, Eurasia: 8.4%, Africa: 7.2%, Asia: 2.6%, and Europe: 0.8% (BP, 2021). As a matter of fact, economies suffered serious damage in the crisis that the Union of Arab Petroleum Exporting Countries (OAPEC) started in 1973. It has caused an economic crisis for energy-importing countries (Mut, 2010: 85-88).

Economic policy uncertainty (EPU) has always existed in human life. The Great Depression and II. Events such as World War II create uncertainty at a level that may hinder the development of the most appropriate policy and the progress of economic development. Consumption policies of renewable energy have a key role in the fight against climate change. Understanding how the EPU affects renewable energy markets will be important in designing the best policies in this area. Policies set by economies focus on subsidizing renewable energy and actively using it to regulate this sector. Without uncertainty, renewable energy producers make production decisions according to the policies determined by the government. Where the EPU is higher, incentives set by the government begin to deteriorate and the energy supply is disrupted. This situation negatively affects the amount of renewable energy consumed due to the deterioration of the supply chain (Ivanovski & Marinucci, 2021: 1-2).

Another uncertainty that economies should take into account when formulating energy policy is climate policy uncertainty. Policies or policy changes made by the government can create uncertainty in investment and

consumption decisions. Climate policy uncertainty may cause investments to be postponed, as it will increase the cost of production for investors in the event of a change in the given subsidy rates or a tax increase. This situation may adversely affect economic growth due to changes in energy consumption (Shang et al., 2022: 655).

The energy markets are considered to be at risk in the risky periods in global markets and the resulting uncertainty. In this direction, it is assumed that this study will have an impact on renewable energy and non-renewable energy prices in global risk and uncertainty environments. In reaching this conclusion, it is frequently mentioned in the academic literature by Blomberg et al., (2009); Jubinski & Lipton (2013); Bruckner et al., (2015); Ehin & Berg (2016); Mikulska (2020); Liu et al., (2021); Chen (2022) studies have been effective. In general, it has been determined that there is volatility in energy prices in the global risk environment. In this context, some studies on the importance of the subject (Gürsoy, 2021) only investigate the relationship between non-renewable energy and prices, while some studies focus on renewable energy. In this study, it focused on both renewable and non-renewable energy prices. In addition, it is hoped that the use of the VIX index will provide an opportunity to see its effect on the financial markets. With this aspect, it is expected that it will contribute to academic studies.

It is expected that a broad study of the effects of the VIX index and the GPR index, which affect renewable and non-renewable energy resources, will contribute positively to the academic literature. The most important feature of this study, which distinguishes it from other studies, is the joint investigation of the responses of renewable and non-renewable energy sources against global risk and uncertainty.

In the following parts of the study, the literature studies are given in the second part, and the methodology part is included in the third part. The data of the study, the econometric model used and the findings obtained from the study will be presented in tabular form. In Chapter 4, the findings will be interpreted comparatively with the literature. Finally, in light of the findings obtained, it will form a basis in terms of giving an idea for other studies to be done in this field.

2. LITERATURE REVIEW

There is a large literature on natural gas and oil. In this study, which is based on the VIX index and the GPR index, which affect natural gas and oil prices, it is aimed to investigate the energy markets. The effects of global risks and uncertainties on energy have been the subject of research in many studies. It has been seen in the literature that there may be different results as a result of the variables discussed. The fact that the natural gas market is regional and the oil market is global has greatly affected the results.

There are many publications in the literature to explain the energy relations between Russia and Europe. When we examine the literature, there are studies that reveal empirical results on Russian Natural Gas and European energy dependence. Europe's high dependence on natural gas and the use of Russian gas due to its geopolitical position make it important to explore this energy source. While the majority of the studies are based on empirical practice in European countries, it has been observed that panel analysis methods are also used, and when the results are examined, there are findings that Russian gas is effective on European markets.

Lloyd & Klare (2008); Casier (2011); Kropatcheva (2011); Stern et al., (2014); Henderson & Mitrova (2015); Laine (2015); Fischer (2016); Ehin & Berg (2016); Siddi (2016); Kuzemko et al., (2017); Mikulska (2020) examined the relationship between security of supply between Gazprom and Europe. The common point in these studies is Gazprom's desire and ability to use geopolitical superiority, as well as Europe's dependence on Russian Natural Gas. In addition, Stern et al., (2014) argue that the search for alternative energy will have a positive impact on Southeast Europe and the Baltic countries, while it is estimated to be more difficult for Eastern Europe. In the studies of Henderson & Mitrova (2015), it has been seen that Russia and Europe are mutually dependent and Russia's geopolitical weakness against China. In the study of Mikulska (2020), the policy difficulties in determining energy prices for Europe, the high vulnerability of Central and Eastern Europe, the monopoly of Gazprom in the market and the weak geopolitical situation of Russia against the Chinese market have also emerged.

Although the main factor determining oil price volatility, in the long run, is supply and demand, geopolitical risk, which is one of the important factors, has decisive importance. The relationship between GPR and BRENT oil price has been extensively studied in the literature. In the literature we have examined, studies showing how geopolitical risks and shocks in the oil market respond positively or negatively to the economies, as well as in the short, medium and long term, have been reached. It has been determined that both geopolitical risk and global economic policy uncertainty constitute a risk premium, especially in distressed market conditions. In addition, it

has been observed that the impact of geopolitical risk, global and economic policy uncertainty is much more important in adverse economic conditions.

Blomberg et al., (2009); Kang et al., (2017); Chen et al., (2020); Mamun et al., (2020); Zhang & Yang (2020) It has been determined that shocks in BRENT oil prices have an effect on economic uncertainty. In general, while a positive effect is seen in the short and long term, it is said that these shocks have a negative effect on uncertainty in the medium term. Bruckner et al., (2015); Chen et al., (2016); Kumar et al., (2021); Lee et al., (2021); Liu et al., (2021); Li et al., (2022); Aslam et al., (2022); Zhao (2022) conclude that the GPR has a significant positive effect on the BRENT oil price. Also, Lee et al., (2021) It has been argued that the GPR negatively affects BRENT oil returns.

Chicago Board Options Exchange Volatility (VIX Fear Index) has another variable feature that affects financial and commodity markets. In situations of uncertainty, economies tend to act more cautiously. The extent to which the economic development VIX index will be effective may vary. Many studies dealing with different results have been found in the literature.

Jubinski & Lipton (2013); Andreasson et al., (2016) argued that the VIX Fear Index significantly affected BRENT Oil Prices. Prasad et al., (2022) determined that the VIX Fear Index has a strong prediction in determining BRENT Oil Prices. At the same time, it has been included in the study of Chen (2022) that it has more impact on developing economies. On the other hand, Kang et al., (2020) argued that the VIX Fear Index affects BRENT Oil Prices in the short term.

3. DATA, MODEL, AND METHODOLOGY

3.1. The Aim of The Study and Method, Data

This study, it was investigated whether the data on energy renewable and non-renewable energy prices changed in the global risk and uncertainty environment. If a change is taking place, it is aimed to reveal in which direction it is trending. Accordingly, the econometric model for investigating the asymmetric effect was preferred in the empirical application part. In the application part of the study, the Geopolitical Risk Index (GPR) and VIX index data were taken as independent variables, and symmetric and asymmetric causality models were established in which each other variable took place as an independent variable. NASDAQ Clean Edge Green Energy Index (GREEN) representing renewable energy prices, Natural Gas Futures (GAS) and Brent Oil Futures (BRENT) index representing non-renewable energy prices were chosen as dependent variables. Thus, it has been tried to reach the findings in which direction the energy prices change in the global risk and uncertainty environment. In the application part of the study, the Lee-Strazicich unit root test was used, which allows the structural break of the data sets to the variables, and the Hatemi -J (2012) test was used in the analysis part.

The variables used in the study consist of GPR, VIX, GAS, BRENT, and GREEN. As of the period, Hatemi-J (2012) asymmetric causality test was run by using monthly data (190 observations) to cover the period from December 2006 to October 2022. While GPR (2022) address was used for the GPR variable used in the analysis, monthly data (Investing, 2022) were obtained for the other variables.

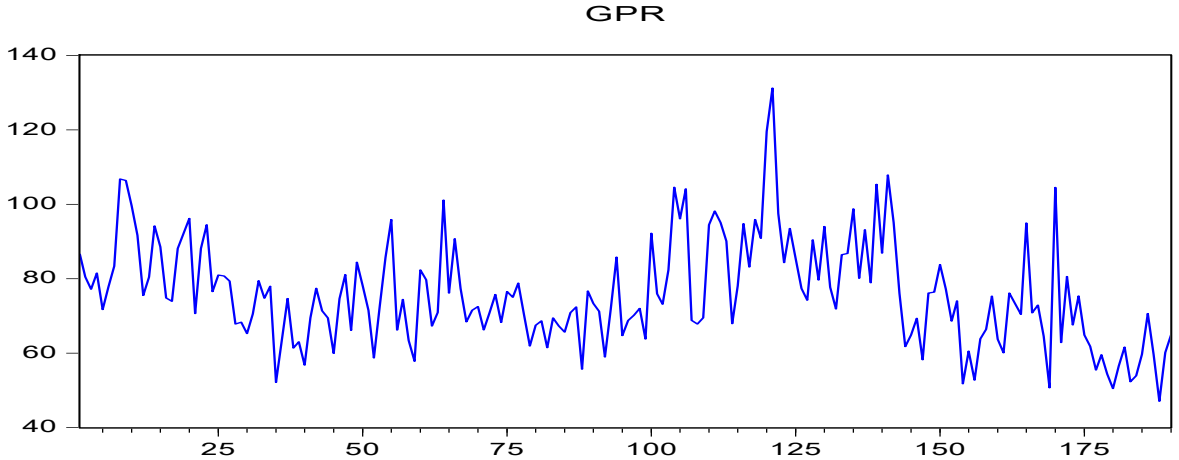

Figure 1. GPR Time Series Chart

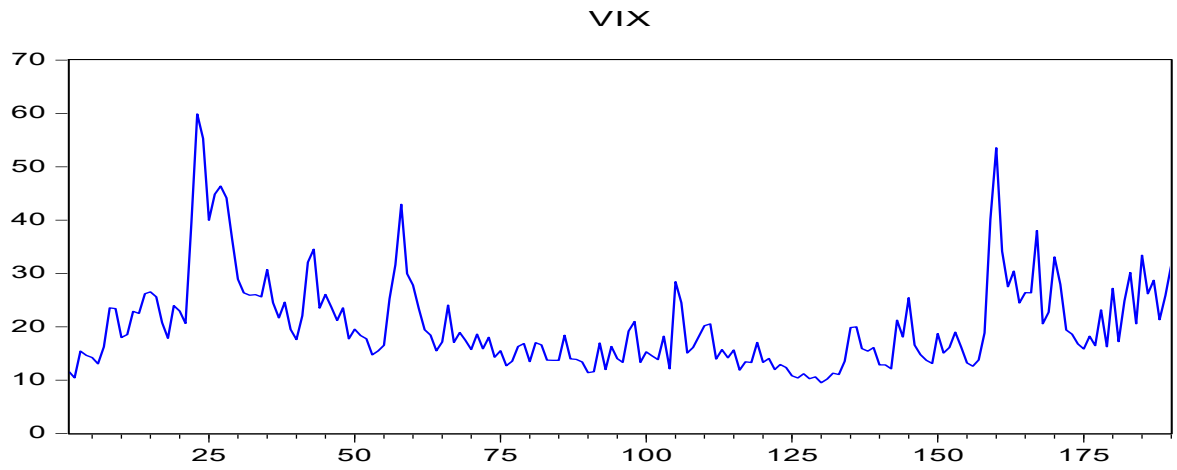

Figure 2. VIX Time Series Chart

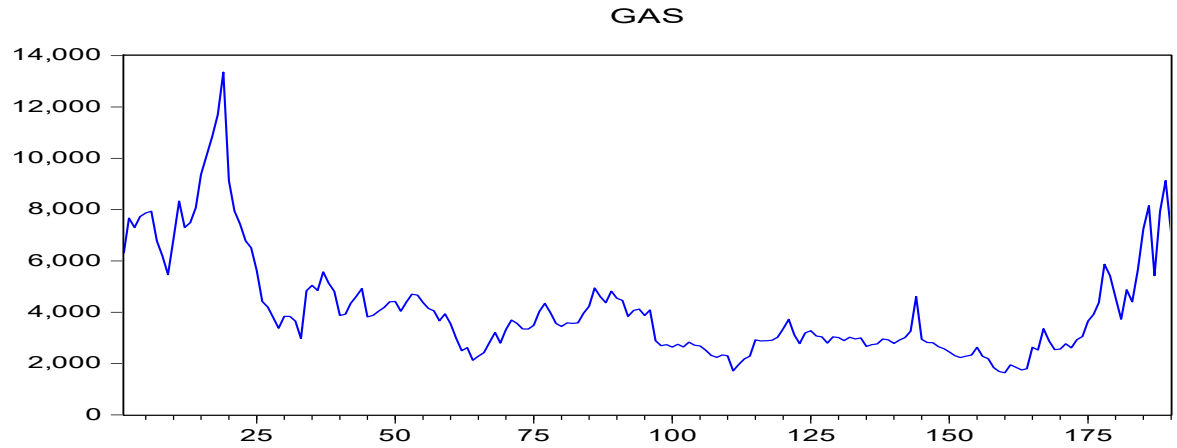

Figure 3. GAS Time Series Chart

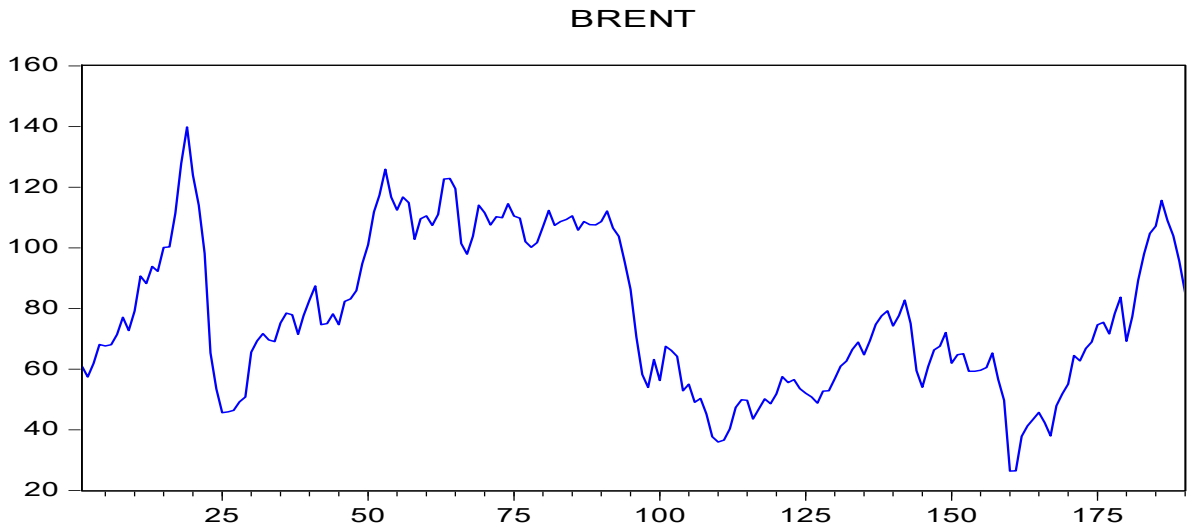

Figure 4. BRENT Time Series Chart

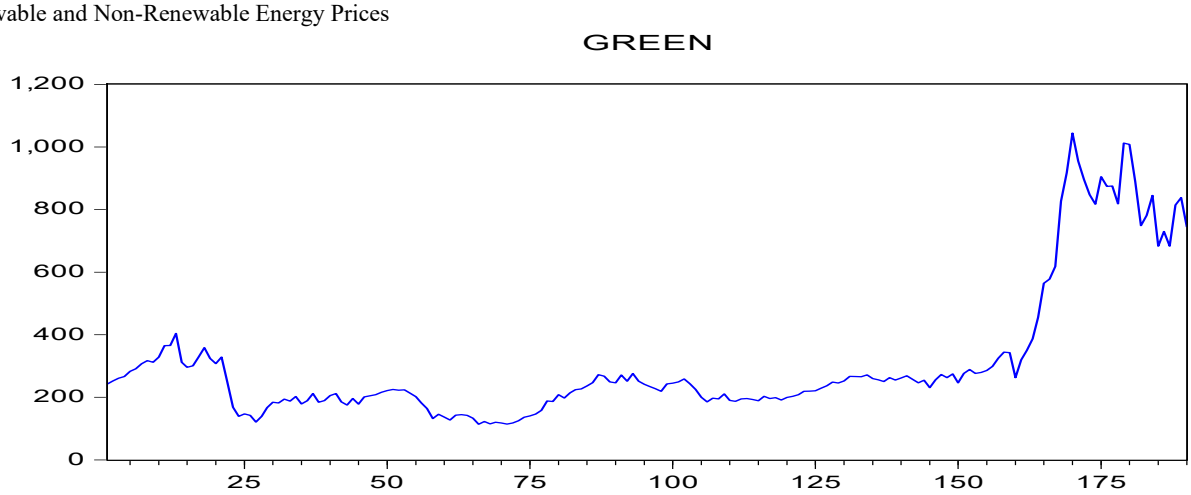

Figure 5. GREEN Time Series Chart

3.2. The Research Hypotheses

In the study, it was determined whether the data sets had a break and whether they contained a unit root (whether it was stationary or not). Whether the data sets are trending and whether there is a causal relationship between the data. The hypotheses related to the research are arranged as follows.

***H₀**: There is no causal relationship between GPR, VIX index and GAS, BRENT, GREEN.*

***H₁**: H₀: There is a causal relationship between GPR, VIX index and GAS, BRENT, GREEN.*

3.3. Lee-Strazicich Unit Root Test

Before running an application method on time series, the condition that the series of variables are stationary must be satisfied. Accordingly, Extended Dickey Fuller-ADF (1981); Phillips-Perron (1988); Ng Peron (2001) etc. It is used in unit root tests. In studies using only these tests, data breakouts cannot be obtained. On the other hand, other unit root tests that allow structural break have been developed in order to eliminate this deficiency Gürsoy, (2020: 404). The tests developed by Lee and Strazicich (2003, 2004) are the next-generation unit root tests.

3.4. Hatemi-J Asymmetric Causality Analysis

In the asymmetric causality analysis tests, it is argued that there may be a hidden relationship between two-time series that cannot be related and thought to be unrelated at first glance and that these hidden relationships can only be found if the asymmetry between the components is considered. Developed by Hatemi-J (2012), causality is examined by dividing the variables into positive and negative components. In this asymmetric causality analysis, it is aimed to find hidden relationships that will help to understand the dynamics of the series and allow to develop possible predictions for the future. Bayraktaroğlu et al., (2021: 10-11)

In this case, we want to test the causality relationship between two integrated variables y_{1t} and y_{2t} (Hatemi-J 2012:449–50);

$$y_{1t} = y_{1t-1} + \varepsilon_{1t} = y_{10} + \sum_{i=1}^{t} \varepsilon_{1i}$$
$$y_{2t} = y_{2t-1} + \varepsilon_{2t} = y_{20} + \sum_{i=1}^{t} \varepsilon_{2i} \quad (1)$$

$t = 1, 2, \ldots T$, indicate the constant term, y_{1t} and y_{2t} denotes initial values, ε_{1i} and ε_{2i} error terms. Positive and negative shocks are expressed as in equation (2).

$$\varepsilon_{1i}^{+} = \max\ (\varepsilon_{1i}, 0)$$
$$\varepsilon_{2i}^{+} = \max\ (\varepsilon_{2i}, 0)$$
$$\varepsilon_{1i}^{-} = \min(\varepsilon_{1i}, 0)$$
$$\varepsilon_{2i}^{-} = \min\ (\varepsilon_{2i}, 0) \quad (2)$$

Therefore, it is implemented as $\varepsilon_{1i} = \varepsilon_{1i}^{+} + \varepsilon_{1i}^{-}$ and $\varepsilon_{2i} = \varepsilon_{2i}^{+} + \varepsilon_{2i}^{-}$.

Then, according to it is possible to regulate equations (1) and (2), its expressed;

$$y_{1t} = y_{1t-1} + \varepsilon_{1t} = y_{1,0} + \sum_{i=1}^{t} \varepsilon_{1i}^{+} + \sum_{i=1}^{t} \varepsilon_{1i}^{-} \quad (3)$$

$$y_{2t} = y_{2t-1} + \varepsilon_{2t} = y_{2,0} + \sum_{i=1}^{t} \varepsilon_{2i}^{+} + \sum_{i=1}^{t} \varepsilon_{2i}^{-} \quad (4)$$

Finally, negative shocks and the positive shocks in each variable are processed in cumulative form as

$$y_{1t}^{+} = \sum_{i=1}^{t} \varepsilon_{1i}^{+}, \qquad y_{1t}^{-} = \sum_{i=1}^{t} \varepsilon_{1i}^{-}, \qquad y_{2t}^{+} = \sum_{i=1}^{t} \varepsilon_{2i}^{+}, \qquad y_{2t}^{-} = \sum_{i=1}^{t} \varepsilon_{2i}^{-} \quad (5)$$

According to equations that are $y_t^{+} = y_{1t}^{+}, y_{2t}^{+}$, the causality relationship among the positive components is examined through the p delay vector autoregressive model (VAR). VAR (p) model is expressed as in equation (6);

$$y_t^{+} = v + A_1 y_{t-1}^{+} + \cdots + A_p y_{t-1}^{+} + u_t^{+} \quad (6)$$

3.5. The Results of the Lee-Strazicich Unit Root Test

The C model was taken into account in the unit root test analyzes of the research, and the results are presented in Table 1 below.

Table 1. Lee- Strazicich (C Model) Unit Root Test Results

Variables	I (0) (T) Statistic	Level Break Date	Critical Value	1.Difference (T) Statistic	1. Difference Date	Critical Value
GPR	-7.100750*	May 2015	-4.250632			
VIX	-3.885028	August 2019	-4.030284	-8.456327*	September 2014	-4.247772
GAS	-3.847094	May 2020	-4.066868	-7.111587*	September 2018	-4.171087
BRENT	-3.959475	September 2014	-4.249029	-6.990696*	December 2019	-4.088393
GREEN	-6.487416*	January 2020	-4.088572			

Note: *: %1 and **: %5 level are significant.

According to the Lee-Strazich Unit Root Test results, it was observed that the GPR and GREEN variables were stationary at the level. In addition, VIX, GAS and BRENT variables were found to be stationary at the 1st difference.

3.6. The Results of the Hatemi-J Asymmetric Causality Analysis

In this part of the study, GPR, VIX, GAS, BRENT, and GREEN variables were analyzed with the asymmetric causality test introduced to the literature by Hatemi-J (2012). The Hatemi-J asymmetric causality test was performed with the help of Gauss 10 econometric analysis package program. Table 3 presents the findings from the Hatemi-J Asymmetric Causality Test.

Table 2. Results of the Relationship Between Variables Analysis

Direction of the Causality	(T) Statistic	Bootstrap Critical Value		
		%1	%5	%10
GPR (+) > GAS (+)	13.119*	11.925	8.216	6.427
GPR (-) > GAS (-)	131.704*	13.948	9.941	8.025
VIX (+) > GAS (+)	27.788*	14.215	9.842	7.869
VIX (-) > GAS (-)	30.053*	11.745	8.056	6.431
GPR (+) > BRENT (+)	3.690	11.382	7.931	6.369
GPR(-) > BRENT (-)	4.840	11.306	7.966	6.344

VIX (+) > BRENT (+)	2.144	11.986	8.006	6.339
VIX (-) > BRENT (-)	3.212	11.348	7.906	6.346
GPR (+) > GREEN (+)	8.240	21.047	9.489	6.658
GPR (-) > GREEN (-)	6.915	13.917	8.702	6.791
VIX (+) > GREEN (+)	14.053**	17.536	9.507	6.706
VIX (-) > GREEN (-)	11.574**	14.598	8.983	6.852

Note: *: %1 and **: %5 level are significant.

As can be seen in Table 2, 12 different equations were established between the variables. While GPR and VIX index were included as independent variables for all variables, BRENT, GAS and GREEN were analyzed as dependent variables. All variables were interpreted by analyzing in the form of dual tests.

According to the results of the equation in which the GPR is included as an independent variable, it was found that the positive increase in the GPR had an effect on the GAS at the 1% significance level. These results were obtained because the T statistical values (13.119) were greater than the bootstrap critical value (8.636). The H0 hypothesis was rejected, H1 hypothesis was accepted. In addition, the results of the equation in which the negative relationship established between GPR and GAS were tested, resulted in the same direction. The T statistical value (131.704) was higher than the bootstrap value (9.941) and was found to be significant.

According to the results of the equation in which the VIX index is included as an independent variable, it has been found that the positive increase in the VIX index has an effect on the VIX index at the 1% significance level. These results were obtained because the T statistical values (27.788) were greater than the bootstrap critical value (9.842). The H0 hypothesis was rejected, H1 hypothesis was accepted. In addition, the results of the equation in which the negative relationship established between the VIX index and GAS were tested, resulted in the same direction. The T statistical value (30.053) was greater than the bootstrap value (8.056) and was found to be significant. However, it is understood from the coefficients (131.704), (27.788) that the common side of the equations in which GPR and VIX index are included as dependent variables is that a negative change is more dominant on non-renewable energy prices than positive changes.

According to the results of the equation in which GPR and VIX index were included as independent variables, it was seen that there was no statistically significant effect on BRENT. The H1 hypothesis was rejected and the H0 hypothesis was accepted. In addition, there were findings that a change in the VIX index had an effect on GREEN at the 5% significance level. To reach these results, it is based on the fact that the T statistical values (14.053), in which the positive relationship is tested, are greater than the bootstrap critical value (9.507). It is based on the fact that the T statistical values (11.574) in which the negative relationship is tested are greater than the bootstrap critical value (8.983). However, it was observed that neither a positive nor a negative change in the GPR index had a statistically significant effect on GREEN. In this case, the H0 hypothesis was accepted and the H1 hypothesis was rejected.

4. CONCLUSION

Energy is the most basic need for the continuation of life. Its source can be renewable or non-renewable energy. Here, the most correct energy policies should be chosen for the continuity of the economies. There are many variables that affect energy resources. These variables should be given due importance in order to be affected by negativities at a minimum level.

Global risks and uncertainties experienced in economies have significant effects on social development. Making economies more resilient to these risks and uncertainties means having a minimal impact from negativities. Since energy is the beginning of the universe's existence and the most important input item for the continuation of human beings, investments should be arranged accordingly in order for the determined policies to be implemented effectively. The development period in economies is a process that covers a long period and also negatively affects the environment. While economic growth affects the environment negatively at the beginning, it tends to decrease after reaching the per capita income threshold. Since the demand for energy for production will be more intense at the beginning of economic growth, the damage to the environment tends to increase. However, in the period when economic growth passes into the stage of economic development, it brings with it the demand for efficient use of energy, changes in energy production and consumption, and the demand for a clean environment. As a result, it is argued that economic growth will have a positive effect on the clean environment in the long run (Pala and Barut, 2021: 349).

In this direction, the GPR index and VIX index variables were used to represent global risk and uncertainty in the application part of the study. Hatemi – J (2012) asymmetric causality model was run by using monthly data as of December 2006-October 2022. In the study, in which GPR and VIX index was determined as independent variables, GAS, BRENT and GREEN variables were modeled as dependent variables in binary tests. In general, the findings suggest that global risks and uncertainties are effective on non-renewable energy (GAS-BRENT) and renewable energy GREEN.

In the study, the findings obtained as a result of the dual tests of the relationship between GPR and GREEN were determined by Yang et al., (2021); Wang et al., (2022) support the results with their studies. However, Flouros et al., (2022), the opposite results were obtained. At the same time, the findings obtained as a result of the dual tests of the relationship between the VIX index and GREEN support the results with the studies of Liu & Hamori (2020); Özdurak (2021). On the other hand, the findings obtained as a result of the bilateral tests of the relationship between GPR and BRENT were found by Wang et al., (2021); Gong et al., (2022) and reached opposite results in their studies. It has been observed that the price of BRENT oil is highly affected by the GPR variable. As soon as geopolitical risk arises, oil prices react to this negativity. In addition, the findings obtained as a result of the bilateral tests of the relationship between GPR and GAS were reported by Wang et al., (2022) support the results of this study.

In this study, we came to the following conclusion. It was concluded that econometric models, which include energy policy-related variables, should be consulted for future studies. Because it is thought that not only risk and uncertainty factors but also energy policies can be effective on energy prices. Since energy security always has a dynamic structure, various policy implications can be put forward. Considering the findings obtained from the analysis, GAS prices from non-renewable energies reacted in the same direction when the risk in global financial markets increased and decreased, while Brent oil prices were not affected by this activity. This situation has been interpreted as having a discriminatory structure for crude oil markets and GAS obtained from these markets. However, while only the VIX index has an effect on renewable energy prices, it has been concluded that the geopolitical risk index GPR is not effective. This situation can be interpreted as renewable energy prices are more related to financial markets in which different sectors are located in international markets, rather than factors such as war and threat. Considering the advantages of renewable energy resources, which are the substitutes for non-renewable resources, policies can be developed and the goal of economic development can be achieved. The energy supply problem is minimized and continuity in the economy is ensured.

In order to ensure continuity in the economies of the new century, energy policies must be made in the most accurate and applicable way. Considering the risk of depletion of oil and natural gas energy resources in the near future, shifting investments towards renewable energy resources can be seen as the most important step in energy policies. Although the cost of investments in renewable energy sources is high in the short term, it is seen as very beneficial in the long term. At the same time, the fact that renewable energy sources are not affected by any geopolitical risks in the global arena minimizes energy disruptions. In addition, since renewable energy sources are clean energy, there will be no negative environmental effects.

AUTHORS' DECLARATION
This paper complies with Research and Publication Ethics, has no conflict of interest to declare, and has received no financial support.

AUTHORS' CONTRIBUTIONS
Conceptualization, writing-original draft, editing – EÖ and SA, data collection, methodology, formal analysis – EBE, Final Approval and Accountability – EÖ and SA

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Examining the Demographic Factors Influencing Malaysians' Attitudes Toward Cash Waqf

Malezyalıların Küresel Vakıflara Nakit Katılım Konusundaki Tutumlarını Etkileyen Demografik Faktörlerin İncelenmesi

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ABSTRACT

This research paper investigates Malaysians' attitudes toward cash waqf contributions based on Ahmad Tarusan's research. To supplement the scant previous literature in this area of research, a survey questionnaire was administered to Malaysians regardless of gender, age, racial background, or study field. The questionnaires were developed and digitally circulated using convenience sampling techniques. The samples consisted of 107 Malaysians, and the data was analyzed using SPSS. This study was represented by Malay women majoring in Islamic Studies who are under 30 years old. However, mean statistics showed otherwise; Malay males tend to have a positive attitude toward cash waqf. This study implied that anyone could contribute and enjoy the benefits of waqf regardless of gender, age, race, and educational background; therefore, future research in Malaysia is required to expand their study to reach respondents from non-Muslim communities and those who are from secular backgrounds in understanding their attitude toward cash waqf. It is predicted that if Malaysians are convinced of the benefits of cash waqf and have a favorable attitude, the government and regulators will find it much simpler to implement through policy interventions. The research's findings will further enrich the existing literature on attitudes toward cash waqf, especially for the unique waqf development in Malaysia. It is because cash waqf in Malaysia may have been operated differently from the one during the Prophetic era.

Keywords:
Attitude,
Cash,
Cash Waqf,
Waqf,
Malaysia

Jel Codes:
G23 G41 H30

ÖZET

Bu araştırma Ahmad Tarusan'ın araştırmasına dayalı olarak nakit olarak yapılan vakıf katılımlarına Malezyalıların tutumlarını araştırmaktadır. Bu araştırmada alanındaki önceki literatüre de destek olmak için, cinsiyet, yaş, ırksal köken veya çalışma alanından bağımsız olarak Malezyalılara bir anket uygulanmıştır. Anketler kolayda örnekleme teknikleri kullanılarak online olarak uygulanmıştır. Örneklem 107 Malezyalıdan oluşmuştur ve SPSS paket programı kullanılarak analiz yapılmıştır. Bu çalışma 30 yaşın altında ve İslami çalışmalarda uzmanlaşmış Malay kadınlarıyla temsil edilmiştir. Buna rağmen, ortalama istatistikler Malay erkeklerin nakit vakıf katılımlarına pozitif bir yaklaşım sergilediklerini göstermiştir. Bu çalışma, cinsiyet, yaş, ırk ve eğitim geçmişine bakılmaksızın herkesin vakıftan faydalanabileceğini ve bu nedenle, Malezya'da yapılacak olan gelecekteki araştırmaların Müslüman olmayan topluluklara ve sekuler geçmişe sahip katılımcılara uygulanarak onların nakit katılıma bakış açılarını ölçerek genişletilmesi gerekliliğini vurgulamaktadır. Malezyalıların nakit olarak vakıfa katılımın faydalarına ikna olması ve bu konuda olumlu bir tutum sergilemelerinin, hükümet ve düzenleyicilerin politik müdahalelerle ortaya koyacağı uygulamaların daha kolay olacağı tahmin edilmektedir. Araştırmanın bulguları, özellikle Malezya'daki benzersiz vakıf gelişimi için Malezya'da peygamberlik döneminde bu konudaki uygulamanın muhtemelen farklı olması nedeniyle de; mevcut literatürü zenginleştirecektir.

Anahtar Kelimeler:
Tutum,
Nakit,
Nakit Katılımlı Vakıf,
Vakıf,
Malezya,

Jel Kodları:
G23 G41 H30

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1. INTRODUCTION

Unlike zakat, people from all walks of life can voluntarily contribute to waqf in varying amounts according to their income level (Osman & Muhammed, 2017). Mokthar & Bahari (2017), Thaker & Thaker (2015), and Mohsin (2009) defined cash waqf as a religious dedication in the monetary form to acquire movable or immovable assets for the benefit of society in perpetuity. As Malaysia is at the forefront of conducting research, implementing, and institutionalizing cash waqf, it is aligned with the Malaysia Government's aspiration to uphold Islam as the official religion while taking care of the welfare of the non-Muslim community in the Country (Kling, 1995). Therefore, in Malaysia, the definition of cash waqf is described by Malaysia Waqf Foundation (2019) as a religious endowment utilizing cash collected in a trust fund under the administrator's control entrusted to administer this endowment for the welfare and prosperity of the ummah. This definition signals to the public that the Malaysia Waqf Foundation is managing cash waqf funds through a group of professionals who are knowledgeable and well-versed in Islamic finance. They uphold the professional conduct of integrity, transparency, and objectivity (Malaysia Waqf Foundation, 2019). This assertion is attended to enhance public confidence in the ability of the Malaysia Waqf Foundation to do what is right with the waqf funds.

Given Government efforts on cash waqf development, the attitude of Malaysians towards cash waqf must also be positive. A positive attitude toward cash waqf may lead to the intention to contribute (Berakon, Aji & Hafizi, 2021; Andam & Osman, 2019; Abd. Shukor et al. 2017; Abd. Jalil, Pitchay & Yahya, 2017; Mokthar & Bahari, 2017). In this study, we believe that the linkage of attitude and the intention to contribute cash waqf should be based on the characteristics of *Ar-Rushd* in Quranic Surah An-Nisa, ayah 6*,* and *Ar-Rush* was well-explained by Kamri & Daud (2011). The positive attitude toward cash waqf attitude may also align with the message that the cash waqf should be for all Malaysians, and regardless of background, they can profit from waqf (Mohsin, 2009). Suppose that cash waqf funds are widely accessible and available to all Malaysians; in that case, cash waqf has enormous potential to be innovated and linked to Sukuk (Islamic bond), Islamic -based takaful benefit waqf, and waqf banks. It may attract Muslims and non-Muslim contributors (Sulistiani, 2021) to Malaysia.

The previous research's findings supplied an exciting basis for studying the attitude toward cash waqf. For example, Sadri (2021); Alifiandy & Sukmana (2020); Yusoff et al. (2017) reported that attitude toward cash waqf is positively associated with contributors' behavioral intentions to pay cash waqf. Therefore, it is sensible for many cash waqf researchers to apply the Theory of Reasoned Action (Fishbein & Ajzen, 1975) and the Theory of Planned Behavior (Ajzen, 1985) to understand the linkage between attitude and behavioral intention of cash waqf (Osman & Muhammed, 2017). Universally, based on multiple studies by Ajzen (1985), attitude could predict intention over 50% of the variance. It implies that attitude makes the most vital unique contribution in explaining the intention (Armitage & Conner, 2001) to voluntarily contribute cash waqf in the model when the variance explained by all other variables is controlled for. In this study, we assume that the questions developed by Fathurrahman & Maulana (2018), who adapted from Ajzen (1985), can also be replicated to measure cash waqf attitude in this study.

1.1. The Objective of the Study

This study aimed to capture Malaysians, particularly those who resided in Selangor and Kuala Lumpur, males, and females, below 30 and above 30 years old, Malays and non-Malays, and academic backgrounds (Islamic studies vs. Science) as the respondents of this study. This study fills the gap in the previous research, such as Iman, Santoso & Kurniawan (2021); Osman & Muhammed (2017); Fathurrahman & Maulana (2018) who targeted only Muslims for cash waqf. Thus, this research has a unique contribution compared to previous literature. It is considered that behavioral belief, or the belief on the implications of providing cash waqf, determines attitude (Osman & Muhammed, 2017). This concept is predicated on the likelihood that intended results shape cash waqf behavior and is influenced by demographic characteristics.

The significant demographic characteristic of cash waqf contributors in Malaysia is that most Malaysians have grown up with secular education, with only 4.5% having received formal Islamic education (Md. Sapir & W. Shaffee, 2020). Therefore, their behavioral belief is shaped by the economic exchange theories, considering the benefits contributors may earn from making cash waqf contributions. This means cash waqf contributors may feel positive if they receive more benefits from their cash waqf contributions (Abd Majid, 2016; Mohamed & Ariff, 2015; Hassan, 1987).

1.2. Demographic Profiles of Cash Waqf Contributors in Malaysia

To further understand the demographic profile of cash waqf contributors from Malaysia, we utilized multiple recognizable definitions and frameworks to enhance the study's validity. For example, we consider the meaning

of gender by the World Health Organization (2022) can give a good explanation of gender in this study. Most Malaysian females are currently engaged in industrial and corporate workforces. Because of their university education, modern women have earned substantial incomes from their salaries and investments and can save more than men. As a result, more women are contributing to cash waqf.

We studied the Life-Cycle Hypothesis Theory of Saving (Modigliani & Ando, 1963) to explain the age of cash waqf contributors in Malaysia. This is because many have thought the waqf system only suits those over 30 years old compared to those under 30. Through Modigliani & Ando (1963), we understand that older people have already reached career stability and own assets to contribute lands and facilities, such as building mosques and cemeteries for worship and Islamic purposes (R. Komalasari, 2020). It has caused Malaysian youth, those below 30 years old, to undervalue the role of waqf significantly as a social and financial product in today's world. Most of the younger generation participate less in waqf development because they are still studying or not in the accumulation phase of wealth (Ahmad, 2022).

While there was no absolute description of the Malaysian community, we referred to The Department of Statistics (2020) to learn about Malaysia's racial background. Individual Malaysians are said to be either Malays or non-Malays. Islam is practiced by 61.2% of the Malaysian population (The Department of Statistics (2020), but most non-Malays in Malaysia are Christians, followed by Buddhists, Hindus, and Atheists. From this study, we want to understand why the previous cash waqf analysis concentrated on the Malays group (e.g. Iman, Santoso & Kurniawan, 2021; Osman & Muhammed, 2017; Fathurrahman & Maulana) and why most non-Malays are unaware of the benefits of cash waqf. Suppose non-Malays are not included in cash waqf activities. In that case, it may have led to an absence of proper strategies linking cash waqf to Islamic financial instruments to attract non-Malays cash waqf contributors.

This study is structured as follows. Section 2 reviews the pertinent literature on cash waqf attitudes and the demographic factors used in this study. Section 3 explains the methodology and data analysis, Section 4 illustrates the findings, and Section 5 concludes the study.

2. LITERATURE REVIEW

2.1. The Concept of Cash Waqf

Waqf is an Arabic word that means restriction. It means when someone contributes a building, a piece of land, or other assets for a charity community improvement cause, such investments are owned by Allah and no longer belong to him (Mokthar & Bahari, 2017). Cash can be defined as money in the form of notes and coins, rather than checks or credit cards, that can be used instantly to execute economic operations such as purchasing, selling, or paying off debts, as well as addressing immediate needs (Ahmad, 2022). Therefore, previous researchers have defined cash waqf as a religious contribution in cash to acquire movable or immovable assets whose usufruct benefits society in perpetuity (Mokthar & Bahari, 2017; Thaker & Thaker, 2015; Mohsin, 2009).

The legitimacy of waqf is not mentioned in the Quran. However, charitable giving is advocated, as mentioned in Surah al-Hadid: 18. All four fiqh schools (i.e., Hanafi, Maliki, Shafi, and Hanbali) approved cash waqf as charitable giving. For example, Imam Zufar from the Hanafi school accepted dinar as a waqf contribution. However, Shafi and Hanbali put three specific legal conditions for cash waqf contributions. First, it cannot be revoked once the contributors pay a cash waqf. On the other hand, the contributors can also benefit from the usufruct of its underlying asset. Second, the revenue generated by cash waqf, whether immovable or moveable, must be used to sustain society's welfare. Third, the cash waqf cannot be transferred, inherited, or alienated, and it needs to be locked for charity cause once established as a waqf (Abu Zuhrah, 1972; Qureshi, 1990; Al-Zuhaili, 2004).

The cash waqf and its importance is to reduce poverty. The usufruct of the cash waqf underlying assets, such as computers and dialysis machines, can be utilized by waqf beneficiaries to improve life quality, thus reducing poverty. The income generated by cash waqf assets can be invested in socioeconomic projects such as schools and hospitals. Cash waqf allows for fundraising and investment flexibility (Osman & Muhammed, 2017). As cash is a liquid asset, it is convenient for institutions or individuals to plan and prepare a budget for the project financed by cash waqf (Baldeh, 2021; Khuwarazi, S. Mulyani & Insani, 2021; Ahmad, 2015; Khan, 2010).

Next, we reviewed the cash waqf in Malaysia in Section 2.2. It is because cash waqf in Malaysia may have been operated differently from the one during the Prophetic era. The fact that in the modern days, the subject of waqf has been largely overlooked in Malaysia's mainstream education system, as it appears to be the domain of the

country's traditional Islamic system. It is predicted that if Malaysians are convinced of the benefits of cash waqf and have a favorable attitude, the government will find it much simpler to implement through policy interventions.

2.2. Cash Waqf in Malaysia

After National Fatwa Committee endorsed and recognized cash as the waqf instrument in 2007, the Malaysia Waqf Foundation was officially established on July 23, 2008, under the Trustee Act [Incorporation] 1952 by the Department of Awqaf, Zakat, and Hajj (JAWHAR). Malaysia Waqf Foundation (2019) has uniquely defined cash waqf as a religious endowment by using cash collected in a trust fund under the administrator's management entrusted to manage this endowment for the welfare and benefit of the ummah. This organization plays a vital role in integrating the cash waqf model with the projects under State Religious Councils (SIRCs) in developing many waqf hotels and resorts in Malaysia (Malaysia Waqf Foundation, 2022). The popularity of cash waqf is also concurrently aligned with the advanced development of Islamic Banking and Finance in Malaysia (MIFC, 2015). Mokhtar, Mad Sidin, Abd. Razak (2015) claimed that one of the Islamic Financial institutions in Malaysia, Bank Muamalat Malaysia Berhad (BMMB), is leading in formalizing cash waqf collection. The Bank has collaborated with Perbadanan Wakaf Selangor (waqf management for Selangor state in Malaysia) to encourage all bank depositors to participate in cash waqf (MIFC, 2015).

The more excellent capability of Information Technology (IT), the more likely cash waqf is to be performed. The study of Hj Fauzi et al. (2019) conjectured that digital cash waqf transactions could simultaneously improve the collection, distribution, and management of waqf funds. The bank depositors can automatically allocate monthly waqf funds as low as RM 10 (or USD 2.50) to Bank Muamalat Malaysia Berhad (BMMB). When waqf is corporatized, the number of contributing cash waqf becomes greater (MIFC, 2015). In Malaysia, Johor Corporation or JCorp, a responsible Johor-state-institution in driving economic growth in the southern region of Malaysia peninsular, via its subsidiaries, the Waqf An-Nur Corporation Berhad, establishes hospitals and clinics for the poor and needy by utilizing waqf funds (Thaker & Thaker, 2015).

Institutions of higher education in Malaysia have recently begun managing cash waqf funds within the Board of Directors and the University's finance section (Abdullah, 2017). Several regulations, including the Universities and University Colleges Act 1971, Local Legislation (Trust Act 1949), and English Law, regulate these universities' endowment funds (Hasbullah & Ab. Rahman, 2021). SIRCs must approve the University as the trustee of the waqf properties and as a body capable of collecting and disbursing waqf funds. Cash waqf's role is to fund the University's projects, including providing tuition waivers to underprivileged and needy undergraduates (Niswah, Mutmainah, Hadyanti, N. Wahidin & N. Huda Fazullah, 2019; Ahmad & Farley, 2014). All students can benefit from the endowment money at this University, regardless of their religion or racial heritage (Chang, Sirat & Abd. Razak, 2018). According to the Higher Education Ministry, the University of Malaya held the most significant part of endowments to public universities in Malaysia, with RM1.6 billion as of August 2017, followed by Universiti Kebangsaan Malaysia with RM71 million (S. Jaafar, 2017).

The cash waqf in Malaysia has been discussed in the literature. The following discussion was about attitude definition and its linkage to the intention of performing cash waqf. For faith-based instruments such as cash waqf, the attitude definition refutes the exclusiveness of the sincere sense of an action to contribute cash waqf (Mokthar & Bahari, 2017; Osman, Mohammed & Fadzil, 2016).

2.3. Defining Attitude Toward Cash Waqf

Fishbein & Ajzen (1975) defined attitude as a person's favorable or unfavorable evaluation of certain entities. In Islam, a good attitude refers to someone who can perform a good judgment toward certain entities, which has been equated to the characteristics of *Ar-Rushd* in *Surah An-Nisa*, *ayah 6,* "*And test the orphans [in their abilities] until they reach marriageable age. Then if you perceive in them sound judgment, release their property to them."*

Ar - Rushd refers to the criteria of "sound judgment" in this verse. A person or Ar - *Rushd* who has credibility, experience, and capabilities in making a sound judgment would cautiously handle and manage his wealth more than those who have otherwise (Kamri & Daud, 2011). *Ar-Rushd* aligns with Atkinson & Messy (2012) when they compared attitudes toward short-term gratification and attitude toward long-term (delay of gratification) and found that the latter is associated with a high financial literacy score. The higher an individual's financial literacy score, the more likely the money will be saved (Kim, Cho & A. DeVaney, 2021). Those good Muslims with higher savings tend to channel cash to charities, including contributing waqf (Yusoff et al. 2019; Hatmawan & Sarungu, 2016; Mahdzan & Tabiani, 2013). It is deemed aligned with the behavioral intention of Fishbein & Ajzen (1975). The Prophet said,

"Verily actions are by intentions, and for every person is what he intended "

(Sahih al-Bukhari 54 & Muslim 1907).

When cash waqf contributors feel positive, beneficial, and rewarded for doing so, the intention to perform cash waqf increases by more than 50% (Al-Daihani, 2021; Iman, Santoso & Kurniawan, 2021). Al-Harethi (2019) explained the rationale of interlinkage between attitude and intention of cash waqf contribution; if one has a firm intention of making a cash contribution, the propensity to execute the actual payment of cash to waqf institution will also be increased. A positive attitude predicts one's sincere intention of contributing money to waqf institutions.

2.4. Measuring Attitude Toward Cash Waqf

In the study of Osman & Muhammed (2017), all sub-dimensions of attitude toward cash waqf adopted from the Theory of Reasoned Action (Fishbein & Ajzen, 1975) and Theory of Planned Behavior (Ajzen, 1985) were detected to be uni-dimensional and highly reliable. Reliabilities ranged from 0.85 to 0.92, indicating that all were comfortably above the threshold level of 0.70 suggested by Nunnally (1978). It can be viewed in Table 1 below.

Table 1. Cash Waqf Constructs by adopting the Theory of Reasoned Action (Fishbein & Ajzen, 1975) and Theory of Planned Behavior (Ajzen, 1985)

Elements of cash waqf	Questions
Attitude	I have a positive perception of cash waqf.
	Giving cash waqf will be rewarded.
	Giving cash waqf can help improve the Muslim socio-economy.
	I like giving cash waqf.
	Giving cash waqf is a noble practice.

Source: Osman & Muhammed, (2017).

In Iman et al. (2021) and Fathurrahman & Maulana (2018), the sub-dimensions of attitude toward cash waqf were also majorly customized and downsized to consider that the respondents were not all from religious or educational backgrounds. Thus, the emphasis was on simple cash waqf questions rather than sophisticated concepts of Islamic jurisprudence. It can be seen in Table 2 and Table 3 below.

Table 2. Cash Waqf Constructs by adopting the Theory of Reasoned Action (Fishbein & Ajzen, 1975) and the Theory of Planned Behavior (Ajzen, 1985)

Elements of cash waqf	Questions
Attitude	Implementing cash waqf is perceived as easier to use for social welfare.
	Waqf money provides satisfaction for wakif.
	Wakif has a positive perception of the development of cash waqf.
	Implementing cash waqf is considered a wise idea.

Source: Iman, Santoso & Kurniawan (2021).

Table 3. Cash Waqf Constructs by adopting the Theory of Reasoned Action (Fishbein & Ajzen, 1975) and the Theory of Planned Behavior (Ajzen, 1985)

Elements of cash waqf	Questions
Attitude	Contributing to waqf is beneficial.
	Contributing to waqf is rewarding.
	I have a positive perception of waqf.
	Contributing to waqf is a good idea.
	I like waqf.

Source: Fathurrahman & Maulana, (2018).

Based on the preceding discussion about attitude definition and measuring attitude toward cash waqf in Sections 2.3 and 2.4, this study adopted attitude questions from Fathurrahman & Maulana (2018). We adopted their questions because they were very close to the items proposed by Fishbein & Ajzen (1975) and Ajzen (1985), which undoubtedly can provide high representative reliability. Next, we discussed the relationship between demographic factors and attitude toward cash waqf in Section 2.5. In this way, we can compare the past results with our findings in the Section 5.

2.5. Relationship Between Demographic Factors and Attitude Toward Cash Waqf

For recent decades, considerable research has established a link between demographic factors and attitudes toward cash waqf. For example, Al-Harethi (2019) tested cash waqf on the sample in Kedah, Malaysia. The study was represented by females aged 21-30 majoring in Islamic studies. The beta coefficient of Al-Harethi's (2019) attitude was 0.332. It concludes that changes in the respondents' attitudes were associated with the cash waqf contribution. It implied that attitude alone could make the most vital unique contribution in explaining the cash waqf contribution when the variance explained by all other variables in the model is controlled for.

Berakon et al. (2021) and Niswah et al. (2019) studied the attitude of young people toward online cash waqf payments. This research indicates that the better the online payment system provided by Islamic banks, the greater the respondents' attitude toward cash waqf. Osman & Muhammed (2017) examined the attitude of young government officers, who earned monthly incomes between RM 1,000 – RM 2,000 (USD 200 – USD 400), have a high intention to opt for salary deduction, and it was heavily dependent on their positive attitude toward cash waqf. Dennis et al. (2018) investigated cash waqf for a group of religious people. Their paper included 54% women and 46% men, 77% of whom were between the ages of 20 and 25, and 60% had a low income and held Islamic studies qualifications. The paper indicated that when respondents' satisfaction increased with waqf institutions, the cash waqf contribution also increased by 0.446, even though they are low-income earners.

As the attitude toward cash waqf becomes significant in most of the above studies, past research has also failed to detect the linkage between demographic factors and cash waqf's attitude. For example, N. Syafira, Ratnasari & Ismail (2020) did not find any evidence to show that the sample was positively associated with cash waqf attitude without the presence of trust toward digital payment.

2.6. Demographic Factors and Attitude Toward Cash Waqf

According to Mothersbaugh & Hawkins (2016), demographic influence consumption behaviors. Cash waqf involves contributors' financial consumption. Notably, a person's attitude toward cash waqf is intimately linked to religious expenses.

Gender is defined by the World Health Organization (2022) as the socially constructed traits of women and men. This definition covers the attitude and roles of being a woman and a man and their interpersonal interactions. According to W. Ahmad & Md Sapir (2019), women's participation in household duties is rising. Modern women have become essential income earners and can save due to their university education. As a result, more women have become cash waqf contributors.

Age refers to how long someone has lived or how long something has endured (Ismail et al. 2021). In medical and health research, Cubi-Molla et al. (2018) categorized age into six groups; 18-27 years old, 28-37 years old, 38-47 years old, 48 -57 years old, 58-67 years old, and more than 68 years old. Meanwhile, Sekaran & Bougie (2016) categorized age into five categories; Under 20, 20-35 years old, 36-50 years old, 51-65 years old, and over 65. In examining the attitude toward cash waqf based on the contributors' age, it is found that the contribution amount of cash waqf depends on the relationship of age-saving behavior. According to the Life-Cycle Hypothesis Theory of Saving (Modigliani & Ando, 1963), as people get older, their desire to save increases as they prepare for retirement. Those Muslims who had more money tended to waqf their property (Yusoff et al. 2017; Sharif & Wahid, 2019; Hatmawan & Sarungu, 2016; Mahdzan & Tabiani, 2013). Younger generations prefer to spend their earnings to pay off debts and accumulate assets by investing, leaving only small cash in their bank accounts. Ahmad (2022) also stated that property waqf is not as popular as cash waqf in today's youth-oriented society. Because most conventional waqf properties are in the form of land and structures, many people, particularly young adults, find traditional waqf contributions incredibly expensive. Cash waqf has arisen as a feasible option for people of various economic backgrounds to participate in waqf regardless of their financial situation (Aldeen, Ratih & Pertiwi, 2021; Osman & Muhammed, 2017).

Non-Malays make up a minority in Malaysia, consisting of Chinese, Indians, and indigenous people. Regarding religion, most non-Malays in Malaysia are Christians, followed by Buddhists, Hindus, and Atheists. Only a minority of non-Malays are Muslim. Sarawak has the largest population of non-Malays, followed by Sabah and Peninsular Malaysia. Statistically, most non-Malays in Malaysia also receive a sound formal education. Out of 7 million educated young adults, 1.6 million Chinese, 476,000 Indians, and 966,000 Indigenous People (The Department of Statistics, 2020).

According to A. Rosli (2021) and Malaysiakini (2016), 62.3% of non-Malay Indigenous Peoples in Malaysia are classified as impoverished and should be considered waqf beneficiaries. Meanwhile, another prior research in Islamic finance reported that 72% of Chinese and Indians in Malaysia are involved in businesses, corporate

finance, and financial services rather than social finance (Abdullah & Asharaf, 2014). Therefore, the Chinese and Indian communities increasingly welcome Islamic Business Finance, such as Islamic banking, *Sukuk*, and *takaful.* This is because the Islamic corporate sector delivers more attractive returns in dividends and is more steady than relying on cash waqf benefits (Muhmad & Muhmad, 2018; W. Ahmad, Hanifa & Kang, 2019; Thaker et al. 2020).

Individuals with a formal Islamic educational background may believe cash waqf is beneficial and rewarding for socioeconomic advancement. However, in Malaysia, only 4.5% of the total population has a formal experience in Islamic education (Md. Sapir & W. Shaffee, 2020). In Md Sapir et al. (2020), Islamic knowledge is defined by the study field. Muslim with Islamic backgrounds such as Tawhidic and Islamic Thought, Al-Quran and Al-Hadith, Da'wah and Human Development, Islamic History and Civilization, Islamic Education, Islamic Political Science, and Shariah are more likely to value Islamic charity of zakat, waqf and sadaqah as beneficial for religious purposes.

In contrast, the Sciences field is defined by Ambo & Md Sapir (2020) as secular education. The concept of secular education refers to an education not based on religious doctrine and is usually governed by the State. The primary function of secular education is to match knowledge and possibilities without discriminating against children and youth by creed or religious belief. Ruslan & Md. Sapir (2021) differentiates Islamic and secular education by categorizing the study field into IT vs. non-IT courses, Islamic vs. non-Islamic studies, and finance vs. non-finance. Respondents with a scientific background, primarily encompassed by secular regulations, may view cash waqf as a voluntary donation that can provide them with personal benefits such as tax benefits and recognitions (Abd Majid, 2016; Mohamed & Ariff, 2015; Hassan, 1987).

3. METHODOLOGY

The data were analyzed using SPSS v. 26 (Ahmad Tarusan, 2020). The following analyzing techniques were only employed in this study and not be performed in Ahmad Tarusan (2020). Ahmad Tarusan (2020) employed T-Test and ANOVA as the analysis technique, which this study thought would be inappropriate to use parametric tests since the normality test has indicated otherwise.
We referred to Roscoe (1975), who recommended sample sizes larger than 30 are appropriate for most research. Unfortunately, the categories of age above 30 (12 respondents), non-Malays (5 respondents), and Sciences study field (26 respondents) did not even reach 30 respondents (see Table 6). Thus, it was expected the assumptions for inferential statistics could be violated. Therefore, we could not perform hypothesis testing (e.g., T-Test or Mann-Whitney U) for this data. To compare the mean ranks between the two categories, the total ranged from 5 (minimum percentage = 20%) to 25 marks (maximum rate = 100%), and individuals who scored a minimum of 75% had a positive attitude on cash waqf.

3.1. The Participants

Before taking the questionnaire, every Malaysian who volunteered to participate in the survey had to disclose their citizenship status, and Malaysians under 21 in 2020 were deemed unable to participate. The unit of analysis is the individual subjects. Thus, the quiz respondents were limited to Malaysian adults who were solely born and residing in Malaysia to gain meaningful results.

3.2. The Measurement

This study extracted Ahmad Tarusan's (2020) research to determine the attitude toward cash waqf based on demographic factors. This study was exploratory research that used cross-sectional studies with a convenience sampling method. The study used survey questionnaires to gain data. The respondents' attitude toward cash waqf used 5-Likert scale responses varying from strongly disagree (1) to agree (5) strongly. We opt for the 5-Likert scale to facilitate the midpoint on the scale. In this way, our respondents were free to express their neutral attitude to the presented statements.

3.3. Collapsing The Number of Categories of the Variables

Initially, the age scale suggested by Sekaran & Bougie (2016) was adopted. However, we found a small number of respondents in the sample that fall into a particular category. For example, it was found that only eight respondents represented those aged 31-40 years old, and four respondents represented those aged 40 years old and above after running Descriptive Statistics. Therefore, aged 31-40 and above 40 were recorded and combined with being relabeled as a new category (above 30 years old). Similarly, we adopted the scale from Department of Statistics (2020) for racial background. Still, it also showed a very minimal number of participants from non-Malays when only one respondent represented Chinese and four represented Indians. Therefore, Chinese and

Indians were recorded and reassigned to the non-Malay category. In addition, the study field scale was initially adapted from Md Sapir et al. (2020), but it was also reassigned into two categories; Islamic Studies and Sciences. Table 4 outlined the SPSS Coding Responses after the number of classes was collapsed into two.

Table 4. SPSS Coding Responses

	Demographics	**SPSS Coding Responses**
Gender	Males	1
	Females	2
Age	Below 30 years old	1
	Above 30 years old	2
Racıal Background	Malays	1
	Non-Malays	2
Study Field	Islamic Studies	1
	Sciences	2

3.4. The Constructs of Attitude Toward Cash Waqf

Table 5. The constructs of attitude toward cash waqf

Elements of cash waqf	Questions
Attitude	Contributing to waqf is beneficial.
	Contributing to waqf is rewarding.
	I have a positive perception of waqf.
	Contributing to waqf is a good idea.
	I like waqf.

4. RESULTS

4.1. Demographics' Profiles

The demographic profiles of the cash waqf respondents are presented in Table 6. More than 60% of the respondents were Malay women majoring in Islamic Studies and under 30 years old, similar to Al-Harethi (2019) and Dennis et al. (2018). These demographic profiles were also represented by young adults below 30, signalling that most young adults were still unmarried in their twenties, pursuing higher education, or had just started their careers as junior executives. The Department of Statistics Malaysia (2020) reported that about 80% out of 8.8 million Malaysians aged 18 to 23 are enrolled in colleges and universities, identical to the sample characteristics. In line with Modigliani & Ando's Life-Cycle Hypothesis Theory of Saving, it was expected that most young people favour cash waqf over traditional waqf.

Regarding racial background, Malays dominated 95.3% of this study. Given that 61.3% of Malaysians are Muslims (Department of Statistics, 2020), it is assumed that most Malays in Malaysia acknowledge cash waqf over non-Malays. It was disappointing that this study could not attract non-Malays to the response survey, making us fail to understand non-Malays' attitude toward cash waqf. It reflected that non-Malays are still uninformed of the Malaysian government's initiatives to alleviate poverty through waqf instruments (Ahmad, 2022). Non-Malay youngsters may be unaware that waqf instruments are available to everyone, regardless of race.

Table 6. Demographics' Profiles

	Demographics	**N=107**	**%**
Gender	Males	34	31.8%
	Females	73	68.2%
Age	Below 30 years old	95	88.8%
	Above 30 years old	12	11.2%
Racıal Background	Malays	102	95.3%
	Non-Malays	5	4.7%
Study Fıeld	Islamic Studies	81	75.7%
	Sciences	26	24.3%

4.2. Reliability Tests

This study employed internal consistency to evaluate the reliability in Table 7. This test explained the average correlation among all the items contributing to the scale. Values range from 0 to 1, with greater values near 1 (0.70 and above) indicating higher reliability (Pallant, 2005). The Cronbach's alpha coefficient value for attitude toward cash waqf in this study was above 0.70, so the scale can be considered reliable with our sample. The outcome of the descriptive statistics is shown in Table 8.

Table 7. Reliability Tests

Elements of Cash Waqf	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Attitude toward cash waqf	0.868	0.870	5

4.3. Mean Statistics

The overall mean statistics results in Table 8 indicated that respondents in this study had neither positive nor negative attitudes toward cash waqf. The mean statistics results did not achieve 75% marks (demonstrating a positive attitude toward cash waqf). Respondents with the highest score were from Islamic studies background (Mean Rank = 63.14%, Sum of Ranks = 649.50). In contrast, the lowest score of cash waqf attitude was obtained by non-Malays (Mean Rank = 40.30%, Sum of Ranks = 201.50).

Specifically, Table 8 shows that Malay males under 30 who majored in Islamic studies had a favorable attitude toward cash waqf. This result confirmed that Muslim males would have more exposure to cash waqf than Muslim sisters, which shapes positive attitudes toward cash waqf. Young adults under 30 have a different approach to participating in waqf. Most people under the age of 30 are not qualified as zakat payers; thus, the feasible option for young adults participating in Islamic charities is through cash waqf transactions (Ahmad, 2022; Aldeen et al. 2021). Malaysia is inhabited by majority Malay-Muslim communities, and therefore, Malays are more likely to have a favorable attitude toward cash waqf. This study indicated that respondents with Islamic studies scored higher than those with sciences for their cash waqf attitude in Malaysia. Ahmed (2020) and Shahwan & Salleh (2010) also reinforce this idea. They believe Islamic studies can shape Muslim believers' positive attitudes toward cash waqf because they learn more formally than their secular Muslim counterparts.

Table 8. The Relationship Between Demographics and Attitude Toward Cash Waqf

	Demographics	N=107	%	Mean Statistics	
				Mean Rank	Sum of Ranks
Gender	Males	34	31.8%	56.93	1935.50
	Females	73	68.2%	52.64	3842.50
Age	Below 30 years old	95	88.8%	54.36	5164.00
	Above 30 years old	12	11.2%	51.17	614.00
Racial Background	Malays	102	95.3%	54.67	186.500
	Non-Malays	5	4.7%	40.30	201.50
Study Field	Islamic studies	81	75.7%	63.14	694.50
	Sciences	26	24.3%	52.95	5083.50

5. CONCLUSION

Anyone can contribute waqf regardless of gender, age, racial and educational background (Ambrose, Aslam & Hanafi, 2015). Since the previous literature focuses on the attitude of Muslims' cash waqf contributors, this research was based on the research done by Ahmad Tarusan (2020), who primarily aimed to discover Malaysians' attitudes (regardless of gender, age, race, and educational backgrounds) toward cash waqf. Ahmad Tarusan (2020) distributed the questionnaires conveniently in Kuala Lumpur and Selangor (the most urbanite cities in Malaysia), intending to capture the group of Malaysians with a high tendency to contribute cash waqf. Unfortunately, this study has a high percentage of refusal rate among males, older respondents, non-Malays, and Science fields Malaysians. Many categories in the variables cannot be analyzed, especially when the researchers intend to use multivariate analysis. Thus, this research cannot predict the effect of determinant factors on attitude toward cash waqf, as previously done by Al-Harethi (2019), Dennis et al. (2018), and Osman, Mohammed & Fadzil (2016).

Due to the COVID-19 pandemic, the questionnaire was turned from paper to digital (Ahmad Tarusan, 2020). The study conjectured that male respondents are not approachable as their female counterparts in survey participation, supporting Smith's (2008) opinion. The online survey questionnaire was unreachable to the older respondents, significantly above 30 years old, probably due to the statistical evidence showing that 60% of online users in Malaysia were below 30 years old (Nik Jaafar et al. 2021). The study of Nik Jaafar et al. (2021) also revealed that the young generation in Malaysia was born during the digital era. They heavily use the internet to complete almost all tasks. Meanwhile, the older generation was taken before the computer era, in which they do not spend considerable time online and prefer the conventional paper survey.

We performed the mean statistics results and found that the overall attitude score did not achieve 75% marks, which means they have a neutral view on cash waqf. We suspected that most respondents did not participate in cash waqf, either as cash waqf contributors or as cash waqf beneficiaries. Since there were no further investigations made by Ahmad Tarusan (2020), we could not have an absolute conclusion regarding this matter. Although the cash waqf attitude was not positive, respondents with the highest score of the cash waqf attitude were from Islamic studies. In contrast, the lowest score of cash waqf attitude was obtained by non-Malays. According to the Department of Statistics (2020), non-Malay Chinese and Indians account for almost 30% of Malaysia's population of 33 million people. Surprisingly, the study failed to attract Chinese and Indian respondents. A review by Nik Jaafar et al. (2021) showed that Malaysian Chinese are the most internet users in Malaysia. It was not enjoyable that almost none of them participated in Ahmad Tarusan's (2020) online survey. A probable explanation could be that the study of cash waqf did not attract their attention because they thought it was only for Muslims' welfare.

Ahmad Tarusan's (2020) survey also did not reach non-Malay Indigenous Peoples in Malaysia. Orang Asli is the collective name for Peninsula's Indigenous People. Approximately 18 Orang Asli subgroups comprise 0.7 percent of Malaysia's population (The Department of Statistics, 2020). Sarawak's indigenous peoples are called natives together, Dayak and Orang Ulu. Iban, Bidayuh, Kenyah, Kayan, Kedayan, Lunbawang, Punan, Bisayah, Kelabit, Berawan, Kejaman, Ukit, Sekapan, Melanau, and Penan are only a few of them. They account for almost 71% of Sarawak's total population of 2,707,600 people. Meanwhile, Natives or Anak Negeri refer to the 39 indigenous ethnic groups that comprise 60 percent of Sabah's population of 3,813,200 people (The Department of Statistics, 2020). The Dusun, Murut, Paitan, and Bajau groups are the most critical ethnics. Because they live in a remote area of Malaysia, online communication is impossible. According to A. Rosli (2021) and Malaysiakini (2016), most of Malaysia's non-Malay Indigenous Peoples are poor and should be considered waqf beneficiaries rather than waqf contributors.

Although Malaysia is at the forefront of conducting research, implementing, and institutionalizing cash waqf, it is still concentrated on reducing poverty among Malay Muslims only. The only reason that can justify this statement is; Malay-Muslims have long practiced the waqf charitable giving to preserve assets for Islamic purposes. The waqf prevents anyone from acquiring it because Allah owns it. Our findings indicate that we cannot conclude the attitude of non-Malays toward cash waqf because we believe that they have not realized that they could also enjoy the benefits from waqf assets such as hospitals and schools. However, we can report that young Malay men from Islamic backgrounds in Malaysia have a favorable attitude toward cash waqf as compared to their female, secular, and non-Malays counterparts, although we cannot proved our assumption by using hypothesis testing.

Based on the previous studies that seem to neglect the role of secular Malaysians and non-Malays in cash waqf, the country misses the opportunities for leveraging cash waqf to maximize potential investments that can assist in modernizing Malaysia. Since most of the non-Malays, mainly Malaysian Chinese, are dominant in the economic aspect and Indians in the service sectors, their participation in cash waqf may enhance the cash waqf system in Malaysia to be more efficient and effective. What is crucial is the *mutawallis*; that is Malaysia Waqf Foundation needs to have a robust plan and execute the cash waqf for concerted efforts to encourage secular and non-Malays in Malaysia to participate in cash waqf. They need to be explained that the benefits of cash waqf not only benefit themselves but also reduce poverty and increase the quality of living.

This research has limitations, just like any other empirical study. Due to time and environmental limits, the respondents were confined to Malaysians only. On January 25, 2019, the first Covid-19 incidents were reported in Malaysia, and the Covid-19 outbreak in February 2020 prompted the Malaysian government to respond by imposing the Movement Control Order in March 2020. The Movement Control Order had several implications for Ahmad Tarusan's (2020) data collection, including changing from judgment and quota sampling approaches to convenience sampling techniques.

As expected, convenience sampling as a sampling design from members of the conveniently available population has not brought meaningful research outcomes. Although it is considered the quickest, most relevant, and most inexpensive sampling design during the Movement Control Order period, it significantly impacted the study's generalizability. A larger geographical area would have been desirable for generalizing the research findings to the entire population of Southeast Asia. The response rate for this study was not encouraging and cannot be used as a foundation for future research.

This study may be also limited by sample bias. The researchers admitted that they could not gather a truly representative sample and that non-Malays in Malaysia were underrepresented. It is also worth noting that although our study included a broad group of cash waqf contributors, our analysis applied convenience sampling. Consequently, this study was dominated by single Malay-Muslim women who were still under their parental control and guidance, who were still studying, and who did not earn monthly incomes; This demographic did not reflect the core demographic profiles of cash waqf contributors in Malaysia. Thus, generalizing the findings of this study to the general population should be avoided.

Another consideration; cash waqf is intimately linked to religious expenses, and spending for religious causes is also part of a household consumption model under the unique dimension of afterlife consumption (Stark & Finke, 2000). Therefore, the evaluation of contributors' attitudes toward cash waqf would be more meaningful if the respondents' earning incomes were included in the research of Ahmad Tarusan (2020). In investigating demographics and attitudes toward cash waqf, the level of contributors' income could explain the favorableness of one's attitude based on their commitment to participate in cash waqf, the number of their regular contributions, and the amount of the cash waqf contribution.

More empirical cross-cultural and cross-country studies could be done to corroborate the findings of this exploratory investigation. A cross-cultural examination of variations in Muslims' and non-Muslims' views toward cash waqf could provide further information about cash waqf's attitude. It may be possible to use regression analysis to estimate the contribution of independent variables on cash waqf attitude.

AUTHORS' DECLARATION
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AUTHORS' CONTRIBUTIONS
Conceptualization, writing-original draft, editing – ASS and RNR, data collection, methodology, formal analysis SAAT– RNR, Final Approval and Accountability – ASS and SAAT

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