Universidade do Minho
Escola de Economia e Gestão

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The performance of renewable energy mutual funds

junho de 2021

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UMinho | 2021

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Dissertação de Mestrado
Mestrado em Finanças

Trabalho efetuado sob a orientação do(a)
Professora Doutora Maria do Céu Ribeiro Cortez

junho de 2021

Acknowledgments

Firstly, I would like to thank my supervisor, Prof. Doutora Maria do Céu Ribeiro Cortez, for all the guidance, support, and quickness to aid me in this endeavour that was my dissertation. She almost never left a question without an answer, and, when such a thing happened, she always pointed me to the right people that could help. For that I shall be forever thankful.

A special thanks to Professor Nelson Areal for helping me during this dissertation, mainly with the programming problems that I could not solve.

Finally, I would like to thank my friends and family, especially Eunice, Zé, Pedro and João. Thank you all for always being there to support me. Without you this journey would have been much harder.

STATEMENT OF INTEGRITY

I hereby declare having conducted this academic work with integrity. I confirm that I have not used plagiarism or any form of undue use of information or falsification of results along the process leading to its elaboration.

I further declare that I have fully acknowledged the Code of Ethical Conduct of the University of Minho.

Resumo

O objetivo desta dissertação é avaliar o desempenho de fundos de investimento de energia renovável. Para tal, utilizou-se como padrão de comparação um índice que representasse o mercado em geral, e também um índice de estilo. Para além disso, comparou-se o desempenho dos fundos renováveis com fundos de energia negra, ou não-renovável. A carteira de fundos de energia renovável é composta por 43 fundos e a de energia negra é composta por 50 fundos, sendo os mesmos avaliados no período de dezembro de 2008 a janeiro de 2021. Como índice de mercado global utilizou-se o S&P Global 1200, e, como índices de estilo de energias alternativa e não-renovável, foram utilizados o Ardour Global Alternative Energy e o S&P Global 1200 Energy, respetivamente. Foram utilizados três modelos multi-fatores de avaliação de desempenho: o de quatro fatores de Carhart (1997), o de cinco fatores de Fama e French (2015) e o de seis fatores de Fama e French (2018), tanto na sua forma condicional como não condicional. Também foi investigada a evolução do desempenho dos fundos de energia renovável em dois subperíodos distintos (de 2008-2014 e de 2015-2021), foram também avaliadas as capacidades de *timing* e seletividade dos gestores, e o desempenho dos fundos em tempos de expansão e recessão.

Os resultados mostram que os fundos de energia renovável têm um desempenho neutro ou negativo quando comparados com o mercado global, e têm um desempenho neutro quando comparados com o seu estilo. No entanto, os fundos renováveis têm um desempenho superior ao dos seus pares não-renováveis. Verifica-se também que os fundos de energia renovável exibem uma melhoria do seu desempenho em tempos conturbados, para além de que têm vindo a melhorar os seus resultados ao longo dos anos, o que é um bom sinal para quem procura investir neste tipo de instrumentos financeiros.

Palavras-chave: Energia Verde; Energia Renovável; Avaliação de desempenho; Investimentos Socialmente Responsáveis; ESG.

Abstract

The goal of this dissertation is to evaluate the performance of renewable energy mutual funds. To do so, a global market index was as well as a style index is used as benchmark. Additionally, the performance of renewable energy funds is compared to that of black energy funds. The renewable energy portfolio comprises 43 funds, and the black energy portfolio comprises 50 funds. The performance of these funds is evaluated from December 2008 until January 2021. The S&P Global 1200 was used as a global market index, and the Ardour Global Alternative Energy and the S&P Global 1200 Energy as renewable and black energy style indexes, respectively. To assess fund performance, three performance models are used: the Carhart (1997) four-factor, the Fama and French (2015) five-factor and the Fama and French (2018) six-factor models, both in their unconditional and conditional settings. The evolution of renewable energy funds from 2008 until 2021 was also explored, as well as the fund managers' timing and selectivity skills, and the funds' performance in different market conditions.

The results show that renewable energy funds perform neutrally or lower when compared with the global market. However, they are able to outperform black energy funds. The results also show that renewable energy funds have an improved performance in times of crisis and have been improving their performance over time. This is a good sign for those willing to invest in these financial instruments.

Key-words: Green Energy; Renewable energy; Performance Evaluation; Socially Responsible Investments; ESG.

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1. Introduction

The dawn of mutual funds dates back to the 18th century Netherlands. A Dutch broker named Abraham van Ketwich created the so-called *Eendragt Maakt Magt* ("Unity Creates Strength") to allow small investors to diversify their portfolios. Thus the first mutual fund was born (Rouwenhorst, 2004). The first United States mutual fund was only created in 1893 and was called The Boston Personal Property Trust. However, it was more similar to a hedge fund rather than a mutual one. The first to strike a resemblance to nowadays mutual funds was the Alexander Fund, founded in 1907. But only in the 1960s did the Mutual Fund Industry pick up the steam with middle-class people starting to invest in it (Collins Advisors, n.d.).

In line with this dissertation's topic, it is essential to discuss the upbringing of Socially Responsible Investments (SRI) and Environmental, Social, and Governance investing (ESG). Speaking of SRI, these are investments that consider social, environmental, and ethical factors when investing. It dates back to Jewish, Christian, and Islamic traditions (Renneboog et al., 2008). For example, Judaism taught its followers how to use money ethically, and Christians also had ethical loan restrictions that started in medieval times and were only lessened in the 19th century. A more known 17th-century group that also adopted SRI were the Quakers, when they refused to partake in weapons and slave trading. Roughly in the same period, Methodists were also concerned with sinful trade and stated that people should not take advantage of others. Later on, during the roaring twenties, they avoided investing in so-called "sin" companies. In 1928 the Pioneer Fund was created, being the first one to use screens based upon religious screens. Only in 1971 was the first SRI mutual fund with no religious screens designed: the Pax World Fund. Since then, SRI grew throughout the world. Given the social awareness that spawned from problems such as global warming, human rights violations, and corporate scandals, its importance is being more and more enlightened (Renneboog et al., 2008).

Regarding ESG, this expression gained momentum in the mid-2000s to refer to integrating environmental, social, and governance factors into the investment decisions and processes. According to Kell (2018), in 2004 the UN's Secretary-General discussed the incorporation of ESG in the economic markets with a group of CEOs of financial institutions. What resulted from this initiative was a report entitled "Who cares wins" by the UN Global Compact

(2004), which stated that it was advantageous to integrate ESG into the business world given its positive impact not only to the general well-being of society but to companies themselves.

With increasing information on climate change and global warming, the environmental dimension of ESG has been brought to the forefront of sustainable investors' concerns. It is now generally recognized that the planet is experiencing a climate emergency, and this implies a shift to cleaner sources of energy and the replacement of fossil fuels with low-carbon renewables (Ripple et al., 2020). In this context, green finance is currently a hot topic that attracts the attention of academics and practitioners, generally referring to "investments that governments, corporations, and households have to undertake to transition the world's economy to a low-carbon path" (Hong et al. 2020, p. 1011). The Paris Agreement in 2015, signed by many countries, commits to limiting global warming by reducing greenhouse gas emissions as soon as possible. And although the predominant energy source is still coal, oil, and gas, renewable energy has been the fastest-growing source of energy at a global level (IRENA, 2020). This energy source has even shown to be resilient to country lockdown measures associated with the Covid-19 crisis (IEA, 2020).

In financial markets, investors are increasingly willing to consider environmental criteria when it comes to investing, as they recognise that they can play a role in transitioning to a low-carbon economy (Scholtens, 2017). Several studies support investors' growing demand for sustainable investments. In fact, according to Kell (2018), assets managed with ESG considerations at the global level grew to roughly 20 trillion dollars until 2018, representing around 25% of all worldwide assets that were professionally managed. More recently, it is expected that these investments may sum up to 53 trillion dollars by 2025, corresponding to a third of the estimated 140 trillion dollars assets under management (Diab & Adams, 2021).

This fast-growing segment of the financial industry has attracted the attention of academics, who have attempted to understand the demand for SRI. Riedl and Smeets (2017) conduct a survey to analyze investors' motives to invest and highlight the role of social preferences as drivers of investors decisions, to a higher extent that financial motives. Bauer et al. (2021) conduct an experiment with a pension fund and find that more than two-thirds of the participants desired more sustainable investments. And even if these new investments had lower expected returns, the majority still wanted these more sustainable investments. This suggests that many investors are considering divesting from conventional or sin companies, such as fossil

fuel companies, and shifting their savings towards companies in the green sector, such as renewable energy firms. As a matter of fact, recent studies have explored retail investors' preferences for sustainable and environmentally friendly mutual funds. For instance, Hartzmark and Sussman (2019) and Amman et al. (2019) show that investors allocate more money to mutual funds rated as sustainable according to Morningstar globes. Furthermore, Ceccarelli et al. (2019) show that funds that received the label 'low-carbon designation' (introduced by Morningstar in 2018) experienced a boost of inflows afterwards. The authors also observe that after the introduction of this label, fund managers shifted their holdings toward climate-conscious companies as a way to attract investors. And even after the Covid-19 crisis, investors still show preferences for funds with high environmental ratings (Pástor & Vorsatz, 2020). As Pástor and Vorsatz (2020, p. 791) put it, sustainability is currently viewed as "a necessity rather than a luxury good."

A simple way for investors to direct their savings towards low-carbon or fossil-free energy companies is to invest in renewable energy funds. These funds are comprised of securities of firms operating primarily in the renewable energy (such as solar or wind power) and energy technology sector, and they may benefit from international diversification opportunities raised by climate change agreements (Marti-Ballester, 2019a). The Report on US Sustainable, Responsible, and Impact Investing Trends for 2018 (USSIF, 2018) states that money manager assets managed according to fossil-free mandates increased 49% from 2016 to 2018. The holdings of registered investment companies incorporating ESG investing criteria have grown from 320 billion dollars to 2.61 trillion dollars from 2010 to 2018. These statistics show that ESG investments are in high demand, and people are increasingly trying to get away from investing in fossil fuels.

Academics have also been debating the financial consequences of environmentally-friendly investments, in particular, of renewable energy investments. Does investing in renewable energy investments penalise or benefit portfolio performance? This is the focus of this dissertation. There are arguments, such as the loss of diversification (Henriques & Sadorsky, 2018), that justify a negative impact of considering environmental screens in portfolio performance. In contrast, investing with ecological concerns can lead to improved performance as it allows to identify alternative energy companies with high financial potential (Reboredo et al., 2017). Also, this type of investment strategy avoids assets that could be stranded or at-risk regarding climate regulations (Hunt & Weber, 2019). To explore this issue, this dissertation will analyse how US and European renewable energy mutual funds perform when compared to a

contrasting investment, namely black energy funds, and several market indexes. The main research questions to explore are: (1) Do investors pay a premium or are they rewarded when investing in alternative energy funds? And (2): How do these investments perform compared to black mutual funds? The objective is to examine such questions empirically by using conditional and unconditional models of performance evaluation. The development of new models with a broader range of factors is crucial to perform such research. This dissertation thereby contributes to the literature, as it is the first study to evaluate renewable energy funds with the five- and six-factor models of Fama and French (2015, 2018) specified in a conditional setting. Fund managers' timing abilities are also explored in the context of these performance evaluation models. Furthermore, this dissertation analyses the evolution of the performance of renewable energy funds over time. This research also provides novel findings, as it addresses the performance of renewable energy funds during economic downturns, including the recession that followed the outbreak of the Covid-19 pandemic, compared to times of expansion. The recession that followed the outbreak of the Covid-19 pandemic represents an ideal setting to explore this gap in the literature.

This dissertation has six chapters, where chapter 1 (as you have seen) is comprised of a historical introduction to the subject at study and the main goals of this thesis. Chapter 2, the literature review, is divided into smaller subsections to improve comprehension: firstly, the theoretical expectations of green investments are discussed. Afterwards, it delves into the performance of green energy investment. Subsequently, the literature on alternative energy funds' performance studies is discussed, and, lastly, the manager's timing and selectivity abilities approached. Chapter 3 discusses the methodology used to measure the performance of the renewable energy fund database, which is described on chapter 4, as well as all the other variables used. Chapter 5 presents the findings and discuss their results, and, finally, in chapter 6, the conclusions drawn from them are demonstrated.

2. Literature review

In this chapter the previous research on the subject of this dissertation and related fields will be discussed. Given that green funds are a subset of SRI funds, and both are currently experiencing a boom regarding their growth, it is important to address the advancements made in this area so far. Therefore, the starting point will be the discussion on renewable energy investments' performance theories, which are a steppingstone for the empirical studies in this field. Then the empirical results on SRI funds' performance, green energy investments, and renewable energy funds is reviewed. Since there is still not much research on the subject of renewable energy funds' performance, this chapter also dwells on a related issue – the performance impact of fossil fuel divestment.

2.1 Theoretical arguments

One of the main issues regarding green investments is related to the financial effects of using environmental screens. According to modern portfolio theory (Markowitz, 1952), the use of any screens reduces portfolio diversification and hinders investment performance. This is the main argument for the underperformance theory, one of the two hypotheses on environmentally responsible portfolios' performance: the underperformance hypothesis and the outperformance one. According to the diversification argument, restricting the investment opportunities to companies that pass environmental screens might imply excluding entire industries or sectors, leading to losses of diversification (Chegut et al., 2011; Revelli & Viviani, 2015). Furthermore, the search and examination of companies and renewable energy technology or firms that produce or deliver such goods imply more monitoring, information, and administration costs. One can call all of these management costs (Friedman, 1970). Another argument that supports the underperformance hypothesis is that higher ESG levels lead to risk reduction and, consequently, to lower expected returns (e.g., Hong & Kacperczyk, 2009). Additionally, the higher demand for green or low-carbon stocks and the lower demand for brown or high-carbon stocks implies the latter have a smaller investor base and limited risk sharing. Following the logic of Merton's (1987) market segmentation model, according to which the tastes of a group of investors lead them to refuse holding certain assets, shunned stocks (in this case, high-carbon risk stocks) will

have higher returns. Pástor et al. (2021) also rely on the price effects of investor tastes to explain the differences between the expected returns of green and non-green (brown) stocks. Additionally, Pástor et al. (2021) discuss the impact of companies' exposure to climate risk in asset prices. The rationale is that brown stocks are more exposed to climate risk, thereby inducing higher expected returns. In all, "in equilibrium, green assets have low expected returns because investors enjoy holding them and because green assets hedge climate risk" (Pástor et al., 2021, p. 1).

On the opposing side, the main argument underlying the outperformance hypothesis is that the screening process enables investors to identify companies with managerial competence and high returns potential (Waddock & Graves, 1997). This goes in line with the studies of Hart (1995) and Porter & Van der Linde (1995), who found that firms, by implementing a set of green strategies, for example renewable energy technology policies, could gain a competitive edge. Also, it is argued that companies that engage in sustainable energy strategies are less likely to be exposed to several climate-related risks that can translate into high costs. These are risks of environmental accidents, risk of non-compliance with eco-friendly regulation (Burgherr & Hirschberg, 2014, Paramati et al., 2017, Solnørdal & Foss, 2018). They are also less exposed to the risk of reduced returns associated with stranded assets that result from the devaluation of fossil fuel stocks (Hunt and Weber, 2019).

Anyhow, the usefulness of the screening strategies in providing insights that might contribute to a better investment performance ultimately depends on whether the market fully understands the impact of corporate social and environmental practices on firm valuation (Derwall et al. 2011). If the market is slow in recognizing the value of these practices, there might be temporary mispricing opportunities that can lead to abnormal returns. The outperformance hypothesis is further supported by Pedersen et al. (2021), who highlight the usefulness of ESG factors in predicting returns if the factors contain all security-relevant information.

2.2 Performance of green energy investments

A few recent studies explore the performance of green energy investments in order to gain insights on the impact of green investing. Empirically, there are some mixed results on the existence of a green premium. Ng and Zheng (2018) investigate how green energy firms perform

compared to non-green firms. The authors form a portfolio of US green energy firms and a matching portfolio of non-green firms and evaluate their performance from 1990 to 2013 using several risk-adjusted measures. The results show that green companies perform at least as well as non-green ones and deliver a better performance than the S&P 500 Energy index.

Brzeszczyński et al. (2019) investigate 56 major international energy and resource firms' stock market performance, classified within the socially responsible investment (SRI) category, from 2005 to 2016. They simulate investments in SRI energy and resource companies' portfolios and assess their performance using some risk-adjusted measurements. Similar to the previous study, the overall results show a comparable performance between green and non-green firms.

Gonenc and Scholtens (2017) focus on fossil fuel firms' environmental and financial performance from 2002 to 2013. Their sample is comprised of 2739 fossil fuel firms and 20568 non-fossil fuel firms. Their results support what they called the "opportunistic view" regarding the impact of financial returns, according to which a high financial performance corresponds to lower social performance. As for financial risk, they find support for the stakeholder perspective, where good environmental performance is beneficial from a finance perspective.

In the past couple of years, the impact of fossil fuel divestment has been attracting academics' attention. Firstly, Trinks et al. (2018) analyse the effect of fossil fuel divestment on portfolio performance. They do so by comparing investment portfolios' financial performance with and without fossil fuel company stocks, from 1927 until 2016. They applied several performance measures - such as the Sharpe ratio and the Carhart (1997) model. In contrast with theoretical expectations, they observe that this divestment does not negatively affect portfolio performance. The authors conclude that these findings could be explained by the fact that fossil fuel company stocks did not perform better than other stocks on a risk-adjusted basis, and also that they provide somewhat limited diversification benefits.

Hunt and Weber (2019) aim to understand the financial effects of divestment and the influence of divestment strategies on the carbon intensity of portfolios on the Canadian stock index TSX 260 (by using the S&P/TSX Composite Index) from 2011 and 2015. As in the previous study, they also use the Carhart (1997) model. Their results show high risk-adjusted returns and low carbon intensity of the divestment strategies compared with a benchmark. Therefore, in their view, divestment is not only an ethical investment approach but is also able to address financial risks caused by climate change.

In turn, Halcoussis and Lowenberg (2019) investigate the effects of the fossil fuel divestment campaign on stock returns by comparing the performance of a fossil fuel free portfolio and a fossil fuel portfolio with the general market. They did so for several periods from January 2010 until June 2018. The performance of the portfolios and index were evaluated by looking at the annualized returns over all subperiods. They observed that the low carbon portfolio was able to get a better return than the market, mostly due to the poor performance of fossil fuel companies. Hence, divesting from fossil fuels did not hinder investors' returns.

More recently, Plantinga and Scholtens (2021) also addressed the impact of fossil fuel divestment on investors' financial performance using data from 6905 companies, ranging from energy to health care, for the time period starting in 1973 and ending in 2016, and a modified Fama and French (2015) five-factor model to assess the performances of the several industries. They tried to answer three questions: firstly, if investing in fossil fuels incur in higher or smaller risks than investing in other industries, secondly, if there are implications to investors that divest from fossil fuels, and the last question is regarding the investment consequences of a postponed or an easy fossil fuel to renewable fuelled energy system. As for the first question, the authors saw no difference between the returns of fossil fuel companies and firms from other industries. Regarding the second, they saw that divesting from fossil fuels had no significant impact on returns and risk. Finally, they also noticed no difference between renewable portfolios and fossil fuel portfolios. In sum, they conclude that there is no harm to investors that divest from fossil fuel companies.

2.3 Performance of alternative energy mutual funds

An important stream of the empirical literature in the SRI area addresses the performance of SRI funds. Most of the studies performed at this level compare the performance of SRI funds with conventional funds and/or with the market benchmark. These studies go back to the 90s, and with few exceptions, most studies do not find statistically significant differences

between socially responsible funds and their conventional peers.[1] More recent studies address the performance of a subset of SRI funds, namely green funds.

These green funds have been found to be, overall, neutral or underperformers regarding a benchmark or conventional funds (Climent & Soriano, 2011, Silva & Cortez, 2016, Ibikunle & Steffen, 2017). However, when looking at times of crisis, green funds, generally, show a performance improvement (Muñoz et al., 2014, Silva & Cortez, 2016).[2] Additionally, in more recent times, researchers are starting to see a turn around and green funds are becoming as good as their conventional peers or the global market (Climent & Soriano, 2011, Ibikunle & Steffen, 2017). It is also interesting to see that one of the main contributors of green funds' performance seem to be energy funds (Lesser et al., 2016).

Renewable energy funds are a more recent type of SRI mutual fund, targeted for mutual fund investors with specific preferences in terms of low carbon investments. As such, the performance of alternative or renewable energy funds is not much explored in the literature. As far as I am aware, there are only three recent studies on this topic: Reboredo et al. (2017) and Marti-Ballester (2019a, b).

Reboredo et al. (2017) investigate the financial performance of alternative energy mutual funds quoted in EUR and USD from 2010 to 2016. They used the Carhart (1997) four-factor model augmented with a timing risk factor, as in Bollen and Busse (2001), and also used propensity score matching techniques in order to evaluate the performance of 19 EUR funds and 20 USD renewable energy funds against 4,000 EUR and 53,517 USD conventional funds. Additionally, 520 EUR and 588 USD SRI funds were also analysed. They conclude that a premium for going green is being paid. However, the authors point out that developments in new technologies, policies, and enhanced efficiency may improve these investments and thus make them more viable.

The other two studies are Martí-Ballester (2019a, b). Martí-Ballester (2019a) first examine the performance of European renewable energy funds that invest globally by comparing their risk-adjusted returns with those obtained by conventional and black energy mutual funds.

[1] For a detailed review of studies on SRI mutual fund performance see, for instance, Revelli and Vivianni (2015).
[2] These results are consistent with those of Nofsinger and Varma (2014) on broad SRI funds. The authors find that SRI funds outperform in periods of market crisis compared to conventional funds. Analysing the French market, Leite and Cortez (2015) also observe that SRI improve their performance in crisis periods.

She did so for periods of crisis and non-crisis. To evaluate the performance, she used the unconditional Carhart (1997) four-factor model and added a dummy variable to account for the crisis periods. The sample was comprised of 81 renewable energy funds, 125 black energy funds, and 4,337 conventional mutual funds from 2007 to 2018. Also, a total of 7 benchmarks were used: The S&P Global 1200 Index or MSCI World Index for the conventional global market, the S&P Global Clean Energy Index, MSCI Global Alternative Energy Index, and Ardour Global Alternative Energy Index as the renewable energy style indexes, and the S&P Global 1200 Energy Index and MSCI World Energy Index as the black energy style benchmarks. The results show that around one-third of the renewable energy mutual funds perform better than the green energy market benchmark. However, not a single one could outperform the conventional market benchmark and the fossil fuel energy benchmark. In this way, the author concluded that there is no green premium. The author was also able to see that only during bull markets were some of the renewable energy fund managers able to beat the market, and none was able to do so during a crisis.

In Martí-Ballester's (2019b) study, she evaluates not only the financial performance of energy and renewable energy funds using the Carhart (1997) model, with a dummy variable to account for the class of the fund, both in the conditional and unconditional form, but also the fund managers' abilities to improve performance, using the model used by Reboredo et al. (2017) and a conditional extension. The effects of mutual fund characteristics, such as expenses, size, and SRI label certification on fund performance were also explored. Her sample comprises 4,496 funds (81 renewable energy, 122 black energy, and 4,293 conventional funds) from 2007 to 2018 and the benchmarks used are the S&P Global 1200 Index, the S&P Global Clean Energy Index, and the S&P Global 1200 Energy Index. The first is the global market benchmark, and the others are style indexes for the renewable energy and black energy sectors, respectively. It should also be noted that the public information variables used in the conditional models were the global short-term interest rate, proxied by the 3-Month US Treasury Bill daily yield, and the default spread rate, obtained from the difference between Moody's AAA-rated corporate bond yield and Moody's BAA-rated corporate bond yield. Regarding performance, Martí-Ballester (2019b) concludes that renewable energy funds perform similarly to both the global and style markets when conditional models are used. However, when the unconditional model is applied, renewable energy funds can outperform their style benchmark and underperform the conventional one.

Also, they underperform their conventional matches, as far as the global benchmark goes. In sum, she found that a premium is being paid when one invests in renewable energy funds.

Although not directly focusing on actively managed funds, related studies evaluate the performance of renewable energy indexes or ETFs. Miralles-Quirós and Miralles-Quirós (2019) evaluate the performance of alternative energy exchange-traded funds (ETFs). They assess the out-of-sample performance of four strategies using the returns and volatility forecasts from a VAR-ADCC approach. Using daily returns from the 27th of June 2008 up until the 30th of November 2017 of 10 ETFs, 5 Energy ETFs, and 5 Alternative Energy ETFs, the authors conclude that alternative energy ETFs outperform conventional energy ETFs. This study is of great importance because it provides academics and managers with a new technique to add value to their investment strategies.

In turn, Rezec and Scholtens (2017) focus on the performance of renewable energy indexes. They used the monthly returns from 14 renewable energy indexes from 2000 to 2013. They calculated their mean excess returns, standard deviations, and risk-adjusted Sharpe ratios to evaluate their performance. The authors reckon that these indexes underperformed when compared to the benchmark. Therefore, they do not seem to be good investment instruments.

The study performed by Henriques and Sadorsky (2018) is also an interesting one. Again, the divesting from fossil fuels theme is researched. They investigate the implications of doing so by comparing three different portfolios: ETFs of fossil fuel companies, ETFs of clean energy companies, and, lastly, ETFs without fossil fuel companies or clean energy. The sample was comprised of daily data from the 3rd of March 2005 to the 27th of May 2016. They find that divesting from fossil fuels leads to better performances. Also, risk-averse investors were swayed to make such a switch, even if more costs were included.

2.4 Timing and selectivity abilities of environmentally friendly fund managers

At this point it is important to mention that fund managers can generate value through two types of managerial ability (Bollen & Busse, 2005): selectivity or stock selection, which refers to the ability of identity undervalued stocks, and market timing, which refers to the ability of predicting broad market movements and adjusting portfolio risk accordingly. This subject has

been discussed extensively in the literature on conventional funds, with most studies finding little evidence supporting fund managers' timing abilities.

Regarding SRI and alternative energy funds, there are a few studies that approach this subject. In Muñoz et al. (2014), the Treynor and Mazuy (TM) (1966) market timing model and the Carhart (1997) four-factor model were combined to assess the timing abilities of US and European SRI funds. The authors find that fund managers are, in general, unable to implement successful stock timing or picking strategies.

In the same year, Ang et al. (2014) analyse the market timing skills of Canadian, US and European SRI funds. They used a total of 748 funds and conclude that market-timing skills exist in those markets. However, Canadian and US managers had a superior stock selection and timing abilities than their European counterparts.

In Leite and Cortez (2014), the authors evaluate 54 SRI funds and 145 conventional funds, in terms of their timing and selectivity abilities. By using conditional timing models, they find that SRI and conventional funds do not exhibit statistically significant differences in terms of timing abilities, whereas there are differences in terms of stock picking skills of SRI and conventional funds investing in the European market.

Considering the previous studies on renewable energy funds' performance, Reboredo et al. (2017) added to their performance model a variable to account for market timing, as in Bollen and Busse (2001), and find that these managers had a negative timing performance. Martí-Ballester (2019b) adopted the same model in her research and used it in the conditional form. Likewise, she finds that managers were unable to employ a successful strategy to time the market.

2.5 Performance of SRI funds in different states of the market

In general, most of the evidence on actively managed mutual funds indicates that they underperform passive benchmarks. A possible explanation for the puzzle that the actively managed fund industry is still growing despite its underperformance is related to the hypothesis that actively managed funds perform better in crisis periods, which are the periods that most matter to investors. This argument, put forward by Moskowitz (2000) and supported by Glode

(2011), Kosowski (2011) and Kacperczyk et al. (2016), suggests that actively managed funds provide an insurance to investors in times of crisis.[3] With regards to SRI funds, one can argue that they can provide additional protection to investors in times of crisis compared to conventional funds, considering that high ESG stocks are associated to lower risk and thus are more resilient. In fact, there is evidence that SRI funds perform better than conventional funds in crisis periods, such as Nofsinger and Varma (2014), who focus on the crisis periods associated to the burst of the dot.com bubble (2000-2002) and the international financial crisis (2007-2009). Regarding green funds, several papers also show improved performance in times of turmoil (Muñoz et al., 2014, Silva & Cortez, 2016).

There is scarce literature on how renewable energy funds perform in different market states. This is not surprising, considering that the preferences for sustainability-themed mutual funds is a phenomenon emerging in the 2010s (Pástor & Vorsatz, 2020), and so the renewable energy trend is still in its infancy. Marti-Ballester (2019a) investigates the performance of renewable energy funds in periods of crisis versus non-crisis, but since the period under analysis is 2007-2018, only the financial crisis of 2007-2009 falls within this time frame. Yet, an even more unexpected shock emerged abruptly in 2020, as the Covid-19 virus spread worldwide, causing a major recession at a global level. In fact, it is recognized that the outbreak of the Covid-19 pandemic triggered the first major economic crisis since the substantial growth in sustainable investing in recent years (Döttling and Kim, 2020) and so this raises interest on how did ESG investments, particularly renewable energy funds, perform in this period.

Recent research provides evidence on how stocks with high sustainability levels perform in the post-Covid crisis. For instance, Albuquerque et al. (2020) find that during the first quarter of 2020, stocks with higher ESG levels have higher returns and lower volatility. Ding et al. (2021) also observe that firms with stronger levels of corporate social responsibility exhibit higher stock performance post-Covid. In terms of SRI mutual funds, Pástor and Vorsatz (2020) find that those with high sustainability ratings (as measured by the Morningstar globes) performed better than other funds from January to April 2020. The results of Ferriani and Natoli (2021) are similar, as they observe that funds with lower ESG risks (more Morningstar globes) performed better than their peers along the same period.

[3] The argument of Kacperczyk et al. (2016) is that that fund managers' optimal attention allocation varies with the state of the economy: fund managers' ability to process information is higher in times of turmoil.

Considering these findings, as well as recent evidence showing that the preferences for mutual funds with low environmental risks remain strong even in turmoil periods (Pástor & Vorsatz, 2020, Ferriani & Natoli, 2021), this dissertation also investigates how renewable energy funds perform under stress.

3. Methodology

In this chapter, the models and corresponding risk factors used in this research will be presented. This study uses both conditional and unconditional models to evaluate the performance of renewable energy funds. In the first section, the unconditional models will be described. The conditional models shall then follow it.

It is important to mention that the performance evaluation models will be applied to evaluate the performance of individual funds and of portfolios of funds. In fact, equally weighted and value weighted portfolios were created for both categories of funds (renewable energy and black energy funds). Additionally, a difference portfolio is formed, so the difference between one another could be assessed when the same benchmark was used (a deeper look on this will be taken in the next chapter).

3.1 Unconditional models

Multi-factor models are widely used to evaluate fund performance. As Fama and French (1996) discuss in their research on cross-sectional stock returns variation, models that contain more than one variable to explain the returns are relevant and better explain the results.

The first model to be considered was the Carhart (1997) four-factor model. It is widely used in portfolio performance studies and extends the Fama and French (1993) three-factor model by adding a momentum factor. Therefore, it takes this form:

$$r_{p,t} = \alpha_p + \beta_{p1}(r_{m,t}) + \beta_{p2}(SMB_t) + \beta_{p3}(HML_t) + \beta_{p4}(MOM_t) + \varepsilon_{p.t} \qquad (1)$$

where $r_{p,t}$ is the excess return of fund p in time t; α_p is the abnormal return of fund p (alpha); $r_{m,t}$ is the excess market return in time t; SMB_t is the difference between the returns of a small stock portfolio and a large stock portfolio (Small Minus Big) in time t; HML_t is the difference between the returns of a portfolio comprised of high book-to-market stocks and a low book-to-market one (High Minus Low) in time t; MOM_t represents the difference in returns of a portfolio of past winners and a portfolio of past losers in time t; β_{p1}, β_{p2}, β_{p3} and β_{p4} are the coefficients of each factor; $\varepsilon_{p.t}$ is an error term.

Recently, Fama and French (2015) developed the five-factor model. It discards the momentum factor but adds the profitability and investment factors. The first one considers that companies who report higher future earnings end up with higher returns in the market. The investment factor tries to capture the effect of companies who direct their profit to growth endeavours, who will probably suffer losses in the stock market. The model takes the form:

$$r_{p,t} = \alpha_p + \beta_{p1}(r_{m,t}) + \beta_{p2}(SMB_t) + \beta_{p3}(HML_t) + \beta_{p4}(RMW_t) + \beta_{p5}(CMA_t) + \varepsilon_{p,t} \quad (2)$$

where RMW_t is the difference between the returns of portfolios with robust and weak profitability (Robust Minus Weak) in time *t*. CMA_t is the difference between the returns of portfolios comprised of low and high investment firms (Conservative Minus Aggressive) in time *t*.

The momentum factor was included by Fama and French (2018) and results in the six-factor model:

$$r_{p,t} = \alpha_p + \beta_{p1}(r_{m,t}) + \beta_{p2}(SMB_t) + \beta_{p3}(HML_t) + \beta_{p4}(RMW_t) + \beta_{p5}(CMA_t) + \beta_{p6}(MOM_t) + \varepsilon_{p.t} \quad (3)$$

where all factors are the same as previously explained.

The models mentioned above, although widely used, do not consider risk changes due to changing market conditions. As such, these models may lead to biased estimates of performance (Ferson and Schadt, 1996). To overcome this limitation, conditional models that use public information variables to account for the state of the economy will be adopted, thereby allowing for a more robust assessment of fund performance.

3.2 Conditional models

To measure performance more accurately, Ferson and Schadt (1996) developed conditional models of performance evaluation that use public information variables to proxy for the state of the market. They added a lagged vector comprised of the public information data (Z_{t-1}) and a β vector to track its impact. Using a single factor model, their conditional model takes the following form:

$$r_{p,t} = \alpha_p + \beta_{p0}(r_{m,t}) + \beta'_p(z_{t-1}r_{m,t}) + \varepsilon_{p,t} \quad (4)$$

where β'_p is the vector that measures the response of the conditional β of portfolio p to the public information variables; $z_{t-1} = Z_{t-1} - E(Z)$ is a vector of deviations of Z_{t-1} from the unconditional average values.

As one can see in this model, only the betas are time-varying. Christopherson et al. (1998) extended this model to allow the alphas also to vary with time. Again, a single factor version of the model would take this form:

$$r_{p,t} = \alpha_p + A'_p z_{t-1} + \beta_{p0}(r_{m,t}) + \beta'_p(z_{t-1} r_{m,t}) + \varepsilon_{p,t} \quad (5)$$

where A'_p is a vector that measures the response of the conditional αs to the public information variables.

Conditional models can be extended to a multi-factor setting. Combining the conditional model of Christopherson et al. (1998) with the four, five, and six-factor models, the conditional four-factor model, the conditional five-factor model, and the conditional six-factor model are as follows:

$$r_{p,t} = \alpha_p + A'_p z_{t-1} + \beta_{p1}(r_{m,t}) + \beta'_{p1}(z_{t-1} r_{m,t}) + \beta_{p2}(SMB_t) + \beta'_{p2}(z_{t-1} SMB_t) + \beta_{p3}(HML_t) + \beta'_{p3}(z_{t-1} HML_t) + \beta_{p4}(MOM_t) + \beta'_{p4}(z_{t-1} MOM_t) + \varepsilon_{p.t} \quad (6)$$

$$r_{p,t} = \alpha_p + A'_p z_{t-1} + \beta_{p1}(r_{m,t}) + \beta'_{p1}(z_{t-1} r_{m,t}) + \beta_{p2}(SMB_t) + \beta'_{p2}(z_{t-1} SMB_t) + \beta_{p3}(HML_t) + \beta'_{p3}(z_{t-1} HML_t) + \beta_{p4}(RMW_t) + \beta'_{p4}(z_{t-1} RMW_t) + \beta_{p5}(CMA_t) + \beta'_{p5}(z_{t-1} CMA_t) + \varepsilon_{p,t} \quad (7)$$

$$r_{p,t} = \alpha_p + A'_p z_{t-1} + \beta_{p1}(r_{m,t}) + \beta'_{p1}(z_{t-1} r_{m,t}) + \beta_{p2}(SMB_t) + \beta'_{p2}(z_{t-1} SMB_t) + \beta_{p3}(HML_t) + \beta'_{p3}(z_{t-1} HML_t) + \beta_{p4}(RMW_t) + \beta'_{p4}(z_{t-1} RMW_t) + \beta_{p5}(CMA_t) + \beta'_{p5}(z_{t-1} CMA_t) + \beta_{p6}(MOM_t) + \beta'_{p6}(z_{t-1} MOM_t) + \varepsilon_{p,t} \quad (8)$$

The public information variables to be included in these models are the short-term rate and the dividend yield, as in Ferson and Warther (1996) and Cortez et al. (2012). Based on the same study, a Wald test will be applied to the conditional models to see if the conditional variables are jointly significant, in the sense that they add something to the model. Regarding

heteroscedasticity and autocorrelation of errors, the Newey and West (1987) correction method will be used.

3.3 Managerial abilities models

A common methodology used to assess timing ability is based on the Treynor and Mazuy (TM) (1966) market timing model. This model consists of adding a quadratic market term to the performance evaluation model, which should capture funds' nonlinear response to market movements, which one would expect to observe if the fund manager is attempting to time it (Muñoz et al., 2014). The TM model is given by:

$$r_{p,t} = \alpha_p + \beta_{p0}(r_{m,t}) + \lambda_p(r_{m,t})^2 + \varepsilon_{p,t} \quad (9)$$

where the α represents the manager's ability to select stocks. If it is positive and significant, it means the manager has this ability. If it is negative and significant it means he or she does not have it. The λ gives us information about the managers' ability to time the market: if it is positive and statistically significant, it reflects the fact the fund's beta increases when the market return increases, which represents timing ability.

The TM (1966) model only considers market timing and selectivity relative to the market factor. To account allow for the possibility of fund managers being able to time other factors, the procedure of Lu (2005) and Muñoz et al. (2014) was followed. So, the TM (1966) and Carhart (1997) models were combined by adding a quadratic term to all risk factors. If the coefficient of a squared factor is positive and significant, it means the manager is able to time the market or the style factor properly. If it is negative and significant, it entails that the manager timed the factors in the wrong way. If the values had no significance, then it is evidence of a lack of such abilities.

In this dissertation, the approach of Lu (2005) and Muñoz et al (2014) is extended beyond the four-factor model. Also, the timing models will be used in a conditional specification, allowing for the inclusion of public information variables, as in Ferson and Schadt (1996). [4]

[4] There were some problems in implementing the timing regressions at the individual fund level in the context of the Fama and French (2018) six-factor model, and for this reason, the timing and selectivity results using this model is not presented.

Thus, the models used in the unconditional and conditional form, respectively, are the following:

$$r_{p,t} = \alpha_p + \beta_{p1}(r_{m,t}) + \beta_{p2}(SMB_t) + \beta_{p3}(HML_t) + \beta_{p4}(MOM_t) + \lambda_{p1}(MKT_t)^2 + \lambda_{p2}(SMB_t)^2 + \lambda_{p3}(HML_t)^2 + \lambda_{p4}(MOM_t)^2 + \varepsilon_{p.t} \quad (10)$$

$$r_{p,t} = \alpha_p + \beta_{p1}(r_{m,t}) + \beta_{p2}(SMB_t) + \beta_{p3}(HML_t) + \beta_{p4}(RMW_t) + \beta_{p4}(CMA_t) + \lambda_{p1}(MKT_t)^2 + \lambda_{p2}(SMB_t)^2 + \lambda_{p3}(HML_t)^2 + \lambda_{p4}(RMW_t)^2 + \lambda_{p5}(CMA_t)^2 + \varepsilon_{p.t} \quad (11)$$

$$r_{p,t} = \alpha_p + A'_p z_{t-1} + \beta_{p1}(r_{m,t}) + \beta'_{p1}(z_{t-1} r_{m,t}) + \beta_{p2}(SMB_t) + \beta'_{p2}(z_{t-1} SMB_t) + \beta_{p3}(HML_t) + \beta'_{p3}(z_{t-1} HML_t) + \beta_{p4}(MOM_t) + \beta'_{p4}(z_{t-1} MOM_t) + \lambda_{p1}(MKT_t)^2 + \lambda_{p2}(SMB_t)^2 + \lambda_{p3}(HML_t)^2 + \lambda_{p4}(MOM_t)^2 + \varepsilon_{p.t} \quad (12)$$

$$r_{p,t} = \alpha_p + A'_p z_{t-1} + \beta_{p1}(r_{m,t}) + \beta'_{p1}(z_{t-1} r_{m,t}) + \beta_{p2}(SMB_t) + \beta'_{p2}(z_{t-1} SMB_t) + \beta_{p3}(HML_t) + \beta'_{p3}(z_{t-1} HML_t) + \beta_{p4}(RMW_t) + \beta'_{p4}(z_{t-1} RMW_t) + \beta_{p5}(CMA_t) + \beta'_{p5}(z_{t-1} CMA_t) + \lambda_{p1}(MKT_t)^2 + \lambda_{p2}(SMB_t)^2 + \lambda_{p3}(HML_t)^2 + \lambda_{p4}(RMW_t)^2 + \lambda_{p5}(CMA_t)^2 + \varepsilon_{p,t} \quad (13)$$

Where α represents the ability of the manager to select stocks, and the λ represent the manager's ability to time the corresponding factor.

3.4 Performance during different market conditions

Considering that there is evidence that sustainability funds perform differently in different market conditions, this dissertation also explores the performance of renewable energy fund managers in different states of the market, namely during periods of expansion and recession. To do so, a dummy variable to account for expansions and crisis periods was added to the Carhart (1997) four-factor model, as in Areal et al. (2013) and Silva and Cortez (2016). Although the five-

factor model (Fama and French, 2015) and six-factor model (Fama and French, 2018) can be extended to include this dummy, this analysis was only performed on this model, due to the limited number of months across our period under analysis where the National Bureau of Economic Research (NBER) considered there was a recession going on. Considering that small number of observations makes more complex models lose the already few degrees of freedom it has, it was decided that analysis would only be based on this model.[5]

The model takes the following form:

$$r_{p,t} = \alpha_p + \alpha_{pD} + \beta_{p1}(r_{m,t}) + \beta_{p2}(SMB_t) + \beta_{p3}(HML_t) + \beta_{p4}(MOM_t) + \beta_{pr1}(r_{m,t}D_t) + \beta_{pr2}(SMB_tD_t) + \beta_{pr3}(HML_tD_t) + \beta_{pr4}(MOM_tD_t) + \varepsilon_{p,t} \quad (14)$$

D_t is the dummy that accounts for one in periods of recession and zero in periods of expansion Accordingly, α_{pD} represents the differential abnormal return of fund p in times of recessions.

[5] Anyhow, we highlight that the explanatory power of this model is shown to be satisfactory. Also, considering our results until this section, we would not expect the results from other models to be substantially different.

4. Data

In this section, all matters regarding the data shall be explained. From data sources and selection to factors used in the models, all shall be carefully detailed. First, the dataset of renewable and black energy funds will be addressed, followed by the benchmarks and the risk factors.

4.1 Funds' data

The first step was to identify the dataset of renewable energy funds. To do so, the 'Fund Screener' tool of Refinitiv Eikon was used. Several filters were applied; namely: select funds that were only from Europe or the US, had an alternative energy Lipper theme [6] (with this filter, almost all US funds were removed), could be active or inactive,[7] , and had to invest globally. Also, funds needed to have a minimum of 24 observations. A similar process was employed on the screening of black energy funds. In this case, the restriction imposed was they needed to have an energy theme. And that no Alternative Energy Lipper Themed funds were targeted. All the other filters were the same. Following that, DataStream was used to collect the fund monthly total returns series and the Total Net Assets, all of them in USD. The latter was needed because this dissertation analyses the funds not only individually, but also in equally and value weighted portfolios. To separate funds of different classes, first, the oldest one was selected. If the funds had the same start date, then the funds would be observed individually, and a Refinitiv Eikon tool who tells if a fund is primary or secondary was used. When this happened, only primary funds were selected. After a closer look at the funds, some of them were excluded due to their erratic or missing values (where the last renewable energy US fund was included) so the renewable energy dataset ended up being only comprised of European funds.

[6] For this reason, we use the expression 'renewable energy' funds and 'alternative energy' funds interchangeably.
[7] Including dead funds is important to account for survivorship bias.

A few more steps were taken. Only funds with a minimum of 24 observations were selected, as in Silva and Cortez (2016), and funds who had an R^2 lower than 40% for their respective style indexes were excluded.[8]

Once all these filters were applied, the final dataset was comprised of 43 (31 active and 12 liquidated or merged) Renewable energy Funds and 50 (23 active and 27 liquidated or merged) Black Energy funds. The list of funds is presented in Appendix 1. It is also important to mention that the dataset is comprised of monthly observations and goes from December 2008 until January 2021. Given that discrete returns had to be calculated, data relative to November 2008 had to be retrieved.

Regarding the analysis of fund performance during times of stress, it is important to highlight that these periods of stress correspond to times of recession, as classified by NBER (National Bureau of Economic Research)[9]. According to NBER, the periods of recession that fall under the period under analysis are November 2008 to June 2009, and March 2020 to January 2021. It thus includes two important recession periods: the one associated to the international financial crisis the emerged in the US in 2007 and quickly spread worldwide and the one that was triggered by the COVID-19 crisis.

It is important to mention that renewable energy is a rather recent theme in mutual fund investing. Investors' concerns, the technological developments and market conditions shaping the energy market in 2008 were quite different from the reality of the renewable energy market today. Due to this, the sample was divided in half, from December 2008 until December 2014 and from January 2015 until January 2021. This breaking point coincides with the Paris Agreement in 2015, so this analysis can shed light on the evolution experienced by the renewable energy sector in different times.

[8] This procedure is similar to Elton et al (2012), who removed funds that had an R^2 less than 0.60 with the index.
[9] https://www.nber.org/research/data/us-business-cycle-expansions-and-contractions

4.2 Benchmarks

For the purpose of this study, three benchmarks were used: one to proxy for the global market and two to serve as style indexes for renewable energy funds and black energy funds, respectively.

The global market benchmark chosen was the S&P Global 1200, as in Martí-Ballester (2019b). As for the style indexes, the S&P Global 1200 Energy Index corresponds to the black energy funds benchmark (Martí-Ballester (2019b)). Regarding the renewable energy style index, the three alternatives presented in Martí-Ballester (2019a) were analysed, and the Ardour Global Alternative Energy was the one chosen because it had a higher R^2. This process was also one of the reasons why the December 2008 starting date was chosen (one of those indexes had a first value dating of November 2008).

4.3 Risk factors and public information variables

As stated earlier, the Carhart (1997) four-factor and the Fama and French (2015, 2018) five- and six-factor models will be used. The risk factors needed to run these models are the SMB, HML, RMW, CMA and the MOM. These have all been described in the previous chapter but let us delve into it a bit further. The factors were all gathered from Professor Kenneth French's website.[10] It was noted that in this website, the calculation of the factors used in the 3 and 5/6 factor models is different. Regarding the 3 factors,[11] SMB is the average return on the three small portfolios minus the average return on the three big portfolios and HML is the average return on the two value portfolios minus the average return on the two growth portfolios. As for the 5 factors, the SMB is the average return on the nine small stock portfolios minus the average return on the nine big stock portfolios, the HML is the average return on the two value portfolios minus the average return on the two growth portfolios, the RMW is the average return on the two robust operating profitability portfolios minus the average return on the two weak operating

[10] www.mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

[11] The market factor is proxied in this dissertation by the previously mentioned benchmarks, therefore the one provided by Professor French was not used.

profitability portfolios, and the CMA is the average return on the two conservative investment portfolios minus the average return on the two aggressive investment portfolios. The risk-free rate was also obtained from this website, and it is proxied by the US one-month Treasury bill rate. The momentum factor was obtained from this source too. It is the average return on two high prior return portfolios minus the average return on two low prior return portfolios.

To implement the conditional models, it was necessary to choose the public information variables. The ones chosen were the Dividend Yield (DY) and the Short-Term Rate (STR), as in Ferson and Warther (1996) and Cortez et al. (2012). For the short-term rate, the yield on a 3-month US Treasury Bill was used, and it was gathered from the US Federal Reserve (https://www.federalreserve.gov/). Regarding the dividend yield, it was based on the FTSE All-World Index, and DataStream was used to collect it. Given that these variables tend to be very persistent, a problem that could have arisen was the bias from spurious regressions. To avoid it, these series were detrended by subtracting a 12-month moving average, as proposed by Ferson et al. (2003). Furthermore, these variables were used in their mean-zero form.

4.4 Summary statistics

Table 1 presents some summary statistics for renewable and black energy funds for the overall period. Tables for the subperiods - (December 2008 – December 2014) and (January 2015 – January 2021) – are presented in the Appendix 2.

Regarding renewable energy funds, they always show positive excess returns, and its lowest value was recorded during the first half, as well as its highest. One can also infer that it is mostly symmetrical, given that all skewness values are close to zero, but it is always slightly skewed to the left. Considering that the Jarque Bera test null hypothesis is always rejected, the series do not follow a normal distribution. The fact that the return series are nonnormal is noted and supports the use of conditional models, as argued by Adcock et al (2012). The statistics show a positive excess kurtosis, from which is inferred that these distributions are leptokurtic (fat-tailed). Finally, regarding the total net assets, the global average is 44.58 million dollars, but this value decreased from the first (45.89 M$) to the second half (43.49 M$) of the period under analysis.

Table 1 – Descriptive statistics of the renewable energy and black energy funds

	Number of funds	*Average Excess Returns (%)*	*Standard Deviation (%)*	*Minimum*	*Maximum*	*Skewness*	*Excess Kurtosis*	*Jarque Bera Test*	*p-value*	*Average TNA ($ Millions)*
Renewable energy	43	0.60599	6.28469	-0.41669	0.27980	-0.19142	2.36506	1566.20	0.00000	44.58
Black Energy	50	0.13779	6.91031	-0.44344	0.39118	-0.06690	3.37587	3219.30	0.00000	59.17

This table presents the descriptive statistics for the monthly returns of the renewable energy funds and the black energy funds. The average excess returns, standard deviation, minimum, maximum, skewness, excess kurtosis, and average TNA that are presented in this correspond to the period that starts in December 2008 and ends in January 2021. The table also shows the Jarque Bera Test for normality and its corresponding p-value.

As for the black energy funds, their all-time average excess returns are positive, but this was due to the results of the first subperiod, as on the second subperiod they were negative. As to the renewable energy funds, it is mostly symmetrical, with the slightest skew to the left, and it does not follow a normal distribution, being leptokurtic too. The same pattern is observed in the total net assets as well. They were 61.91 M$ in the first subperiod, lowering to 56.32 M$ in the second one, giving a global mean value of 59.17 M$.

Table 2 presents the summary statistics regarding the additional risk factors. Observing the average excess returns, globally, they were almost all positive, except for the HML, CMA, MOM and HML (3 factor). This trend can be seen in the first subperiod,[12] where the only difference is the CMA, which is positive, although, in the second subperiod the black energy value weighted portfolio, the S&P Global 1200 Energy Index, SMB and RMW are negative, and the MOM factor turns positive.

As for their distribution, aside from MOM, they all have a small skewness. The equally weighted renewable energy, both value weighted portfolios, the S&P Global 1200 and the S&P Global 1200 Energy skew to the left, just like the HML, MOM and HML (3 factor). All the others skew to the right.

Concerning excess kurtosis, only SMB, RMW, CMA and SMB (3 factor) seem to follow a normal distribution. All others reject the null hypothesis of the Jarque Bera test at least at a 5%

[12] See appendix 2.

level. In the first subperiod, however, that is not the common trend. Regarding almost all variables, I do not discard the null hypothesis, therefore one can infer that the excess kurtosis occurred mostly in the second subperiod. The ones that do not follow a normal distribution are all leptokurtic.

Table 2 – Descriptive statistics of the equally and value weighted portfolios, benchmarks, and risk factors

	No. Of Obs.	*Average Excess Returns (%)*	*Standard Deviation (%)*	*Minimum*	*Maximum*	*Skewness*	*Excess Kurtosis*	*Jarque Bera Test*	*p-value*
Ren. Eq. Weighted	146	0.74335	5.60331	-0.17078	0.14707	-0.29129	0.79842	9.10300	0.01055
Black Eq. Weighted	146	0.27867	6.05020	-0.21522	0.22806	0.06242	1.83838	27.13100	0.00000
Ren. Val. Weighted	146	0.84595	5.25680	-0.14766	0.14729	-0.12392	0.79517	8.48940	0.01434
Black Val. Weighted	146	0.12215	6.35791	-0.26702	0.19545	-0.15614	2.48411	45.23100	0.00000
S&P Global 1200	146	1.02240	4.44455	-0.13005	0.12398	-0.31303	0.69994	12.71900	0.00173
Ardour	146	1.15951	7.49682	-0.20398	0.28783	0.21600	1.28758	11.79200	0.00275
S&P Global 1200 Energy	146	0.25817	6.71538	-0.29211	0.29610	-0.00465	3.84225	120.40000	0.00000
SMB	146	0.10212	2.68883	-0.08500	0.06930	0.15414	0.28606	1.78120	0.41040
HML	146	-0.43897	2.94195	-0.14080	0.08210	-0.57753	3.68330	145.16000	0.00000
RMW	146	0.02616	1.59165	-0.03930	0.04260	0.10342	-0.12289	0.28850	0.86570
CMA	146	-0.07212	1.53885	-0.03440	0.04680	0.40314	0.01633	4.32110	0.11530
MOM	146	-0.22993	4.75996	-0.34400	0.10290	-2.75659	17.16819	5401.90000	0.00000
SMB (3 Factor)	146	0.20500	2.50030	-0.05030	0.07190	0.25934	-0.27333	1.79880	0.40680
HML (3 Factor)	146	-0.40021	2.93302	-0.13960	0.08220	-0.56955	3.69081	145.92000	0.00000

This table presents the descriptive statistics for the monthly returns of the renewable energy and black energy equally and value weighted portfolios. These statistics are also presented for all three benchmarks and every risk factor used. The number of observations, average excess returns, standard deviation, minimum, maximum, skewness, and excess kurtosis that are presented in this corresponds to the period that starts in December 2008 and ends in January 2021. The table also shows the Jarque Bera test for normality and its corresponding p-value.

5. Empirical results

This chapter presents and analyses the results of all models implemented. It starts with the results of the unconditional models, followed by those of the conditional ones, and then the managerial abilities models. As stated earlier, the overall period was divided into two to assess the evolution of alternative energy fund performance over time Therefore, each model is associated to three tables, which correspond to the overall period analysis and the analysis for the two subperiods. The tables with the results of the subperiod regressions may be found in the appendix section. The global index and the corresponding style indexes are analysed separately, thus, each unconditional and conditional model ends up with two tables of results. The chapter ends with the analysis of performance in different market states.

It is important to notice that all results were corrected for autocorrelation and heteroscedasticity using the Newey and West (1987) method.

5.1 Unconditional models

5.1.1 Carhart (1997) four-factor model

Table 3 presents the results of the unconditional Carhart (1997) four-factor model, using the S&P Global 1200 index as benchmark, from December 2008 until January 2021. It summarizes the individual performance of both renewable energy and black funds, as well as the equally and value weighted portfolios formed from them. The estimates of the individual fund regressions are presented in Appendix 3.

Table 3 – Unconditional Carhart (1997) four-factor model – S&P Global 1200

Portfolios	α_p	β_p	β_{SMB}	β_{HML}	β_{MOM}	Adj. R^2 (%)
Renewable energy						
Eq. Weighted	-0.00530**	1.11508***	0.29935***	-0.14443**	-0.07319*	86.78
Val. Weighted	-0.00345	1.07361***	0.17222**	-0.13255*	-0.02611	84.14
N+	2[0]	43[43]	40[30]	8[0]	11[1]	
N-	41[21]	0[0]	3[0]	35[17]	32[10]	
Black Energy						
Eq. Weighted	-0.00945***	1.12107***	0.22365**	-0.02084	-0.12037**	79.83
Val. Weighted	-0.01081***	1.09367***	0.24932**	-0.01018	-0.15647**	72.3
N+	0[0]	50[50]	44[17]	26[11]	5[0]	
N-	50[39]	0[0]	6[0]	24[10]	45[14]	
Difference Portfolio						
Eq. Weighted	0.00415	-0.00599	0.07570	-0.12358	0.04718	0.26
Val. Weighted	0.00736**	-0.02006	-0.07709	-0.12237	0.13036	5.29

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021 regarding the equally and value weighted portfolios of renewable and black energy funds, and the difference portfolios between these. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets, one can find the number of funds whose estimates were statistically significant at a 5% significance level.

Since the main goal of this dissertation regards the performance evaluation of alternative energy funds, the key variable to look at is the α_p, which is the abnormal return of the portfolio. The renewable energy equally weighted portfolio has a negative and significant α_p, meaning that it underperforms the S&P Global 1200. Yet, the performance of the renewable energy value weighted portfolio is neutral. These results suggest that the larger renewable energy funds perform better than smaller ones.

At the individual fund level, most renewable energy funds have either a negative or neutral performance. From the tables in appendix 5,[13] one can infer that the adverse performance of the equally weighted portfolio is driven by the results in the first subperiod, given that it is also negative, unlike the second subperiod, where it is neutral. This suggests performance has been

[13] The estimates of individual fund performance for each subperiod are available upon request.

improving over time. Similarly, the value weighted shows an improvement in performance from the first to the second subperiod.

Both black energy portfolios have a negative performance, and although they are negative on both subperiods, the results have improved in more recent times. By looking at appendix 5, one can see the improvement trend, going from neutral to positive on both types of funds. This negative performance related to a global benchmark goes in line with the results of Martí-Ballester's (2019a, b).

Glancing at the abnormal returns of the difference portfolio, they are neutral for the equally weighted, but positive for the value weighted portfolio. The positive and statistically significant alpha of the differences value weighted portfolio means that renewable energy funds perform better than black energy funds.

Regarding the explanatory power (R^2), the adjusted one was used (Shieh, 2008). It is slightly higher for the renewable energy portfolios, meaning that the S&P Global 1200 better explains its performance than that of the black energy portfolios.

To what the market factor is concerned, all portfolios are similarly exposed to it, with the black energy one being slightly more exposed to this factor, although the differences compared to the renewable energy portfolio are not statistically significant. It is worth mentioning that all the other portfolios' market factor values are statistically significant at a 1% level.

Regarding the size factor (SMB), alternative and black energy portfolios both have a positive and statistically significant coefficients, meaning that they are more exposed to small companies. Such a result is supported by the individual fund data (appendix 3), whose constituents have almost all of them positive and statistically significant values associated to SMB.

Looking at the book-to-market (HML) factor, the renewable energy equal and value weighted portfolios are negatively exposed to it at a 5% and 10% significance levels, respectively. Its black counterpart is neutral to what HML is concerned, and there is no significant difference between one another.

Momentum (MOM) wise, both types of portfolios seem to be negatively and significantly exposed to this factor, with exception of the alternative energy value weighted portfolio. Its equally weighted counterpart is statistically significant at a 10% level, while the black energy portfolios are

both statistically significant at the 5% level. These negative coefficients reflect the fact that most of the funds are exposed to companies that experienced poor performance in the recent past. It should also be noted that the difference portfolio discloses that there is no difference between the two types of funds regarding the exposure to this factor.

Taking a glimpse into the regressions using the style indexes as benchmark (table 4), the abnormal returns are all neutral, indicating that there is no difference between the funds and their respective style. This is corroborated by the analysis at the individual fund level, because most of the alphas are neutral as well, although 14 of the black energy funds are negative and statistically significant. Peeking at appendix 5, these abnormal returns have been similar throughout the years.

Both black and alternative energy funds have a positive and statistically significant, at the 1% level, market coefficient. But all values are lower than one, implying that these securities are less volatile than their specific style indexes. An investor should look into this, for he or she would be getting the same return as the market, but with less risk.

Regarding the other factors, renewable energy portfolios do not seem to be significantly exposed to any of them. However, black energy funds are so, concerning book-to-market and momentum. For the two portfolios, HML is negative and statistically significant (1% level), indicating that these funds were exposed to growth stocks when compared with the S&P Global 1200 Energy index. MOM is negative and statistically significant too, at a 10% and 1% level for the equally weighted and value weighted portfolio, respectively. This suggests that they have invested in companies that have experienced a bad performance in the recent past.

Lastly, one would expect that the adjusted R^2 of regressing the portfolios with style indexes as benchmarks should be higher than in the case of broader indexes, as they should better explain the returns of the portfolios. For the black portfolios this is verified. However, the alternative energy ones, seem to have an equal or lower adjusted R^2. This may result from the fact that there is no specific index that deals with renewable energy only. This kind of indexes focuses on clean energy, which includes energy originated from nuclear power and, although this type of energy is clean, it is not renewable (Morse, 2013).

Table 4 – Unconditional Carhart (1997) four-factor model – style indexes

Portfolios	α_p	β_p	β_{SMB}	β_{HML}	β_{MOM}	Adj. R^2 (%)
Renewable energy						
Eq. Weighted	-0.00016	0.68052***	-0.04053	0.07368	-0.04138	86.23
Val. Weighted	0.00203	0.59536***	-0.09478	0.08432	-0.02833	72.68
N+	12[0]	43[43]	16[0]	24[3]	8[2]	
N-	31[4]	0[0]	27[5]	19[0]	35[5]	
Black Energy						
Eq. Weighted	-0.00083	0.85679***	0.05932	-0.26728***	-0.10942*	89.57
Val. Weighted	-0.00252	0.87413***	0.06616	-0.27491***	-0.12995***	85.66
N+	14[0]	50[50]	36[5]	4[0]	8[0]	
N-	36[14]	0[0]	14[1]	46[21]	42[21]	

This table shows the regression estimates, using the renewable and black energy style indexes, the Ardour Global Alternative Energy, and the S&P Global 1200 Energy, respectively. This corresponds to the period between December 2008 and January 2021 regarding the equally and value weighted portfolios of renewable and black energy funds. The table details abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets, one can find the number of funds whose estimates were statistically significant at a 5% significance level.

5.1.2 The Fama and French (2015) five-factor model

Table 5 presents the results of applying the unconditional Fama and French (2015) five-factor model, starting in December 2008 and ending in January 2021. In appendix 3, the results of the individual funds' performance obtained with this model are presented, and in appendix 5 the results of the regressions for the first and second subperiods can be observed.

The abnormal returns appear to be neutral, regarding this model, for alternative energy portfolios, even when around half of the individual funds have negative and statistically significant α_p. Glancing at appendix 5, one can see the abnormal returns started as negative and significant in the first subperiod and ended as neutral in the more recent period. Black energy portfolios tell a different story. As in the previous model, they continue to be negative and statistically significant (1% level). This result is similar for the subperiods too. It is negative throughout, but it improves in the second subperiod. In sum, this model suggests that there is no difference, return wise, between investing in alternative energy funds and the S&P Global 1200, while black energy

funds underperform the benchmark. Examining the difference portfolio, the alphas of both equally and value weighted portfolios are positive and statistically significant, at the 10% and 5% level, respectively. It was thus concluded that renewable energy funds outperformed black energy funds. In all, the results are consistent with investors in black energy funds paying a premium.

Table 5 – Unconditional Fama and French (2015) five-factor model – S&P Global 1200

Portfolios	α_p	β_p	β_{SMB}	β_{HML}	β_{RMW}	β_{CMA}	Adj. R^2 (%)
Renewable energy							
Eq. Weighted	-0.00424	1.10274***	0.22723***	-0.04189	-0.31014***	-0.32779**	87.5
Val. Weighted	-0.00283	1.06411***	0.10854*	-0.09317	-0.24705*	-0.14720	84.5
N+	2[0]	43[43]	38[22]	13[1]	6[1]	6[0]	
N-	41[19]	0[0]	5[0]	30[2]	37[11]	37[14]	
Black Energy							
Eq. Weighted	-0.00945***	1.16425***	0.21886**	-0.02127	-0.04720	0.09428	79.04
Val. Weighted	-0.01066***	1.13938***	0.26471*	0.03875	0.00543	-0.01887	71.11
N+	0[0]	50[50]	41[16]	28[5]	20[0]	32[4]	
N-	50[37]	0[0]	9[0]	22[7]	30[3]	18[6]	
Difference Portfolio							
Eq. Weighted	0.00521*	-0.06151	0.00838	-0.02063	-0.26294	-0.42207**	4.37
Val. Weighted	0.00782**	-0.07527	-0.15617	-0.13192	-0.25247	-0.12833	3.86

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021 regarding the equally and value weighted portfolios of renewable and black energy funds, and the difference portfolios between these. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), and investment (CMA). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets, one can find the number of funds whose estimates were statistically significant at a 5% significance level.

As for the market term, like in the Carhart (1997) four-factor model, it is statistically significant (1% level), positive and higher than 1, meaning that it is riskier to invest in either of the portfolios than investing in the market. When looking at the difference portfolio, one concludes that they also exhibit a similar exposure to the market.

Regarding the other factors, SMB is positive and statistically significant for black and renewable portfolios, thusly being more exposed to small firms, and in a similar way, according

to the coefficient of the difference portfolio. As for HML, none of them is particularly invested in value or growth stocks.

Discussing now the factors that make this model differ from the previous one, profitability (RMW) and investment (CMA), black funds have a neutral outlook on these. Alternative funds, on the other hand, have negative and statistically significant (at the 1% and 10% level) values on RMW and negative (5% level of significance) and neutral on CMA. A negative RMW coefficient means the fund/portfolio is exposed to companies with low profitability, and a negative CMA coefficient indicates that a fund/portfolio is exposed to companies with high investment policies.

Table 6 shows the results for the five-factor regressions but using the respective style indexes. The abnormal returns and market coefficient lead to the same conclusion as the previous model: neutral abnormal returns, and a positive, and statistically significant (1% level) and lower than one market coefficient.

Again, all SMB values are neutral. This time though, HML tells a slightly different story. All but the equally weighted renewable energy portfolio have a neutral coefficient. This one is positive and significant at the 10% level, meaning it tends to be more exposed to high book-to-value firms.

Peering into the RMW and CMA factors, the first one exhibits only neutral values, whereas the latter shows neutral estimates in the case of the renewable energy portfolios, and negative and statistically significant (1% level) ones in case of the black energy portfolios, implying they are more exposed to companies with aggressive investment policies.

Lastly, it is important to refer the Adjusted R^2. They are similar to those obtained with the Carhart (1997) four-factor model, where, for the S&P Global 1200, the renewable energy portfolios had values around the mid 80%, the black in the higher and lower 70%, with the latter seeing its values rise in when using the style index, the equally weighted renewable energy portfolio maintaining its value, and the value weighted one lowering to the low 70%.

Table 6 – Unconditional Fama and French (2015) five-factor model – style indexes

Portfolios	α_p	β_p	β_{SMB}	β_{HML}	β_{RMW}	β_{CMA}	Adj. R^2 (%)
Renewable energy							
Eq. Weighted	0.00031	0.67579***	-0.04970	0.15827*	-0.11079	-0.18022	86.28
Val. Weighted	0.00231	0.59376***	-0.09993	0.14178	-0.08606	-0.09054	72.52
N+	11[1]	43[43]	21[1]	29[7]	24[1]	13[1]	
N-	32[5]	0[0]	22[4]	14[1]	19[4]	30[4]	
Black Energy							
Eq. Weighted	0.00010	0.87022***	0.02399	-0.09256	-0.17505	-0.43336***	90.05
Val. Weighted	-0.00150	0.88983***	0.04675	-0.06585	-0.11771	-0.51922***	86.12
N+	15[0]	50[50]	31[4]	24[0]	15[0]	2[1]	
N-	35[12]	0[0]	19[1]	26[7]	35[6]	48[16]	

This table shows the regression estimates, using the renewable and black energy style indexes, the Ardour Global Alternative Energy, and the S&P Global 1200 Energy, respectively. This corresponds to the period between December 2008 and January 2021 regarding the equally and value weighted portfolios of renewable and black energy funds. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), and investment (CMA). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets, one can find the number of funds whose estimates were statistically significant at a 5% significance level.

5.1.3 The Fama and French (2018) six-factor model

Table 7 presents the results of the final unconditional model, the Fama and French (2018) six-factor, from December 2008 to January 2021. Appendix 5 presents the results of these regressions for the first and second subperiods.

As in the four-factor model, the abnormal returns are neutral for the value weighted alternative energy portfolio, and neutral and significant for all others. Again, by looking at the subperiod results, the one representing the first subperiods has an all-around bad performance and bounces back in the second subperiod (black energy is still negative in the second subperiod, but not as much as in the first one). These results are vastly supported by the results of individual fund performance, too. Once more, the difference portfolio shows a better performance from both renewable energy portfolios, making it more worth to "go green" rather than black.

Table 7 – Unconditional Fama and French (2018) six-factor model – S&P Global 1200

Portfolios	α_p	β_p	β_{SMB}	β_{HML}	β_{RMW}	β_{CMA}	β_{MOM}	Adj. R^2 (%)
Renewable energy								
Eq. Weighted	-0.00430*	1.08334***	0.21503***	-0.08435	-0.32395***	-0.29881*	-0.06588	87.63
Val. Weighted	-0.00286	1.05653***	0.10378	-0.10975	-0.25244**	-0.13588	-0.02572	84.43
N+	2[0]	43[43]	38[20]	14[0]	6[1]	7[0]	13[1]	
N-	41[20]	0[0]	5[0]	29[7]	37[11]	36[10]	30[10]	
Black Energy								
Eq. Weighted	-0.00957***	1.12710***	0.19549**	-0.10255	-0.07364	0.14976	-0.12612**	79.59
Val. Weighted	-0.01080***	1.09348***	0.23583*	-0.06170	-0.02725	0.04970	-0.15587**	71.87
N+	0[0]	50[50]	38[13]	21[0]	13[0]	33[4]	6[0]	
N-	50[37]	0[0]	12[0]	29[7]	37[4]	17[5]	44[11]	
Difference Portfolio								
Eq. Weighted	0.00527*	-0.04377	0.01954	0.01820	-0.25031	-0.44857**	0.06025	4.38
Val. Weighted	0.00794**	-0.03694	-0.13206	-0.04805	-0.22519	-0.18558	0.13015	5.52

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021 regarding the equally and value weighted portfolios of renewable and black energy funds, and the difference portfolios between these. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets, one can find the number of funds whose estimates were statistically significant at a 5% significance level.

Regarding the factors, as before, the market coefficient is positive, statistically significant (1% level) and higher than one. The SMB has suffered a change: this time the renewable energy value weighted portfolio shows no preference in size, while all others are more exposed to large-cap stocks. HML is similar to the five-factor Model, as all coefficients are neutral. Regarding RMW, alternative energy portfolios are more exposed to weak profitability companies, and black energy are neutral. With respect to CMA, all coefficients are neutral, with exception of the negative and significant renewable energy equally weighted portfolio. As for MOM, the alternative energy portfolios' coefficients are neutral, whereas the black energy ones are more exposed to companies that recently experienced bad performance, for its values are negative and statistically significant at the 5% level. Regarding these factors, the only one that is significant for the difference portfolio is the equally weighted CMA factor, meaning that when comparing renewable

and black portfolios, the former are more exposed to companies with aggressive investment strategies.

Table 8 – Unconditional Fama and French (2018) six-factor model – style indexes

Portfolios	α_p	β_p	β_{SMB}	β_{HML}	β_{RMW}	β_{CMA}	β_{MOM}	Adj. R^2 (%)
Renewable energy								
Eq. Weighted	0.00024	0.66768***	-0.05345	0.13045	-0.12188	-0.16506	-0.04065	86.27
Val. Weighted	0.00225	0.58765***	-0.10276	0.12080	-0.09444	-0.07911	-0.03067	72.37
N+	12[1]	43[43]	21[0]	27[2]	22[1]	12[1]	8[3]	
N-	31[5]	0[0]	22[4]	16[1]	21[3]	31[3]	35[4]	
Black Energy								
Eq. Weighted	-0.00020	0.85172***	0.01074	-0.15035*	-0.19098	-0.38103***	-0.09027*	90.33
Val. Weighted	-0.00186	0.86838***	0.03139	-0.13285	-0.13618	-0.45855***	-0.10464**	86.46
N+	14[0]	50[50]	28[5]	11[0]	13[0]	5[1]	11[0]	
N-	36[13]	0[0]	22[1]	39[11]	37[8]	45[11]	39[18]	

This table shows the regression estimates, using the renewable and black energy style indexes, the Ardour Global Alternative Energy, and the S&P Global 1200 Energy, respectively. This corresponds to the period between December 2008 and January 2021 regarding the equally and value weighted portfolios of Renewable and Black Energy Funds. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets, one can find the number of funds whose estimates were statistically significant at a 5% significance level.

To what the style indexes are concerned, the abnormal returns are once more neutral, the market coefficient is statistically significant, positive and less than one. The market factor is the only one that is statistically significant for the renewable energy portfolios. As for the black energy theme, its equally weighted portfolio is more exposed to low book-to-market companies, that invest aggressively and have incurred losses recently. Its value weighted counterpart only follows suit on the CMA and MOM factors, with its HML being neutral.

Finally, the adjusted R^2 is also similar to the previous models, for all benchmarks, thus being a good fit for the data.

5.2 Conditional models

This subchapter presents the results of the multi-factor models in a conditional setting where alphas and betas vary over time according to public information variables, as in Christopherson et al (1998). The public information variables used in the models are the short-term rate (STR) and the dividend yield (DY). To test if the inclusion of these variables represents an improvement in the model (are not equal to zero), a Wald test was implemented in all models.

5.2.1 The Carhart (1997) four-factor model

Table 9 shows the results of the conditional Carhart (1997) four-factor model from December 2008 to January 2021, using the S&P Global 1200 as the market benchmark. Appendix 4 presents the results of the individual funds' regressions, and appendix 6 presents the results for the first and second subperiods.

Regarding the abnormal returns, the trend from the unconditional four-factor model holds, with all but the alternative energy value weighted portfolio (which is neutral) being negative and statistically significant. It is also observed that performance tends to improve from the first to the second subperiod. Additionally, the value weighted difference portfolio shows a positive and statistically significant alpha (at the 5% level) when renewable and black portfolios are compared, indicating the former outperform the latter.

Looking into the two conditional αs, the one corresponding to the dividend yield is always neutral, and so is the one associated to the short-term rate in case of the renewable energy theme. However, the black energy portfolio has a positive and significant α_{STR}, meaning that in times of higher short-term rates, black funds show a higher performance, when compared with the S&P Global 1200. The same can be said for the difference portfolio, because, for both instances, alternative energy portfolios have a lower outcome from times of higher short-term rates, when compared with black energy ones.

Table 9 – Conditional Carhart (1997) four-factor model – S&P Global 1200

	Renewable energy				*Black Energy*				*Difference Portfolio*	
Parameters	Eq. Weighted	Val. Weighted	N+	N-	Eq. Weighted	Val. Weighted	N+	N-	Eq. Weighted	Val. Weighted
α_p	-0.00539*	-0.00363	4[0]	39[22]	-0.00958***	-0.01097***	2[0]	48[38]	0.00419	0.00734**
α_{STR}	-0.01119	-0.00928	16[7]	27[4]	0.01283**	0.01231*	30[12]	20[1]	-0.02402**	-0.02158*
α_{DY}	0.00042	-0.00766	24[0]	19[5]	0.00471	0.00007	28[3]	22[2]	-0.00429	-0.00774
β_p	1.14167***	1.10068***	43[43]	0[0]	1.16295***	1.13414***	49[48]	1[1]	-0.02129	-0.03346
β_{SMB}	0.23036***	0.14240**	40[22]	3[0]	0.25156**	0.29808**	42[16]	8[1]	-0.02120	-0.15568
β_{HML}	-0.05097	-0.03902	10[1]	33[12]	0.09436	0.14277	32[16]	18[6]	-0.14533	-0.18179
β_{MOM}	-0.07280	-0.04533	7[2]	36[11]	-0.17590**	-0.20753**	6[2]	44[20]	0.10310*	0.16221**
$\beta_{MKT*STR}$	0.13121	0.14410	24[2]	19[6]	-0.09410	-0.05013	23[3]	27[10]	0.22531	0.19423
β_{MKT*DY}	0.07355	0.16355	26[4]	17[3]	0.07703	0.28655	29[3]	21[3]	-0.00348	-0.12300
$\beta_{SMB*STR}$	-0.03020	0.02977	12[0]	31[11]	0.13291	0.03780	26[13]	24[5]	-0.16311	-0.00803
β_{SMB*DY}	-0.33187*	0.06010	13[1]	30[5]	-0.07420	0.27725	27[4]	23[5]	-0.25768	-0.21715
$\beta_{HML*STR}$	0.18848	0.24195	25[9]	18[4]	0.77153**	0.86953**	37[17]	13[1]	-0.58305***	-0.62758***
β_{HML*DY}	0.16605	-0.01334	30[6]	13[1]	0.11957	-0.03983	33[12]	17[0]	0.04648	0.02648
$\beta_{MOM*STR}$	-0.08173	-0.09175	11[5]	32[10]	0.09591	0.02027	31[10]	19[4]	-0.17763*	-0.11203
β_{MOM*DY}	-0.08674	0.00103	27[7]	16[1]	0.36028**	0.37655**	30[15]	20[3]	-0.44702***	-0.37553***
W_1	0.25130	0.21150			0.27450	0.51760			0.02973	0.10610
W_2	0.41010	0.29700			0.00401	0.01165			0.00595	0.15670
W_3	0.20320	0.18600			0.01151	0.02709			0.00973	0.24450
Adj. R^2 (%)	87.12	84.58			81.67	74.34			9.67	4.48

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets, one can find the number of funds whose estimates were statistically significant at a 5% significance level. W_1, W_2 and W_3 are the p-values of the Wald tests for the significance of time-varying α, β, and α and β, respectively.

Again, all market βs are positive and statistically significant at the 1% level, and higher than one, perceiving a higher risk by investing in any of these portfolios. The size factor tells that all are more exposed to small-cap stocks, and, apart from the coefficient considering size and the dividend yield, which indicates that in times of high dividend yield, equally weighted renewable energy funds are more exposed to big-cap stocks, no other factors were significant for the alternative energy funds. As for black funds, the most relevant aspect is them being more exposed to companies who recently experienced poor performance.

Regarding the Wald tests, for the renewable energy portfolios, it is safe to say that the conditional variables did not add a significant contribution to the model. The same cannot be said for black portfolios. In this case, time-varying βs and time-varying αs and βs are relevant to the model.

Peering into the style index evaluation (table 10), the abnormal returns are still neutral to all. The renewable energy theme only has a handful of statistically significant values. The market factor is responsible for two of those, because all four values are positive, statistically significant, and lower than one, as in the previous cases. Also, both black energy portfolios are more exposed to low book-to-market firms, and its value weighted portfolio seems to recently have invested in low performing companies.

Unlike the previous benchmark, the Wald tests disclose that almost all conditional variables are jointly significant for these regressions. Similarly, the addition of the conditional variables seems to have improved the explanatory power of the models compared to their unconditional specification, due to the R^2 being slightly higher than in the previous models.

Table 10 – Conditional Carhart (1997) four-factor model – style indexes

	Renewable energy				*Black Energy*			
Parameters	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**
α_p	0.00193	0.00372	24[5]	19[4]	-0.00156	-0.00352	15[1]	35[18]
α_{STR}	-0.01051	-0.00776	12[1]	31[5]	-0.02409***	-0.02292***	9[1]	41[14]
α_{DY}	0.00863	0.00001	28[6]	15[2]	-0.01215	-0.01644**	11[0]	39[8]
β_p	0.73484***	0.63263***	43[43]	0[0]	0.88545***	0.89325***	50[50]	0[0]
β_{SMB}	-0.03224	-0.02981	22[2]	21[5]	-0.03956	-0.00872	27[2]	23[5]
β_{HML}	0.06689	0.07704	18[3]	25[3]	-0.29076***	-0.27021***	6[0]	44[24]
β_{MOM}	-0.04469	-0.05709	13[1]	30[5]	-0.08492	-0.10711**	10[1]	40[13]
$\beta_{MKT*STR}$	0.19895***	0.11737	34[15]	9[1]	0.04071	-0.00844	21[6]	29[8]
β_{MKT*DY}	0.21672**	0.13060	37[11]	6[1]	0.21093*	0.44316***	30[8]	20[1]
$\beta_{SMB*STR}$	0.20144	0.27111	20[1]	23[4]	-0.02413	-0.13120	18[5]	32[10]
β_{SMB*DY}	0.08873	0.6228**	31[3]	12[0]	0.01343	0.36505	29[7]	21[5]
$\beta_{HML*STR}$	-0.21734	-0.19217	6[1]	37[12]	-0.29119**	-0.19976	15[2]	35[15]
β_{HML*DY}	-0.12556	-0.22048	15[1]	28[0]	-0.17397	-0.39718***	21[3]	29[12]
$\beta_{MOM*STR}$	-0.11501	-0.17586	7[1]	36[12]	-0.19617	-0.32013**	19[1]	31[10]
β_{MOM*DY}	0.08502	0.09656	31[3]	12[1]	-0.20017	-0.24181**	8[2]	42[14]
W_1	0.16840	0.71490			0.00001	0.00015		
W_2	0.00363	0.05050			0.02053	0.00028		
W_3	0.00525	0.10560			0.00015	0.00001		
Adj. R^2 (%)	87.69	73.84			91.31	88.81		

This table shows the regression estimates, using the renewable and black energy style indexes, the Ardour Global Alternative Energy, and the S&P Global 1200 Energy, respectively. This corresponds to the period between December 2008 and January 2021, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets, one can find the number of funds whose estimates were statistically significant at a 5% significance level. W_1, W_2 and W_3 are the p-values of the Wald tests for the significance of time-varying α, β, and α and β, respectively.

5.2.2 The Fama and French (2015) five-factor model

Table 11 shows the results of the regressions of the conditional Fama and French (2015) five-factor model, from December 2008 to January 2021, using the S&P Global 1200 as the market benchmark. Appendix 4 presents the results of the individual funds' regressions with this

model, and appendix 6 presents the results of the regressions for the first and second subperiods.

Once more, there is not much difference between the abnormal returns between the conditional and unconditional five-factor model: The performance of renewable energy portfolios is neutral, black energy portfolios underperform the market, and renewable energy funds outperform their black counterparts. As for the conditional αs, all values are neutral, with exception of the short-term rate coefficient of the equally weighted difference portfolio, which is negative and significant (10% level), meaning that in times of high short-term rates, this variable affects more positively black funds than renewable energy.

In this case, and apart from having neutral SMB coefficients on two of the portfolios, the results are pretty much the same as in the unconditional model in terms of risk factors. The Wald tests give similar results to the previous conditional model for the black energy portfolios, whereas in this case, some conditional factors seem to have a higher significance for alternative energy.

In table 12 one can see the outcomes of the style index regressions for the five-factor model. The abnormal returns are, as in previous regressions, neutral, and glancing at the conditional αs, black energy funds underperform their style benchmark in times of high short-term rates, and its value weighted portfolio does the same in periods of high dividend yield.

As for the other factors, the market one continues to be statistically significant (1% level), positive and below one. All other meaningful factors are neutral for renewables. Black energy portfolios, however, are both more endowed to companies who are aggressive investors, and its equally weighted counterpart is more exposed to low book-to-market firms.

Regarding the adjusted R^2, they are higher than in the unconditional model for all benchmarks, sustaining the argument that more factors aid in the better explanation of the returns.

Table 11 – Conditional Fama and French (2015) five-factor model – S&P Global 1200

	Renewable energy				*Black Energy*				*Difference Portfolio*	
Parameters	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**
α_p	-0.00391	-0.00262	3[0]	40[20]	-0.00989***	-0.01126***	3[0]	47[36]	0.00598**	0.00864**
α_{STR}	-0.01392	-0.01406	14[4]	29[7]	0.00835	0.00560	26[4]	24[3]	-0.02228*	-0.01967
α_{DY}	0.00602	-0.00494	23[1]	20[5]	0.00676	0.00073	28[2]	22[0]	-0.00074	-0.00567
β_p	1.11868***	1.09964***	43[43]	0[0]	1.18688***	1.16929***	49[49]	1[0]	-0.06820	-0.06965
β_{SMB}	0.17631**	0.06850	32[16]	11[0]	0.22581	0.24785*	40[14]	10[0]	-0.04950	-0.17935
β_{HML}	0.08827	0.03796	27[5]	16[1]	0.14490	0.21949	37[20]	13[4]	-0.05663	-0.18153
β_{RMW}	-0.34358***	-0.30226**	7[1]	36[12]	-0.17658	-0.16934	16[0]	34[6]	-0.16700	-0.13292
β_{CMA}	-0.33295*	-0.14237	5[0]	38[16]	0.02695	-0.01444	24[6]	26[5]	-0.35990*	-0.12793
$\beta_{MKT*STR}$	0.05680	0.13026	15[0]	28[8]	-0.25813	-0.10638	21[6]	29[5]	0.31493	0.23664
β_{MKT*DY}	0.04739	0.21512	28[5]	15[2]	0.11752	0.37239	33[15]	17[6]	-0.07013	-0.15727
$\beta_{SMB*STR}$	-0.02547	0.05966	22[5]	21[6]	-0.01341	-0.08354	26[12]	24[2]	-0.01206	0.14320
β_{SMB*DY}	-0.34692	-0.09457	7[0]	36[6]	-0.18196	-0.01204	27[6]	23[4]	-0.16497	-0.08253
$\beta_{HML*STR}$	0.14677	-0.01511	27[4]	16[1]	0.23450	0.13004	24[3]	26[10]	-0.08773	-0.14515
β_{HML*DY}	-0.01013	-0.52332	20[2]	23[3]	-1.21293	-1.60640	18[4]	32[14]	1.20280***	1.08308
$\beta_{RMW*STR}$	0.12550	-0.11581	27[5]	16[2]	0.17104	-0.35991	20[3]	30[7]	-0.04554	0.24411
β_{RMW*DY}	-0.36083	-0.25058	26[1]	17[3]	-1.29277**	-1.40515	17[4]	33[11]	0.93195**	1.15457
$\beta_{CMA*STR}$	0.07421	0.37561	24[6]	19[2]	0.47102	0.90328	39[19]	11[3]	-0.39682	-0.52767
β_{CMA*DY}	0.59516	1.44009	33[7]	10[3]	1.77500	2.22388	31[11]	19[5]	-1.17984*	-0.78380
W_1	0.08398	0.08646			0.47030	0.87300			0.06477	0.18820
W_2	0.63230	0.12010			0.00624	0.00419			0.10480	0.29160
W_3	0.14100	0.05015			0.01083	0.00594			0.13070	0.34720
Adj. R^2 (%)	87.99	85.53			81.15	74.36			8.33	4.86

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets, one can find the number of funds whose estimates were statistically significant at a 5% significance level. W_1, W_2 and W_3 are the p-values of the Wald tests for the significance of time-varying α, β, and α and β, respectively.

Table 12 – Conditional Fama and French (2015) five-factor model – style indexes

	Renewable energy				*Black Energy*			
Parameters	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**
α_p	0.00051	0.00268	21[2]	22[3]	-0.00098	-0.00293	18[2]	32[11]
α_{STR}	-0.00413	-0.00494	15[1]	28[3]	-0.02147**	-0.02105***	10[2]	40[18]
α_{DY}	0.00389	-0.00404	26[7]	17[2]	-0.00928	-0.01255*	15[2]	35[3]
β_p	0.72767***	0.63042***	43[43]	0[0]	0.89052***	0.90011***	50[50]	0[0]
β_{SMB}	-0.02888	-0.04715	21[6]	22[6]	-0.07384	-0.04922	23[2]	27[6]
β_{HML}	0.07673	0.07906	23[5]	20[3]	-0.11068*	-0.07338	17[1]	33[11]
β_{RMW}	0.00623	-0.05955	26[4]	17[2]	-0.14312	-0.13128	14[1]	36[7]
β_{CMA}	-0.03544	0.04387	26[2]	17[3]	-0.36240***	-0.37342***	10[1]	40[15]
$\beta_{MKT*STR}$	0.16905***	0.12836	33[14]	10[1]	0.10141	0.10799	25[8]	25[11]
β_{MKT*DY}	0.10652	0.04744	33[6]	10[2]	0.17050*	0.41818***	25[10]	25[4]
$\beta_{SMB*STR}$	0.19389	0.25118	24[4]	19[3]	-0.04660	-0.11928	18[1]	32[6]
β_{SMB*DY}	0.14149	0.57093**	32[6]	11[3]	0.01950	0.20192	33[7]	17[4]
$\beta_{HML*STR}$	-0.29975	-0.38916	13[1]	30[8]	0.00891	-0.04027	31[9]	19[4]
β_{HML*DY}	-0.32279	-0.62016	16[2]	27[4]	0.25287	-0.21029	39[14]	11[0]
$\beta_{RMW*STR}$	0.02245	-0.19819	25[2]	18[2]	-0.28884	-0.54883*	17[3]	33[8]
β_{RMW*DY}	-0.98804**	-0.93193	7[2]	36[12]	0.12277	-0.13496	31[9]	19[3]
$\beta_{CMA*STR}$	0.30678	0.43374	18[3]	25[3]	-0.33992	-0.00361	16[6]	34[16]
β_{CMA*DY}	-0.72112	-0.02336	12[0]	31[4]	-0.70495**	-0.19672	3[0]	47[23]
W_1	0.71480	0.78780			0.00011	0.00096		
W_2	0.00045	0.08326			0.23210	0.01327		
W_3	0.00068	0.15470			0.00040	0.00004		
Adj. R^2 (%)	88.38	73.52			91.66	88.87		

This table shows the regression estimates, using the renewable and black energy style indexes, the Ardour Global Alternative Energy, and the S&P Global 1200 Energy, respectively. This corresponds to the period between December 2008 and January 2021, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). In order to identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets one can find the number of funds whose estimates were statistically significant at a 5% significance level. W_1, W_2 and W_3 are the p-values of the Wald tests for the significance of time-varying α, β, and α and β, respectively.

5.2.3 The Fama and French (2018) six-factor model

Table 13 shows the regression results for the final model used: the conditional Fama and French (2018) six-factor model, from December 2008 to January 2021, using the S&P Global 1200 as the market benchmark. Appendix 4 shows the results of the regressions on individual funds, using this model, and appendix 6 shows the results of the regressions for the first and second subperiods.

The adjusted R^2 is again higher than its unconditional counterpart, making this one a better model, or one that better explains the regressions, as in all previous conditional models.

Regarding the risk factors, they lead to the same conclusions as the unconditional six-factor version of the model, except for the renewable energy equally weighted portfolio's CMA factor, which in this case is neutral. Apart from that, all else is similar. If one glances at the conditional factors, the alternative energy value weighted portfolio tends to have lower returns in times of high short-term rates, and both alternative energy portfolios are negatively more affected by this variable than black energy ones.

Looking at the results using the style indexes, again the results are very similar to those obtained with unconditional models. However, black energy portfolios seem to have a couple more significant values, namely, the value weighted HML and RMW, which are now both negative and statistically significant instead of neutral.

Wald tests wise, in table 13, observing renewable energy portfolios, the hypothesis of no time varying αs, βs, and αs and βs (at least at the 10% level) are rejected only in the case of the value weighted portfolio. Regarding the black energy portfolios, the hypotheses, at the 1% level, that βs, and αs and βs are jointly equal to zero are rejected. As for table 14, the results of the Wald test suggest rejection of the null hypothesis of no time varying αs in case of the black energy portfolios and of no time-varying βs in the case of black energy value weighted portfolio and both renewable energy ones. The null hypothesis of no time-varying αs and βs is rejected in the case of the renewable energy equally weighted portfolio and all black energy portfolios.

Table 13 – Conditional Fama and French (2018) six-factor model – S&P Global 1200

	Renewable energy				*Black Energy*				*Difference Portfolio*	
Parameters	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**
α_p	-0.00450*	-0.00290	4[0]	39[20]	-0.00922***	-0.01042***	3[0]	47[36]	0.00472*	0.00753**
α_{STR}	-0.01261	-0.01378*	14[6]	29[10]	0.00930	0.00632	25[3]	25[3]	-0.02190**	-0.02010*
α_{DY}	0.00109	-0.00741	24[1]	19[7]	0.00799	0.00239	26[6]	24[3]	-0.00690	-0.00980
β_p	1.10395***	1.09073***	43[43]	0[0]	1.14318***	1.11644***	49[48]	1[0]	-0.03924	-0.02571
β_{SMB}	0.14549*	0.05653	35[16]	8[0]	0.2278*	0.25473**	38[13]	12[0]	-0.08231	-0.19820*
β_{HML}	0.04190	0.01367	17[2]	26[1]	0.03946	0.09488	33[7]	17[5]	0.00244	-0.08121
β_{RMW}	-0.40315***	-0.34906***	7[2]	36[16]	-0.15907	-0.16196	17[2]	33[5]	-0.24408	-0.18710
β_{CMA}	-0.35548	-0.17552	2[1]	41[18]	0.07588	0.02423	26[4]	24[4]	-0.43136**	-0.19975
β_{MOM}	-0.06551	-0.03546	11[2]	32[6]	-0.18325**	-0.21793***	9[3]	41[21]	0.11775*	0.18247**
$\beta_{MKT*STR}$	-0.05268	0.01983	11[3]	32[6]	-0.18459	-0.06649	26[3]	24[8]	0.13191	0.08632
β_{MKT*DY}	-0.01219	0.17432	19[4]	24[3]	0.13464	0.38494*	29[10]	21[3]	-0.14683	-0.21062
$\beta_{SMB*STR}$	-0.06866	-0.02721	11[1]	32[15]	-0.03872	-0.17305	26[15]	24[7]	-0.02995	0.14585
β_{SMB*DY}	-0.39906	-0.08051	10[1]	33[7]	-0.28118	-0.09036	24[3]	26[7]	-0.11788	0.00985
$\beta_{HML*STR}$	-0.05642	-0.21046	19[2]	24[3]	0.38309	0.22750	26[2]	24[8]	-0.43951	-0.43796
β_{HML*DY}	-0.46919	-0.96262**	14[1]	29[2]	-0.70946	-1.18458**	22[4]	28[5]	0.24026	0.22195
$\beta_{RMW*STR}$	0.16320	-0.04799	23[4]	20[1]	-0.09182	-0.62849	18[3]	32[5]	0.25503	0.58049
β_{RMW*DY}	-0.44836	-0.33433	26[4]	17[4]	-1.32679	-1.47947*	16[3]	34[12]	0.87843**	1.14514
$\beta_{CMA*STR}$	0.20255	0.47157	21[4]	22[1]	0.23136	0.64244	35[18]	15[1]	-0.02881	-0.17087
β_{CMA*DY}	1.07810	1.87871	38[11]	5[1]	1.19027	1.69251	31[5]	19[5]	-0.11216	0.18620
$\beta_{MOM*STR}$	-0.22337	-0.24722	11[2]	32[17]	0.00780	-0.10844	24[10]	26[7]	-0.23117*	-0.13878
β_{MOM*DY}	-0.29586	-0.24793*	15[2]	28[6]	0.25567	0.22294	28[13]	22[2]	-0.55153***	-0.47087***
W_1	0.16350	0.06708			0.37130	0.81680			0.04449	0.12740
W_2	0.32620	0.08823			0.00413	0.00404			0.02257	0.16830
W_3	0.10170	0.04168			0.00976	0.00860			0.02522	0.23120
Adj. R^2 (%)	88.28	85.63			81.85	75.06			12.89	8.08

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA) and momentum (MOM), the conditional beta coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets, one can find the number of funds whose estimates were statistically significant at a 5% significance level. W_1, W_2 and W_3 are the p-values of the Wald tests for the significance of time-varying α, β, and α and β, respectively.

Table 14 – Conditional Fama and French (2018) six-factor model – style indexes

	Renewable energy				*Black Energy*			
Parameters	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**
α_p	0.00117	0.00343	24[7]	19[3]	-0.00122	-0.00302	15[4]	35[14]
α_{STR}	-0.00522	-0.00633	14[1]	29[3]	-0.02176**	-0.02270***	10[3]	40[15]
α_{DY}	0.00840	0.00110	29[10]	14[4]	-0.01333*	-0.01723**	9[0]	41[9]
β_p	0.72525***	0.62579***	43[42]	0[0]	0.87777***	0.88272***	50[48]	0[0]
β_{SMB}	-0.00610	-0.02017	21[6]	22[4]	-0.09541	-0.06889	22[3]	28[6]
β_{HML}	0.04669	0.04325	14[1]	29[5]	-0.16621***	-0.14353**	10[1]	40[14]
β_{RMW}	0.02351	-0.05007	31[5]	12[2]	-0.18917	-0.20103*	13[2]	37[10]
β_{CMA}	-0.03184	0.03566	21[2]	22[3]	-0.35902***	-0.38141***	11[2]	39[14]
β_{MOM}	-0.05537	-0.06876	16[0]	27[6]	-0.08633*	-0.10989**	10[0]	40[10]
$\beta_{MKT*STR}$	0.17358***	0.11748	31[11]	12[2]	0.04164	-0.00159	19[9]	31[9]
β_{MKT*DY}	0.15115**	0.10234	34[8]	9[1]	0.13863	0.36490***	21[7]	29[4]
$\beta_{SMB*STR}$	0.10329	0.10614	17[1]	26[7]	-0.07592	-0.19716	17[5]	33[17]
β_{SMB*DY}	0.11506	0.55299**	29[5]	14[2]	-0.01361	0.22050	30[4]	20[6]
$\beta_{HML*STR}$	-0.25368	-0.39601	14[1]	29[1]	-0.16006	-0.3256*	23[5]	27[7]
β_{HML*DY}	-0.15615	-0.54547	23[3]	20[1]	-0.02971	-0.66999***	39[8]	11[2]
$\beta_{RMW*STR}$	-0.03526	-0.24848	14[2]	29[3]	-0.32739	-0.56974**	18[5]	32[12]
β_{RMW*DY}	-1.01784**	-0.99030*	9[3]	34[8]	0.08863	-0.17611	29[11]	21[2]
$\beta_{CMA*STR}$	0.16103	0.28591	12[2]	31[7]	-0.21549	0.18924	16[5]	34[14]
β_{CMA*DY}	-0.89477*	-0.12126	9[0]	34[7]	-0.40346	0.27466	12[0]	38[13]
$\beta_{MOM*STR}$	-0.08723	-0.18324	11[1]	32[13]	-0.22211	-0.39570***	19[4]	31[15]
β_{MOM*DY}	0.15218	0.12115	39[17]	4[2]	-0.20555	-0.31870***	14[2]	36[11]
W_1	0.40940	0.82210			0.00005	0.00019		
W_2	0.00052	0.08237			0.16980	0.00395		
W_3	0.00083	0.14450			0.00100	0.00004		
Adj. R^2 (%)	88.46	73.55			91.84	89.33		

This table shows the regression estimates, using the renewable and black energy style indexes, the Ardour Global Alternative Energy, and the S&P Global 1200 Energy, respectively. This corresponds to the period between December 2008 and January 2021, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR} , α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA) and momentum (MOM), the conditional beta coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, $\beta_{SMB*DY,}$ $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets, one can find the number of funds whose estimates were statistically significant at a 5% significance level. W_1, W_2 and W_3 are the p-values of the Wald tests for the significance of time-varying α, β, and α and β, respectively.

5.3 Managers' timing and selectivity ability

In this section, the managers' timing and selectivity abilities will be assessed. This was made using a variation of the TM (1966) model, as in Muñoz et al (2014) and Lu (2005), although in this research this approach will be extended not only to four-factor specification but also to five-factor specification too. All tables refer to the overall period under analysis, which spans from December 2008 until January 2021[14].

5.3.1 The unconditional Carhart (1997) four-factor model

Table 15 presents the regression results of the unconditional timing and selectivity model with four risk factors.

Table 15– Unconditional timing and selectivity using the Carhart (1997) four-factor model – S&P Global 1200

	Renewable energy				*Black Energy*				*Difference Portfolio*	
Parameters	Eq. Weighted	Val. Weighted	N+	N-	Eq. Weighted	Val. Weighted	N+	N-	Eq. Weighted	Val. Weighted
α_p	-0.00509*	-0.00368	4[0]	39[8]	-0.01084***	-0.01038**	5[0]	45[34]	0.00575*	0.00671
β_p	1.11852***	1.0847***	43[43]	0[0]	1.11108***	1.07078***	50[49]	0[0]	0.00744	0.01392
β_{SMB}	0.29383***	0.18287**	42[28]	1[0]	0.20439**	0.24047*	43[14]	7[0]	0.08944	-0.05760
β_{HML}	-0.16200*	-0.11192	8[2]	35[18]	-0.04320	-0.07010	27[5]	23[7]	-0.11880	-0.04182
β_{MOM}	-0.09531	-0.02578	11[1]	32[9]	-0.23792***	-0.31920***	3[0]	47[19]	0.14261***	0.29342***
$\beta_{MKT*MKT}$	-0.34850	0.00496	14[0]	29[5]	1.10573	0.84272	35[0]	15[3]	-1.45424	-0.83776
$\beta_{SMB*SMB}$	0.69947	-0.74541	19[0]	24[5]	2.90298	2.21819	28[1]	22[2]	-2.20351	-2.96360
$\beta_{HML*HML}$	0.14077	0.90767	20[2]	23[2]	-0.69424	-1.35468	22[4]	28[12]	0.83501	2.26235
$\beta_{MOM*MOM}$	-0.08061	-0.07115	24[6]	19[3]	-1.00720***	-1.18485***	22[5]	28[19]	0.92659***	1.11370***
Adj. R^2 (%)	86.44	83.79			80.94	73.62			4.20	10.01

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the managers' selecting ability (αp), the systematic risk (βp), factor loadings associated with size (SMB), book-to-market (HML), and momentum (MOM), the squared risk factors ($\beta_{MKT*MKT}$, $\beta_{SMB*SMB}$, $\beta_{HML*HML}$, $\beta_{MOM*MOM}$) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets, one can find the number of funds whose estimates were statistically significant at a 5% significance level.

[14] The detailed results on the managerial abilities of individual funds are available upon request.

Regarding performance, one can see that black energy fund managers show a poor ability to pick stocks, reflected in the negative and statistically significant αs. This is observed not only at a portfolio level, but at the individual fund level too, with more than half of the funds presenting negative alphas. Meanwhile, renewable energy funds only show negative performance (and even so, only at a statistically significant level of 10%), in case of the equally weighted portfolio. Its value weighted counterpart's performance is neutral. It is also important to note that when compared to one another, alternative energy managers are either better or as good stock pickers as black energy fund managers. At the individual fund level, less than 20% of the funds show negative and statistically significant alphas, so a small portion of the sample (small funds) seem to be driving the more negative results. A good portion of the black energy sample, however, shows negative and statistically significant alphas, thus supporting the results at the aggregate level.

Renewable energy fund managers do not seem to be particularly good at timing the market or any of the other styles when using the S&P Global 1200 as a comparison, whereas black energy fund managers seem to be able to time the momentum style, but in the wrong direction.

All in all, managers seem to have a poor ability to select stocks, and do not exhibit a special ability to time the market. Regarding specific styles, renewable energy funds managers seem to be better skilled than their black energy peers at timing the momentum factor.

Table 16 shows the results for the style benchmark regressions, and the story is different from the one taken from the previous benchmark. Black energy fund managers have a neutral selecting ability, while renewable energy managers have a positive and significant (at the 5% level) selectivity ability, in spite of less than half of the individual funds showing these abilities. Individually speaking, the same is observed as in the global benchmark, where a small number of funds seem to be influencing the portfolios, renewable wise. Most of the black energy funds perform neutrally.

Table 16– Unconditional timing and selectivity using the Carhart (1997) four-factor model – style indexes

	Renewable energy				*Black Energy*			
Parameters	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**
α_p	0.00417**	0.00650**	31[11]	12[2]	0.00004	-0.00034	21[6]	29[10]
β_p	0.69732***	0.61197***	43[42]	0[0]	0.88046***	0.89998***	50[50]	0[0]
β_{SMB}	-0.03397	-0.07287	18[2]	25[5]	0.07111	0.07622	36[6]	14[0]
β_{HML}	-0.04735	-0.01160	9[1]	34[7]	-0.25579***	-0.31637***	3[0]	47[18]
β_{MOM}	-0.15948***	-0.12687**	5[1]	38[23]	-0.03325	-0.10104	8[0]	42[8]
$\beta_{MKT*MKT}$	-0.86526***	-0.77455***	2[1]	41[32]	-0.17204	-0.52717**	15[1]	35[13]
$\beta_{SMB*SMB}$	0.30406	-1.25475	21[1]	22[2]	-2.75236	-2.35374	10[0]	40[8]
$\beta_{HML*HML}$	-0.19845	0.17943	13[0]	30[2]	0.74313	0.93934	31[6]	19[4]
$\beta_{MOM*MOM}$	-0.13892	-0.09959	24[7]	19[4]	0.47993*	0.28579	38[21]	12[1]
Adj. R^2 (%)	88.03	74.03			89.77	86.14		

This table shows the regression estimates, using the renewable and black energy style indexes, the Ardour Global Alternative Energy, and the S&P Global 1200 Energy, respectively. This corresponds to the period between December 2008 and January 2021, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the managers' selecting ability (αp), the systematic risk (βp), factor loadings associated with size (SMB), book-to-market (HML), and momentum (MOM), the squared risk factors ($\beta_{\text{MKT*MKT}}$, $\beta_{SMB*\text{SMB}}$, $\beta_{HML*\text{HML}}$, $\beta_{MOM*\text{MOM}}$) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets, one can find the number of funds whose estimates were statistically significant at a 5% significance level.

As for market timing, if any ability exists, it is to time the market in the wrong way. This is more evident in the analysis of the results at the individual fund level, where more than two thirds of alternative energy funds time the market wrongly, and almost a third of individual black energy funds follow that trend.

5.3.2 The Unconditional Fama and French (1997) five-factor model

The selectivity and timing results using the unconditional five-factor model are presented in table 17. Selective ability-wise, nearly the same conclusions can be drawn from the previous model. The only change is that in this case, in the value weighted difference portfolio, one can see an improved stock picking ability in terms of alternative energy managers. There is also a

better agreement between the results at the portfolio and the individual fund levels. Now, almost half the dataset of renewable energy funds present negative and statistically significant alphas, and only a small number of black energy funds are neutral performers.

Most of the timing coefficients are neutral, apart from an extremely positive profitability style timing factor in the case of black fund managers. Therefore, one can only infer that most managers do not present any special timing ability, apart from black fund managers, who exhibit a good profitability style timing.

Table 17– Unconditional timing and selectivity using the Fama and French (2015) five-factor model – S&P Global 1200

	Renewable energy				*Black Energy*				*Difference Portfolio*	
Parameters	Eq. Weighted	Val. Weighted	N+	N-	Eq. Weighted	Val. Weighted	N+	N-	Eq. Weighted	Val. Weighted
α_p	-0.00576*	-0.00458	3[0]	40[18]	-0.01404***	-0.01515***	2[1]	48[33]	0.00828**	0.01056**
β_p	1.10150***	1.06815***	43[43]	0[0]	1.14179***	1.11490***	50[50]	0[0]	-0.04029	-0.04675
β_{SMB}	0.22515***	0.12234	39[20]	4[0]	0.22244**	0.28882*	43[15]	7[0]	0.00271	-0.16648
β_{HML}	-0.00146	-0.05629	15[3]	28[3]	0.01444	0.04709	30[6]	20[9]	-0.01590	-0.10338
β_{RMW}	-0.29965***	-0.23380*	5[0]	38[11]	-0.10026	-0.05397	19[0]	31[5]	-0.19939	-0.17984
β_{CMA}	-0.38446**	-0.20545	9[0]	34[16]	0.03110	-0.05520	27[8]	23[6]	-0.41556**	-0.15025
$\beta_{MKT*MKT}$	0.31468	0.20971	28[1]	15[1]	1.18336	1.32385	38[5]	12[2]	-0.86868	-1.11414
$\beta_{SMB*SMB}$	0.43572	-0.92251	17[1]	26[4]	-1.75248	-4.13920	13[1]	37[3]	2.18820	3.21669
$\beta_{HML*HML}$	0.60892	1.15777	25[4]	18[1]	0.05435	-0.00624	26[5]	24[12]	0.55457	1.16401
$\beta_{RMW*RMW}$	1.49925	3.81804	27[5]	16[0]	17.39602**	19.14578*	41[18]	9[1]	-15.89676**	-15.32774
$\beta_{CMA*CMA}$	-0.84607	0.27520	24[3]	19[1]	-2.75903	0.76248	27[5]	23[2]	1.91296	-0.48728
Adj. R^2 (%)	87.17	84.18			79.71	71.85			5.88	4.84

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the managers' selecting ability (αp), the systematic risk (βp), factor loadings associated with size (SMB), book-to-market (HML), and momentum (MOM), the squared risk factors ($\beta_{\text{MKT*MKT}}$, $\beta_{SMB*\text{SMB}}$, $\beta_{HML*\text{HML}}$, $\beta_{MOM*\text{MOM}}$) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets, one can find the number of funds whose estimates were statistically significant at a 5% significance level.

Table 18 presents the regression results using the respective style benchmarks. Again, renewable energy fund managers show a small but statistically significant positive selecting

ability, but, individual wise, only 6 funds have statistically significant and positive values, meaning that the portfolios must be highly swayed by them. They also show a poor market timing ability, which is supported by the analysis at the individual fund level, with roughly half of the dataset of funds showing negative and statistically significant alphas. As for black energy fund managers, their stock-picking as well as market timing abilities seem to be neutral. Only their book-to-market style picking ability is positive and statistically significant.

Table 18– Unconditional timing and selectivity using the Fama and French (2015) five-factor model – style indexes

	Renewable energy				*Black Energy*			
Parameters	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**
α_p	0.00459**	0.00605**	32[6]	11[0]	-0.00125	-0.00261	17[5]	33[12]
β_p	0.71121***	0.62874***	43[42]	0[0]	0.88743***	0.91808***	50[50]	0[0]
β_{SMB}	-0.02231	-0.06453	19[4]	24[4]	0.02705	0.05433	31[5]	19[2]
β_{HML}	0.12087	0.10289	14[5]	29[1]	-0.05343	-0.07686	22[1]	28[6]
β_{RMW}	-0.03401	-0.01683	30[2]	13[2]	-0.15562	-0.13704	18[1]	32[5]
β_{CMA}	-0.09146	-0.00502	25[0]	18[2]	-0.51169***	-0.55906***	8[2]	42[27]
$\beta_{MKT*MKT}$	-0.62901***	-0.60616**	2[0]	41[22]	-0.14523	-0.42174	21[6]	29[3]
$\beta_{SMB*SMB}$	-0.56162	-1.49517	18[2]	25[2]	0.14733	-1.10921	22[0]	28[4]
$\beta_{HML*HML}$	0.72425	0.95649	22[1]	21[2]	2.00131*	2.52497**	35[18]	15[3]
$\beta_{RMW*RMW}$	-1.39439	1.55943	12[1]	31[0]	0.44068	2.84380	19[1]	31[5]
$\beta_{CMA*CMA}$	-5.04043	-4.55435	19[1]	24[1]	0.48694	3.22324	28[4]	22[4]
Adj. R^2 (%)	87.13	73.01			90.02	86.35		

This table shows the regression estimates, using the renewable and black energy style indexes, the Ardour Global Alternative Energy, and the S&P Global 1200 Energy, respectively. This corresponds to the period between December 2008 and January 2021, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the managers' selecting ability (αp), the systematic risk (βp), factor loadings associated with size (SMB), book-to-market (HML), and momentum (MOM), the squared risk factors ($\beta_{\text{MKT*MKT}}$, $\beta_{SMB*\text{SMB}}$, $\beta_{HML*\text{HML}}$, $\beta_{MOM*\text{MOM}}$) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets, one can find the number of funds whose estimates were statistically significant at a 5% significance level.

5.3.3 The conditional Carhart (1997) four-factor model

The results obtained from the conditional timing and selectivity model with four risk factors are presented in table 19.

Table 19– Conditional timing and selectivity using the Carhart (1997) four-factor model – S&P Global 1200

	Renewable energy				*Black Energy*				*Difference Portfolio*	
Parameters	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**
α_p	-0.00421	-0.00370	5[0]	38[11]	-0.01081***	-0.01095**	4[0]	46[28]	0.00661*	0.00725*
β_p	1.13446***	1.09737***	43[43]	0[0]	1.14019***	1.09543***	49[46]	1[0]	-0.00573	0.00194
β_{SMB}	0.20255**	0.12440	38[23]	5[1]	0.16368*	0.17482	40[13]	10[3]	0.03888	-0.05042
β_{HML}	-0.07980	-0.03407	10[2]	33[13]	0.07353	0.09126	34[14]	16[5]	-0.15333	-0.12533
β_{MOM}	-0.09067	-0.02598	10[2]	33[13]	-0.19941***	-0.25600***	6[0]	44[21]	0.10874**	0.23002***
$\beta_{MKT*MKT}$	-0.46315	0.10406	16[4]	27[7]	0.70832	0.59576	29[5]	21[3]	-1.17147	-0.49170
$\beta_{SMB*SMB}$	1.16021	0.91863	14[2]	29[8]	6.16495	7.36595	33[7]	17[5]	-5.00474*	-6.44732
$\beta_{HML*HML}$	-1.39260	-1.38174	10[1]	33[3]	-4.07898***	-6.17287***	14[3]	36[19]	2.68639**	4.79113***
$\beta_{MOM*MOM}$	0.00978	0.42263	30[6]	13[3]	-0.37795	-0.58188	29[9]	21[10]	0.38773	1.00451***
Adj. R^2 (%)	86.93	84.37			82.37	75.99			10.38	11.66

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the managers' selecting ability (αp), the systematic risk (βp), factor loadings associated with size (SMB), book-to-market (HML), and momentum (MOM), the squared risk factors ($\beta_{\text{MKT*MKT}}$, $\beta_{SMB*\text{SMB}}$, $\beta_{HML*\text{HML}}$, $\beta_{MOM*\text{MOM}}$) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets, one can find the number of funds whose estimates were statistically significant at a 5% significance level.

This time, only black energy fund managers seem to have a poor selectivity ability, with alternative energy managers exhibiting neutral timing coefficients. This discrepancy is highlighted by the results of the difference portfolio, which show that renewable energy managers have a better stock picking ability than their black energy counterparts. Looking at the results of individual funds, they are consistent with these findings.

All timing and selectivity coefficients are neutral, to what alternative energy is concerned, when using the global market index. Moreover, black energy fund managers also have a poor HML style timing ability. When one looks at the difference portfolio, however, its coefficient shows that renewable energy fund managers are worse than black energy fund managers at style timing the size factor (in the equally weighted portfolio) and are better at style timing the book-to-market and the momentum factors (the last one only for the value weighted portfolio). The findings at the individual fund level also support these results.

Peering at table 20, where the style indexes are used as benchmarks, one can conclude that alternative energy managers show, at the portfolio level, a good stock-picking ability, while black energy fund managers show no sign of good or bad selecting ability. The latter finding is supported by the individual fund analysis, although the vast majority of individual funds do not show a positive and significant α, meaning that, once more, these few funds are able to sway both portfolios.

Table 20– Conditional timing and selectivity using the Carhart (1997) four-factor model – style indexes

	Renewable energy				*Black Energy*			
Parameters	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**
α_p	0.00413*	0.00618**	27[12]	16[5]	-0.00056	-0.00211	17[3]	33[7]
β_p	0.72540***	0.62411***	43[43]	0[0]	0.90910***	0.91330***	50[50]	0[0]
β_{SMB}	-0.07759	-0.05973	19[4]	24[8]	-0.00433	-0.00049	26[2]	24[4]
β_{HML}	-0.02227	-0.00195	11[1]	32[9]	-0.30121***	-0.31916***	3[0]	47[29]
β_{MOM}	-0.12236***	-0.11721*	9[2]	34[15]	-0.04702	-0.09820*	8[0]	42[9]
$\beta_{MKT*MKT}$	-0.63513***	-0.69779***	5[1]	38[16]	-0.28928**	-0.55824***	16[1]	34[12]
$\beta_{SMB*SMB}$	3.72395*	2.77673	30[5]	13[1]	-3.06342**	-0.62651	10[0]	40[11]
$\beta_{HML*HML}$	-1.84538***	-1.53894	14[1]	29[11]	1.88424*	1.23242	37[8]	13[3]
$\beta_{MOM*MOM}$	-0.15949	0.24827	30[4]	13[2]	0.75573**	0.64414***	38[14]	12[2]
Adj. R^2 (%)	88.57	74.23			91.64	89.15		

This table shows the regression estimates, using the renewable and black energy style indexes, the Ardour Global Alternative Energy, and the S&P Global 1200 Energy, respectively. This corresponds to the period between December 2008 and January 2021, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the managers' selecting ability (αp), the systematic risk (βp), factor loadings associated with size (SMB), book-to-market (HML), and momentum (MOM), the squared risk factors ($\beta_{\text{MKT*MKT}}$, $\beta_{SMB*\text{SMB}}$, $\beta_{HML*\text{HML}}$, $\beta_{MOM*\text{MOM}}$) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets, one can find the number of funds whose estimates were statistically significant at a 5% significance level.

As for market timing, all of the portfolios show a poor ability to do so. More than one third of the individual renewable energy funds show negative and statistically significant timing coefficients, whereas the vast majority of back energy funds has a neutral ability.

On other factors, the alternative energy value weighted portfolio does not capture any other style timing abilities, while its equally weighted counterpart has a positive and significant (at the 10% level) SMB squared factor and a negative and significant (1% level) HML squared factor, meaning these managers have an ability to time the size style correctly and to time the book-to-market style in the wrong way. As for the black energy portfolios, both squared momentum factors are positive and statistically significant (at a 5% and 1% level), as well as the equally weighted HML squared factor (at a 10% level). The squared SMB on the equally weighted portfolio, in contrast to the alternative energy one, is negative and statistically significant (5 % level). On could interpret this as black energy fund managers being able to time the momentum and book-to-market factors correctly, while the size was not done so. Yet, most of the individual fund coefficients tell that less than half the funds perform this way. Therefore, these funds must have a great impact in the regression, and one should not jump to the conclusion that all of them are better at doing so.

5.3.4 The conditional Fama and French (2015) five-factor model

The final model is displayed on tables 21 and 22. From a selecting ability point of view, renewable energy portfolios show, unlike in the unconditional setting, a neutral result. Black energy funds continue their trend of poor stock selection ability, with a good part of the individual funds performing accordingly. And, when compared to one another, alternative energy managers show a better stock-picking ability than black energy ones.

The market and style timing for renewable energy portfolios are neutral, showing no special ability of sorts. Regarding the black energy managers, a negative and statistically significant (at the 1% level) squared HML and a positive and significant (at the1% and 5% level) squared RMW can be seen, meaning they are able to time the profitability style correctly and the book-to-market one incorrectly. This is also captured by the difference portfolio, where alternative

energy managers are better able to time the book-to-market correctly but worse in timing the profitability, comparing with their black energy peers.

As for the style benchmarks, a positive and significant stock-picking ability is shown in the case of renewable energy managers, although this finding is not much supported by the analysis at the individual fund level. Black energy fund managers still have a neutral outcome in terms of the selectivity parameter.

As far as market timing goes, all but the black energy equally weighted portfolio (which is neutral) demonstrate a negative and significant result, translating into an ability to time the market in the wrong way. Around one third of alternative energy individual funds support this outcome, but not many on the black energy side. All other squared factors are neutral, apart from the negative and significant squared HML on the renewable energy portfolios, denoting an ability to time the market in the wrong way, concerning the book-to-market style.

Table 21– Conditional timing and selectivity using the Fama and French (2015) five-factor model – S&P Global 1200

	Renewable energy				*Black Energy*				*Difference Portfolio*	
Parameters	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**
α_p	-0.00456	-0.00520	5[0]	38[14]	-0.01559***	-0.01723***	4[2]	46[32]	0.01102***	0.01203**
β_p	1.11782***	1.10070***	43[43]	0[0]	1.17891***	1.15432***	49[48]	1[1]	-0.06109	-0.05362
β_{SMB}	0.14788*	0.03750	34[14]	9[1]	0.15238	0.15880	39[14]	11[3]	-0.00450	-0.12130
β_{HML}	0.08022	0.02191	19[4]	24[2]	0.11450	0.14147	35[14]	15[4]	-0.03428	-0.11956
β_{RMW}	-0.36087***	-0.32499**	9[2]	34[11]	-0.25940**	-0.28619*	15[1]	35[4]	-0.10146	-0.03880
β_{CMA}	-0.32373	-0.15214	9[0]	34[16]	0.02297	0.04145	20[2]	30[3]	-0.34669*	-0.19359
$\beta_{MKT*MKT}$	-0.08645	0.27587	23[4]	20[2]	0.69797	0.82015	33[4]	17[2]	-0.78442	-0.54427
$\beta_{SMB*SMB}$	2.24083	2.14217	18[1]	25[6]	3.96141	3.99771	23[4]	27[4]	-1.72058	-1.85554
$\beta_{HML*HML}$	-1.46375	-1.84756	12[5]	31[7]	-4.64049***	-6.74563***	16[3]	34[14]	3.17673**	4.89807***
$\beta_{RMW*RMW}$	1.12438	2.30922	26[2]	17[2]	19.31539***	19.08457**	40[16]	10[1]	-18.19101**	-16.77536*
$\beta_{CMA*CMA}$	0.93523	6.93579	23[4]	20[0]	2.51690	10.52740	35[6]	15[1]	-1.58167	-3.59160
Adj. R^2 (%)	87.64	85.31			82.76	76.50			12.22	7.85

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the managers' selecting ability (αp), the systematic risk (βp), factor loadings associated with size (SMB), book-to-market (HML), and momentum (MOM), the squared risk factors ($\beta_{\text{MKT*MKT}}$, $\beta_{SMB*\text{SMB}}$, $\beta_{HML*\text{HML}}$, $\beta_{MOM*\text{MOM}}$) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets, one can find the number of funds whose estimates were statistically significant at a 5% significance level.

Table 22– Conditional timing and selectivity using the Fama and French (2015) five-factor model – style indexes

	Renewable energy				*Black Energy*			
Parameters	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**
α_p	0.00411**	0.00539*	34[5]	9[0]	-0.00063	-0.00319	21[11]	29[10]
β_p	0.72693***	0.63272***	43[43]	0[0]	0.91016***	0.91937***	48[47]	2[1]
β_{SMB}	-0.05423	-0.07246	20[6]	23[8]	-0.06945	-0.06775	28[4]	22[5]
β_{HML}	0.02953	0.02017	19[5]	24[4]	-0.11437**	-0.13247*	20[1]	30[8]
β_{RMW}	-0.01399	-0.08339	29[3]	14[0]	-0.13059	-0.19030	17[3]	33[4]
β_{CMA}	0.06982	0.14476	30[5]	13[2]	-0.38756***	-0.34476***	6[2]	44[20]
$\beta_{MKT*MKT}$	-0.42171***	-0.44174**	5[0]	38[16]	-0.16361	-0.40120**	24[6]	26[6]
$\beta_{SMB*SMB}$	2.30817	2.21742	28[3]	15[1]	-0.77839	0.55635	11[2]	39[6]
$\beta_{HML*HML}$	-2.56185**	-2.55711*	10[1]	33[9]	2.28399	1.10581	40[11]	10[2]
$\beta_{RMW*RMW}$	-2.86090	-1.69778	18[0]	25[0]	-2.65272	-0.36594	22[1]	28[7]
$\beta_{CMA*CMA}$	-1.53819	1.99878	22[0]	21[3]	-1.12709	4.19737	22[4]	28[6]
Adj. R^2 (%)	88.84	73.49			91.56	88.77		

This table shows the regression estimates, using the renewable and black energy style indexes, the Ardour Global Alternative Energy, and the S&P Global 1200 Energy, respectively. This corresponds to the period between December 2008 and January 2021, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the managers' selecting ability (αp), the systematic risk (βp), factor loadings associated with size (SMB), book-to-market (HML), and momentum (MOM), the squared risk factors ($\beta_{\text{MKT*MKT}}$, $\beta_{SMB*\text{SMB}}$, $\beta_{HML*\text{HML}}$, $\beta_{MOM*\text{MOM}}$) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets, one can find the number of funds whose estimates were statistically significant at a 5% significance level.

5.2 Performance in different market conditions

Table 23 shows the results for the Carhart (1997) four-factor model when using a dummy to account for periods of expansion and recession, as in Areal et al. (2013) and Silva and Cortez (2016).

Just to recall, this was the only model performed for this analysis due to the small number of observations associated to recession cycles. Also, this analysis is performed considering the global benchmark, as the main goal of this analysis is to see how the funds perform at the broad market level, not regarding their style.

Looking at the αs, it is possible to see that, during times of expansion, renewable energy and black energy funds have a negative performance regarding the global market, regardless of the weighting scheme used to form portfolios. However, in times of recession, alternative energy funds significantly increase their performance, to a significantly higher extent than black energy funds. Martí-Ballester (2019a) also assess the performance of this type of funds during periods of crisis and non-crisis, but her results are different from the ones obtained in this dissertation. A possible explanation for these different results is the fact that the model used by Martí-Ballester (2019a) includes a dummy variable only in the alpha term, while betas are forced to be constant regardless of the state of the market, as in Nofsigner and Varma (2014). The model used in this dissertation allows for different risk coefficients in different market conditions, as one can see next.

Looking at the market factor, one can see that in times of expansion it is close to 1 for all funds, and in times of depression, for renewable energy, the systematic risk significantly decreases compared to the global benchmark and black energy funds.

Regarding the other factors, during times of non-crisis, both themes are more exposed to small cap companies, this being corroborated by the individual portfolio analysis. Black energy funds are more exposed to firms that had recently experienced losses, and when comparing the two, renewable energy funds are more vulnerable to companies that had recently experienced gains.

In times of crisis, renewable energy funds seem to change their investment style. They are less exposed to small cap stocks, and, regarding the equally weighted portfolio, they are more exposed to high book-to-market companies. As for black funds, its equally weighted portfolio is more exposed to low book-to-market firms, and both portfolios are more exposed to recent winners. Peering at the difference portfolio, renewable energy seem to be less exposed to small cap stocks than their black peers, and more exposed to high book-to-market companies.

Altogether, these results suggest that renewable energy funds are somewhat resilient in times of market stress compared to their black energy peers, offering investors an insurance type of protection in turmoil times.

Table 23– Unconditional Carhart (1997) four-factor model performance in different market conditions – S&P Global 1200

	Renewable energy				*Black Energy*				*Difference Portfolio*	
Parameters	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**
α_p	-0.00748***	-0.00529**	0[0]	39[29]	-0.0098***	-0.01079***	1[0]	39[32]	0.00232	0.00550*
α_D	0.03887***	0.0304***	32[20]	7[3]	-0.00568	-0.01383	17[4]	23[11]	0.04455***	0.04423***
β_p	1.13381***	1.11029***	39[39]	0[0]	1.10346***	1.08742***	40[40]	0[0]	0.03035	0.02287
β_{SMB}	0.25909***	0.14559**	35[22]	4[0]	0.18875**	0.18223*	35[13]	5[1]	0.07034	-0.03663
β_{HML}	-0.11718	-0.07355	7[1]	32[18]	0.04988	0.00881	26[3]	14[5]	-0.16707*	-0.08237
β_{MOM}	-0.07049	-0.03220	6[0]	33[9]	-0.18542**	-0.26345***	3[0]	37[17]	0.11493**	0.23126***
β_{MKT*D}	-0.19581***	-0.21565*	21[7]	18[5]	0.21324	0.18458	30[9]	10[3]	-0.40905***	-0.40023**
β_{SMB*D}	-0.35901**	-0.29501*	16[4]	23[8]	0.30202	0.58687	24[5]	16[12]	-0.66103**	-0.88188***
β_{HML*D}	0.45823***	0.26522	30[16]	9[7]	-0.39966*	-0.38642	14[2]	26[14]	0.85788***	0.65164***
β_{MOM*D}	0.06992	0.0506	31[15]	8[1]	0.17585*	0.23403**	26[10]	14[4]	-0.10592	-0.18343
Adj. R^2 (%)	88.33	85.26			80.15	72.57			8.11	10.72

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the abnormal returns (αp), the returns differential in times of crisis (αD), the systematic risk (βp), the additional regression coefficients for times of expansion regarding size (SMB), book-to-market (HML), and momentum (MOM), and for times of recession (MKT*D, SMB*D, HML*D, MOM*D) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets, one can find the number of funds whose estimates were statistically significant at a 5% significance level.

6. Conclusions

This dissertation explores the performance of renewable energy funds from December 2008 until January 2021. To do so, three performance evaluation models were used: the Carhart (1997) four-factor, the Fama and French (2015) five-factor, and the Fama and French (2018) six-factor models, both in the unconditional and conditional form. Using an alternative set of models allows to compare and test the robustness of the results. Fund performance was evaluated at the aggregate level, by creating value and equally weighted portfolios of funds, as well as at the individual fund level. Renewable energy fund performance was compared with black energy funds, to see if they were able to beat not only the market but their main sector competitors as well. Benchmark wise, the S&P Global 1200 was used as a proxy for the global market, and as style benchmarks the Ardour Global Alternative Energy and the S&P Global 1200 Energy were used for the renewable and black funds, respectively. Given that alternative energy is a rather recent type of funds, and considering the dynamics of the industry, the period under analysis was divided in half in order to evaluate the evolution of renewable energy fund performance from an earlier subperiod (2008 to 2014) to a more recent subperiod (2015 until 2021). As in previous renewable energy funds' performance studies (Reboredo et al., 2017, Martí-Ballester, 2019b), the managers ability to pick stocks and time the market was investigated. The TM (1966) variation used by Lu (2005) and Muñoz et al. (2014) was employed, which consists in adding a quadratic term of all factors to the regressions, although in this research not limiting this extension to the Carhart (1997) four-specification of the multi-factor model. Lastly, to address the performance of renewable energy funds in different market conditions, a dummy variable to account for recession periods was included in the Carhart (1997) four-factor model, as in Areal et al. (2013) and Silva and Cortez (2016).

The results show that renewable energy funds, to what S&P Global 1200 is concerned, either underperform or have a neutral performance, whereas black energy funds always pay a premium. Also, when compared to one another, alternative energy funds overperform their less environmentally-friendly counterparts. With exception of the Carhart (1997) four-factor model, all other models show that renewable energy perform better. Style benchmarks wise, all portfolios show a neutral outcome. The results obtained with the global market benchmark are in line with the previous literature on the subject (Reboredo et al., 2017, Martí-Ballester, 2019a, b), in the sense that renewable energy funds are unable to beat the market. However, in this case, the

findings show an outperformance of renewable energy funds compared to black energy funds, thus being more in line with the Miralles-Quirós and Miralles-Quirós (2019) study on renewable energy ETFs. The differences in this study compared to Martí-Ballester (2019a, b) may be due to the more recent period of analysis of this study (which includes not only more years post-Paris Agreement 2015 but also some of the troubled times associated to the Covid-19 pandemic) and the dynamics and evolution of the renewable energy market over time. In fact, as the analysis of the results obtained in an earlier subperiod (2008-2014) versus a more recent subperiod (2015-2021) show, renewable energy funds have been improving their performance over the years.

As for fund managerial abilities, it is safe to conclude that, unlike Martí-Ballester's (2019b) findings, alternative energy fund managers are consistently better than their black peers at stock-picking. Regarding the benchmarks, alternative energy managers show no special abilities, S&P Global 1200 wise, while black energy managers consistently show a poor ability in selecting securities. Looking at the style index results, black energy fund managers demonstrate no particular ability to pick stocks, while renewable energy fund managers appear to show, portfolio wise, a good ability. However, these results seem to be driven by a few funds only, therefore it would be unwise to jump to the conclusion that all of them have this ability. Regarding timing ability, only at a style level managers seem to have such ability, and it is done, generally, in a poor fashion. Once more, these outcomes seemed to be swayed by a small number of funds, therefore, the outcome of this is that the majority of managers show no particular timing ability.

Finally, for the different market analysis, the data implies that during times of expansion, both fund themes are underperformers. However, during a recession, renewable energy funds exhibit a significant performance increase, regarding not only the global benchmark, but also their black energy peers. The fact that the performance of renewable energy funds increases more than that of their black peers in bad times is consistent with the argument that clean energy investments are more resilient in times of turmoil and so investors may view them as a worthwhile hedge in these market states, especially compared to their black energy peers. Considering the divestment trend, this is an additional argument for moving away from the new 'sin companies' - the expression Hong et al. (2020) use for energy companies with high carbon exposure.

In sum, renewable energy funds either perform neutrally or underperform the global market and outperform their high-carbon peers. One of the reasons for the outperformance of

renewable energy compared to black energy funds is the improved stock picking ability of alternative energy fund managers, and their improved performance in times of distress. In fact, consistent with previous studies on green funds (Climent & Soriano, 2011, Ibikunle & Steffen, 2017), the performance of renewable energy funds has been improving over the years, which may result from not only better management skills, but also the evolution in the energy industry, which has undergone major transformations in recent years, considering international environmental agreements, the improvements in renewable energy technology and its efficiency, and the increasing demand for cleaner sources of energy, as suggested by Reboredo et al. (2017).

Overall, this dissertation shows than even though renewable energy funds perform neutrally or similar to the general market index, there is a premium for going renewable compared to investing in black energy funds alone. Such results are important not only to academics, but also to investors and policy makers. For investors, it is important to acknowledge the merits of investing in eco-friendly sources of energy. Regardless of investors' environmental concerns or preferences, this research shows the case for investing in renewable energy funds rather than conventional black energy funds. For policymakers, these results are relevant as mutual funds are a major vehicle to attract funding and so renewable energy funds may play an important role in supporting the transition to a more low-carbon economy and more sustainable finance, in line with the goals of the Paris Agreement and the United Nations Sustainable Development Goals[15].

Some of the limitations of this research are the low number of funds used in the sample. It would be useful to see if these results would persist given a broader pool of renewable energy funds. This could be achieved by gathering data from other sources, such as the Morningstar database. It is also limited by the small number of years that renewable energy funds have existed. Unfortunately, this can only be solved by continuously doing this kind of research over time and analysing the results of the upcoming years. Also, due to some limitations of the database, it was not possible to analyse US renewable energy funds, and it would be noteworthy to see how they fare not only against a benchmark, but also how they behave compared to European funds. More than one year after the Covid-19 crisis emerged, it would also be interesting for a future research to compare the performance of renewable energy funds and

[15] https://sdgs.un.org/goals

black funds before and after the pandemic, using more post-crisis observations A suggestion for future research would be to analyse the flows into renewable energy funds after the Covid-19 crisis.

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Appendix 1 – Funds' Names and Information

Renewable energy funds

Lipper RIC	Fund Name	Lipper Theme	Country	Launch Date
LP65118709	BBGI Share Clean Energy (USD)	Equity Theme - Alternative Energy	Switzerland	12/06/2008
LP68032885	BNP Paribas Climate Impact Classic Cap	Equity Global Sm&Mid Cap	Luxembourg	12/11/2009
LP68415654	Caja Ingenieros Environment ISR A, FI	Mixed Asset EUR Agg - Global	Spain	24/03/2017
LP65107476	Candriam Equities L Sustainable Green Planet C Cap	Equity Global	Luxembourg	02/07/2007
LP65114568	DKB Oekofonds TNL	Equity Global	Luxembourg	01/04/2008
LP65087149	DNB Fund Renewable energy Retail A EUR C	Equity Theme - Alternative Energy	Luxembourg	16/08/2007
LP60046885	DNB Miljoinvest	Equity Theme - Alternative Energy	Norway	06/11/1989
LP65077966	DWS Invest Clean Tech LC	Equity Global	Luxembourg	17/05/2007
LP68060740	Delos Green Energy Foreign Equity	Equity Global	Greece	15/03/2010
LP68398137	EFW Efficiency Fund USD-R	Equity Theme - Alternative Energy	Liechtenstein	03/10/2016
LP65058312	ENETIA Energy Transition Fund A EURh	Equity Theme - Alternative Energy	Switzerland	29/12/2006
LP68461739	Edmond de Rothschild Energy Evolution C	Equity Theme - Alternative Energy	France	21/12/2017
LP65017554	Energies Renouvelables A	Equity Theme - Alternative Energy	France	08/11/2005
LP65027053	Eurovalor Recursos Naturales, FI	Equity Global	Spain	21/09/2007
LP68191873	FBG Funds - FBG 4Elements I	Equity Theme - Alternative Energy	Luxembourg	03/12/2012
LP65086478	FPI BlackRock New Energy	Equity Theme - Alternative Energy	Guernsey	24/05/2007
LP65059317	FPIL BlackRock Sustainable Energy	Equity Theme - Alternative Energy	Isle of Man	23/10/2006
LP68082458	Generali Platinum Abszolut Alapok Alapja	Equity Global	Hungary	12/10/2010
LP65106669	Guinness Sustainable Energy B USD Acc	Equity Theme - Alternative Energy	Ireland	19/12/2007
LP68356311	Impax Environmental Leaders X EUR Acc	Equity Theme - Alternative Energy	Ireland	12/01/2016
LP60058385	JSS New Energy Fund (EUR) P acc	Equity Theme - Alternative Energy	Luxembourg	01/12/2000
LP65076069	JSS Sustainable Equity - New Power P EUR acc	Equity Global	Luxembourg	30/04/2007
LP60051799	KBC Eco Fund Alternative Energy Cap	Equity Theme - Alternative Energy	Belgium	31/10/2000
LP65070185	KBC Eco Fund Climate Change Cap	Equity Global	Belgium	02/02/2007
LP68121010	KBI Energy Solutions EUR A	Equity Theme - Alternative Energy	Ireland	31/10/2000
LP68115151	KBL Richelieu Rarete E	Equity Global	France	10/06/2011
LP65132297	KEPLER Oeko Energien T	Equity Global	Austria	23/09/2008
LP65064615	LBBW Global Warming R	Equity Global	Germany	15/01/2007
LP65149328	LSF - Solar & Sustainable Energy Fund A1	Equity Theme - Alternative Energy	Luxembourg	10/02/2009
LP68063580	Lux-Equity Eco Global	Equity Global	Luxembourg	11/10/2010
LP65134555	Luxembourg Selection Fd - Active Solar C USD	Equity Theme - Alternative Energy	Luxembourg	15/09/2008
LP68352892	NSF SICAV Climate Change + A USD	Equity Theme - Alternative Energy	Luxembourg	28/12/2015
LP68138542	Nykredit Invest Baeredygtige Aktier	Equity Global	Denmark	30/11/2011
LP68036387	PRIME VALUES Equity A	Equity Global	Luxembourg	29/12/2009
LP65076086	Pictet-Clean Energy-P USD	Equity Theme - Alternative Energy	Luxembourg	14/05/2007
LP60040112	SG Actions Energie C	Equity Sector Energy	France	21/11/1986
LP65080353	Schroder ISF Glo Climate Change Eq A Acc	Equity Global	Luxembourg	29/06/2007
LP65124361	Swisscanto (CH) EF Nachhaltigkeit SMC AA CHF	Equity Theme - Alternative Energy	Switzerland	31/07/2008
LP68034366	TBF SMART POWER EUR R	Equity Theme - Alternative Energy	Germany	07/12/2009
LP68411514	Theam Quant - Equity World Employee Scheme II C	Equity Theme - Alternative Energy	Luxembourg	17/02/2017
LP68040134	Triodos Pioneer Impact Fund R Cap	Equity Global Sm&Mid Cap	Luxembourg	09/03/2007
LP65138181	Vontobel Fund Clean Technology B EUR	Equity Global	Luxembourg	17/11/2008
LP60064451	Zurich BGF New Energy	Equity Theme - Alternative Energy	Isle of Man	01/11/2001

Black energy funds

Lipper RIC	Fund Name	Lipper Theme	Country	Launch Date
LP68057587	Alpha Energy Equity fund Classic	Equity Sector Energy	Greece	08/12/2009
LP65037244	ALTA ENERGY	Equity Sector Energy	Slovenia	17/10/2005
LP60033339	Aberdeen S (Swiss) Funds Global Energy Equity Fd A	Equity Sector Energy	Switzerland	12/05/1961
LP40213027	Advisory Research MLP & Equity Fund;I	Equity Sector Energy	USA	31/08/2015
LP68174624	Alfred Berg Global Deepwater Energy C I	Equity Sector Energy	Norway	17/10/2012
LP60033655	Allianz Energy - A - EUR	Equity Sector Energy	Germany	15/09/1997
LP68112696	Aviva Capital Planete	Equity Sector Energy	France	21/09/2010
LP65104187	Awake Global Energy	Equity Sector Energy	Sweden	31/10/2007
LP65118711	BBGI Natural Resources Opportunity Equity Fd (USD)	Equity Theme - Natural Resources	Switzerland	12/06/2008
LP60055236	Bankinter Eficiencia Energetica y Medioambiente R	Equity Sector Energy	Spain	20/04/2001
LP60023233	Belfius Equities Global Energy C Cap	Equity Sector Energy	Belgium	27/05/1999
LP68112697	Capital Planete	Equity Sector Energy	France	20/09/2010
LP40210457	Catalyst Energy Infrastructure Fund;I	Equity Sector Energy	USA	22/12/2014
LP68175789	DSC Equity Fund - Energy (A)	Equity Sector Energy	Austria	17/12/2012
LP40210693	DWS RREEF MLP & Energy Infrastructure Fund;S	Equity Sector Energy	USA	03/02/2015
LP65114606	Direct Invest Explorer Select R	Equity Sector Energy	Germany	02/04/2008
LP40211656	Dreyfus MLP Fund;Y	Equity Sector Energy	USA	30/04/2015
LP68208421	E Actions Environnement A	Equity Sector Energy	France	15/03/2013
LP65095384	Earth Energy Fund UI (EUR R)	Equity Sector Energy	Germany	09/10/2007
LP68387162	Energie 2025 Fondateurs	Equity Sector Energy	France	04/07/2016
LP65107744	Energy Value	Equity Sector Energy	France	17/04/2008
LP60017507	Eurizon Azioni Energia e Materie Prime	Equity Sector Energy	Italy	26/10/1998
LP65165343	Eurobank NTT Ecology International Equities	Equity Sector Energy	Greece	05/09/2008
LP65054553	Fond ropy a energetiky	Equity Sector Energy	Czech Republic	09/01/2002
LP65011647	Fondsfinans Fornybar Energi	Equity Sector Energy	Norway	04/12/2000
LP60041740	Global Energy & Natural Resource	Equity Sector Energy	France	21/07/2000
LP40221966	Goldman Sachs Energy Infrastructure Fund;R6	Equity Sector Energy	USA	29/09/2017
LP68379733	ILIRIKA Energija delniski	Equity Sector Energy	Slovenia	02/11/2006
LP68035092	ING Sub Sektora Energii (L)	Equity Sector Energy	Poland	24/11/2009
LP68016919	Infond Energy	Equity Sector Energy	Slovenia	03/10/2005
LP60096787	Junior Oils Trust Class C Units Acc	Equity Sector Energy	UK	08/10/2004
LP68112671	Jupiter Global Energy Ret	Equity Sector Energy	UK	07/07/2011
LP60066371	KBC Equity Fund Oil Cap	Equity Sector Energy	Belgium	29/09/2000
LP60098478	Ninety One Global Energy A Acc GBP	Equity Sector Energy	UK	29/11/2004
LP60051702	ODIN Energi C (NOK)	Equity Sector Energy	Norway	18/08/2000
LP68014086	Olma-Mirovye neft i gaz OPIFSI	Equity Sector Energy	Russia	29/03/2004
LP68329972	Optinova Conventional & Clean Energy	Equity Sector Energy	Germany	01/07/2015
LP68068172	ProxyPetroleum Energy A	Equity Sector Energy	Sweden	01/08/2008
LP60081158	Quattro Rohstofffonds T	Equity Sector Energy	Austria	27/03/2003
LP60067867	Raiffeisen-Energie-Aktien R T	Equity Sector Energy	Austria	28/02/2002
LP68056995	Rare Earth Elements Fund (CHF)	Equity Sector Energy	Switzerland	02/07/2010
LP65101258	SKARBIEC - Rynkow Surowcowych	Equity Sector Energy	Poland	03/01/2008
LP60041945	SSgA Energy Index Equity Fund P	Equity Sector Energy	France	31/01/2000
LP68089605	TB Guinness Global Energy R Acc	Equity Sector Energy	UK	21/04/2011
LP40187223	Tortoise MLP & Energy Income Fund;Inst	Equity Sector Energy	USA	27/12/2010
LP40186670	Tortoise MLP & Energy Infrastructure Fund;I	Equity Sector Energy	USA	09/09/2010
LP68042639	Turgot Pure Energy	Equity Sector Energy	France	22/01/2010
LP60036138	UBS (CH) Equity Fund - Energy (USD) P	Equity Sector Energy	Switzerland	07/11/1972
LP68112711	UFF Capital Planete A	Equity Sector Energy	France	20/09/2010
LP68106200	UFF Capital Planete C	Equity Sector Energy	France	20/09/2010

Appendix 2 –Descriptive Statistics – Subperiods

A. Descriptive statistics of the renewable energy and black energy funds for the first subperiod

	Number of funds	*Average Excess Returns (%)*	*Standard Deviation (%)*	*Minimum*	*Maximum*	*Skewness*	*Excess Kurtosis*	*Jarque Bera Test*	*p-value*	*Average TNA ($ Millions)*
Renewable Energy	37	0.31419	6.85804	-0.41669	0.27980	-0.19378	2.11173	491.20	0.00000	45.89
Black Energy	44	0.33320	6.69909	-0.29231	0.25550	-0.06089	1.21594	248.47	0.00000	61.91

This table presents the descriptive statistics for the monthly returns of the renewable energy funds and the black energy funds. The average excess returns, standard deviation, minimum, maximum, skewness, excess kurtosis, and average TNA that are presented in this correspond to the period that starts in December 2008 and ends in December 2014. It also shows the Jarque Bera Test for normality and its corresponding p-value.

B. Descriptive statistics of the renewable energy and black energy funds for the second subperiod

	Number of funds	*Average Excess Returns (%)*	*Standard Deviation (%)*	*Minimum*	*Maximum*	*Skewness*	*Excess Kurtosis*	*Jarque Bera Test*	*p-value*	*Average TNA ($ Millions)*
Renewable Energy	41	0.88841	5.66198	-0.27272	0.27919	-0.11211	2.29999	901.62	0.00000	43.49
Black Energy	44	-0.07224	7.12575	-0.44344	0.39118	-0.06197	5.15418	4432.5	0.00000	56.32

This table presents the descriptive statistics for the monthly returns of the renewable energy funds and the black energy funds. The average excess returns, standard deviation, minimum, maximum, skewness, excess kurtosis, and average TNA that are presented in this correspond to the period that starts in January 2015 and ends in January 2021. It also shows the Jarque Bera Test for normality and its corresponding p-value.

C. Descriptive statistics of the equally and value weighted portfolios, benchmarks, and risk factors funds for the first subperiod

	No. Of Obs.	*Average Excess Returns (%)*	*Standard Deviation (%)*	*Minimum*	*Maximum*	*Skewness*	*Excess Kurtosis*	*Jarque Bera Test*	*p-value*
Ren. Eq. Weighted	73	0.49487	6.20931	-0.17078	0.14301	-0.20845	0.27190	0.76487	0.68220
Black Eq. Weighted	73	0.39637	5.96707	-0.14017	0.16403	-0.02915	0.34499	0.72910	0.69450
Ren. Val. Weighted	73	0.58653	5.75755	-0.14766	0.14729	0.05258	0.50902	2.07270	0.35470
Black Val. Weighted	73	0.25896	5.95458	-0.14885	0.19480	0.10001	0.82159	1.90210	0.38630
S&P Global 1200	73	1.21869	4.69410	-0.10266	0.11376	-0.29845	0.09822	2.32750	0.31230
Ardour	73	0.27359	7.89627	-0.20398	0.23913	0.00846	0.13905	0.00093	0.99950
S&P Global 1200 Energy	73	0.70810	5.71008	-0.11928	0.16687	-0.00845	0.32194	1.51660	0.46850
SMB	73	0.24877	2.42290	-0.04790	0.06930	0.23636	-0.05271	0.95053	0.62170
HML	73	-0.08959	2.71417	-0.11120	0.07490	-0.60184	3.20656	91.28600	0.00000
RMW	73	0.08123	1.64620	-0.03930	0.03980	0.04334	-0.31790	0.21372	0.89870
CMA	73	0.16658	1.33432	-0.02240	0.03220	0.23947	-0.50237	0.93802	0.62560
MOM	73	-0.65055	5.30317	-0.34400	0.06200	-3.78812	20.35629	15871.00000	0.00000
SMB (3 Factor)	73	0.24562	2.30810	-0.04270	-0.06130	0.15675	-0.23815	0.37553	0.82880
HML (3 Factor)	73	-0.07699	2.71500	-0.11120	0.07500	-0.61187	3.38069	91.43100	0.00000

This table presents the descriptive statistics for the monthly returns of the renewable energy and black energy equally and value weighted portfolios. These statistics are also presented for all three benchmarks and every risk factor used. The number of observations, average excess returns, standard deviation, minimum, maximum, skewness, and excess kurtosis that are presented in this correspond to the period that starts in December 2008 and ends in December 2014. It also shows the Jarque Bera Test for normality and its corresponding p-value.

D. Descriptive statistics of the equally and value weighted portfolios, benchmarks, and risk factors funds for the second subperiod

	No. Of Obs.	*Average Excess Returns (%)*	*Standard Deviation (%)*	*Minimum*	*Maximum*	*Skewness*	*Excess Kurtosis*	*Jarque Bera Test*	*p-value*
Ren. Eq. Weighted	73	0.99183	4.95474	-0.16073	0.14707	-0.35471	1.47821	16.11900	0.00032
Black Eq. Weighted	73	0.16097	6.17124	-0.21522	0.22806	0.14953	3.06787	53.09000	0.00000
Ren. Val. Weighted	73	1.10536	4.72926	-0.14195	0.12104	-0.36091	0.88029	7.66660	0.02164
Black Val. Weighted	73	-0.01467	6.77587	-0.26702	0.19545	-0.31608	3.24200	68.00700	0.00000
S&P Global 1200	73	0.82609	4.20353	-0.13005	0.12398	-0.35831	1.40740	18.79800	0.00008
Ardour	73	2.04543	7.01731	-0.18487	0.28783	0.62146	2.62257	44.82300	0.00000
S&P Global 1200 Energy	73	-0.19176	7.60287	-0.29211	0.29610	0.07511	4.34419	97.95000	0.00000
SMB	73	-0.04452	2.94041	-0.08500	0.06880	0.15155	0.24068	0.64852	0.72310
HML	73	-0.79699	3.13109	-0.14080	0.08210	-0.48206	3.78331	72.52100	0.00000
RMW	73	-0.02890	1.54456	-0.03330	0.04260	0.16050	0.02004	0.41809	0.81140
CMA	73	-0.31082	1.69502	-0.03440	0.04680	0.65215	0.27549	6.33840	0.04204
MOM	73	0.19068	4.14086	-0.12260	0.10290	-0.14157	0.38860	0.73016	0.69410
SMB (3 Factor)	73	0.16438	2.69427	-0.05030	0.07190	0.33242	-0.37484	1.53200	0.46490
HML (3 Factor)	73	-0.72342	3.12116	-0.13960	0.08220	-0.14629	3.78196	70.33800	0.00000

This table presents the descriptive statistics for the monthly returns of the renewable energy and black energy equally and value weighted portfolios. These statistics are also presented for all three benchmarks and every risk factor used. The number of observations, average excess returns, standard deviation, minimum, maximum, skewness, and excess kurtosis that are presented in this correspond to the period that starts in January 2015 and ends in January 2021. It also shows the Jarque Bera Test for normality and its corresponding p-value.

Appendix 3 – Unconditional Single Fund Performance

A. Unconditional Carhart (1997) four-factor model renewable energy single fund performance – S&P Global 1200

Lipper RIC	*LP60040112*	*LP60046885*	*LP60051799*	*LP60058385*	*LP60064451*	*LP65017554*	*LP65027053*	*LP65058312*
Number	1	2	3	4	5	6	7	8
α_p	-0.01031***	-0.00187	-0.00644*	-0.01118***	-0.0052**	-0.00808***	-0.01218***	-0.00502
β_p	1.08854***	1.38689***	1.19588***	1.12209***	1.00826***	1.07625***	1.20604***	1.21639***
β_{SMB}	0.26271**	0.66665***	0.42648***	0.18600**	0.20236**	-0.01659	0.02955	0.31181*
β_{HML}	0.32070	0.13734	-0.23856**	-0.21276**	-0.23107**	-0.08086	0.18067	-0.28775**
β_{MOM}	-0.09579	-0.17664	-0.12500**	-0.11806***	-0.07994	-0.08501**	-0.41599***	-0.08548
Adj. R^2	72.37	78.44	76.98	85.41	73.90	74.10	76.68	51.14

Lipper RIC	*LP65059317*	*LP65064615*	*LP65070185*	*LP65076069*	*LP65076086*	*LP65077966*	*LP65080353*	*LP65086478*
Number	9	10	11	12	13	14	15	16
α_p	-0.00546**	-0.00371*	-0.00474***	-0.01174***	-0.00464**	-0.01308***	-0.00086	-0.00555**
β_p	0.97943***	1.21758***	1.03178***	1.16379***	1.10057***	1.11624***	1.02397***	1.10416***
β_{SMB}	0.16177*	0.06055	0.32083***	0.23438***	0.3852***	0.55432***	0.2462***	0.11277
β_{HML}	-0.23886***	-0.32316***	-0.03019	-0.25031***	-0.31159***	-0.33801***	-0.19566***	-0.13305
β_{MOM}	-0.08465*	0.10143**	-0.03119	-0.12718***	-0.06719	-0.15108***	-0.06208	-0.04795
Adj. R^2	74.84	84.47	90.75	85.91	81.63	87.87	90.40	78.34

Lipper RIC	*LP65087149*	*LP65106669*	*LP65107476*	*LP65114568*	*LP65118709*	*LP65124361*	*LP65132297*	*LP65134555*
Number	17	18	19	20	21	22	23	24
α_p	-0.00280	-0.00815	-0.01670***	-0.01022***	-0.00615*	-0.00589***	-0.01366***	-0.00892
β_p	1.30901***	1.37914***	1.21978***	1.21***	1.18959***	1.09086***	1.24642***	1.66419***
β_{SMB}	0.53956***	0.44408**	0.6078***	0.24056**	0.29647**	0.37253***	0.00363	0.76843***
β_{HML}	-0.11044	-0.03219	-0.31754	-0.31274***	-0.08241	-0.27753***	-0.34882***	-0.39850
β_{MOM}	-0.2791***	-0.07117	0.03284	-0.12758***	-0.09613*	-0.12516***	-0.12088*	0.03087
Adj. R^2	78.07	62.95	74.48	83.61	79.37	86.15	65.62	41.52

These tables show the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021 regarding the renewable energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Unconditional Carhart (1997) four-factor model renewable energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP65138181*	*LP65149328*	*LP68032885*	*LP68034366*	*LP68036387*	*LP68040134*	*LP68060740*	*LP68063580*
Number	25	26	27	28	29	30	31	32
α_p	-0.00130	-0.00700	-0.00190	-0.00754***	-0.00624***	-0.00357*	-0.01891***	-0.00718
β_p	1.0779***	1.62437***	0.9647***	1.19495***	0.96757***	1.00300***	1.29793***	0.99828***
β_{SMB}	0.25328***	0.60904*	0.34195***	0.3783***	0.11553**	0.42002***	0.66396**	0.26058***
β_{HML}	-0.14449***	-0.08064	-0.10922	0.05462	-0.06993	-0.22707***	0.07531	-0.09512
β_{MOM}	-0.01213	0.16997	-0.10520	-0.04580	0.10879*	-0.04337	-0.09822	-0.08773
Adj. R^2	90.68	40.41	83.99	77.71	81.82	82.48	61.92	74.40

Lipper RIC	*LP68082458*	*LP68115151*	*LP68121010*	*LP68138542*	*LP68191873*	*LP68352892*	*LP68356311*	*LP68398137*
Number	33	34	35	36	37	38	39	40
α_p	-0.00838**	-0.01796***	-0.00604*	-0.00299	-0.00055	0.00085	-0.00243	-0.00697***
β_p	0.76202***	1.32312***	1.25988***	0.97505***	0.99738***	1.26662***	1.03701***	1.04823***
β_{SMB}	-0.0693	0.45423	0.34619**	0.16284**	0.26266***	0.4636**	0.14097*	0.27179***
β_{HML}	-0.05121	-0.55737	-0.22216**	-0.10675	-0.00041	0.09808	-0.0511	-0.04321
β_{MOM}	-0.09107	-0.45565**	-0.10571*	0.0256	0.06918	0.18735	0.06588	0.05083
Adj. R^2	36.76	71.34	77.70	64.07	86.35	80.61	88.29	92.57

Lipper RIC	*LP68411514*	*LP68415654*	*LP68461739*
Number	41	42	43
α_p	0.01348	-0.00243	-0.00226
β_p	0.61083***	0.71259***	1.12225***
β_{SMB}	0.72984	-0.04239	0.29500***
β_{HML}	0.30362*	-0.09386**	0.09832
β_{MOM}	0.28794	-0.00313	-0.03953
Adj. R^2	39.70	87.68	92.74

These tables show the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021 regarding the renewable energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

B. Unconditional Carhart (1997) four-factor model black energy single fund performance – S&P Global 1200

Lipper RIC	*LP40186670*	*LP40187223*	*LP40210457*	*LP40210693*	*LP40211656*	*LP40213027*	*LP40221966*	*LP60017507*
Number	1	2	3	4	5	6	7	8
α_p	-0.00365	-0.00332	-0.00074	-0.01125**	-0.01428**	-0.00903	-0.0059	-0.00838***
β_p	0.94792***	0.98571***	1.42044***	1.41758***	1.00965***	0.94464***	1.25215***	1.05913***
β_{SMB}	0.34318***	0.33761***	0.60398***	0.38328**	0.16636	0.57784**	0.63779**	0.18718**
β_{HML}	0.36346**	0.39754**	0.52313**	0.39431**	0.21582	-0.01714	0.51889***	0.11121
β_{MOM}	-0.13405	-0.15999	-0.41905*	-0.16809	-0.46491***	-0.54149*	-0.12665	-0.07918
Adj. R^2	57.33	60.49	62.67	66.00	53.85	50.37	71.76	83.32

Lipper RIC	*LP60023233*	*LP60033339*	*LP60033655*	*LP60036138*	*LP60041740*	*LP60041945*	*LP60051702*	*LP60055236*
Number	9	10	11	12	13	14	15	16
α_p	-0.00758***	-0.01048***	-0.01232**	-0.00952**	-0.01275***	-0.00818**	-0.01154***	-0.00745***
β_p	1.04879***	1.10558***	1.23529***	1.12026***	1.19908***	1.04041***	1.15541***	1.02488***
β_{SMB}	0.0936	0.22153**	-0.04859	0.08572	-0.03506	-0.01623	0.16805	0.03997
β_{HML}	0.14746	0.23785	-0.28352	-0.10913	-0.1732	-0.01159	-0.00522	-0.1712**
β_{MOM}	-0.11033	-0.14047	-0.15588	-0.06569	-0.07854	-0.04396	-0.24477***	-0.03747
Adj. R^2	70.27	72.03	57.18	66.74	66.10	68.63	60.86	71.81

Lipper RIC	*LP60066371*	*LP60067867*	*LP60081158*	*LP60096787*	*LP60098478*	*LP65011647*	*LP65037244*	*LP65054553*
Number	17	18	19	20	21	22	23	24
α_p	-0.0101***	-0.01237***	-0.01897***	-0.01809***	-0.01048***	-0.01289***	-0.0086***	-0.01145***
β_p	1.0731***	1.27805***	1.5774***	1.45729***	1.09767***	1.2757***	1.08992***	1.36612***
β_{SMB}	0.25868**	0.23078	0.12222	-0.06389	0.20315	0.51671***	0.20241	0.0151
β_{HML}	0.25566	0.11874	-0.33742**	0.04442	0.0518	0.19638	-0.03602	0.22171**
β_{MOM}	-0.10565	-0.1526	-0.00107	-0.42995**	-0.2747***	-0.10304	-0.14262**	-0.02342
Adj. R^2	71.74	66.60	86.27	54.80	63.99	71.41	68.65	79.64

These tables show the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021 regarding the black energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Unconditional Carhart (1997) four-factor model black energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP65095384*	*LP65101258*	*LP65104187*	*LP65107744*	*LP65114606*	*LP65118711*	*LP65165343*	*LP68014086*
Number	25	26	27	28	29	30	31	32
α_p	-0.01109*	-0.01512***	-0.01069*	-0.01885***	-0.00643	-0.00817**	-0.00925***	-0.0022
β_p	1.36096***	1.07024***	1.51955***	1.31235***	1.3876***	1.05255***	1.10388***	1.05076***
β_{SMB}	0.76764**	-0.13074	0.01408	0.28729*	0.05132	0.37427**	0.19066*	0.05265
β_{HML}	-0.85668***	-0.0114	-0.74923**	0.2376	-0.56866**	0.28085**	-0.15694	-0.19641
β_{MOM}	-0.03428	-0.0767	-0.02966	-0.36259**	0.0318	-0.09763	0.0157	-0.30506***
Adj. R^2	67.96	54.59	62.98	65.26	71.22	58.54	75.47	43.32

Lipper RIC	*LP68016919*	*LP68035092*	*LP68042639*	*LP68056995*	*LP68057587*	*LP68068172*	*LP68089605*	*LP68106200*
Number	33	34	35	36	37	38	39	40
α_p	-0.0118***	-0.01256***	-0.0095***	-0.00259	-0.00869***	-0.01333**	-0.01312***	-0.00557***
β_p	1.17292***	1.66649***	1.11302***	1.62413***	1.13225***	0.89072***	1.33757***	1.04367***
β_{SMB}	0.20077	0.36019	0.19305	0.51639	0.33446***	0.38645*	0.16645	0.06749
β_{HML}	0.16075	-0.25427	0.30188	-0.09223	0.51386***	0.07285	0.50185***	-0.14241**
β_{MOM}	-0.19602***	-0.43592***	-0.54728***	-0.38335	-0.19264*	-0.25493	-0.45227***	-0.02862
Adj. R^2	75.95	82.77	70.61	51.43	71.80	43.02	68.22	84.25

Lipper RIC	*LP68112671*	*LP68112696*	*LP68112697*	*LP68112711*	*LP68174624*	*LP68175789*	*LP68208421*	*LP68329972*
Number	41	42	43	44	45	46	47	48
α_p	-0.01552**	-0.00534***	-0.00408***	-0.00527***	-0.02368**	-0.01022***	-0.00572***	-0.00369
β_p	1.46479***	1.01392***	1.01581***	1.03032***	1.06173***	1.27676***	0.96482***	0.60608***
β_{SMB}	-0.20834	0.12993***	0.13013***	0.0751*	0.20195	0.12091	0.13614***	0.03087
β_{HML}	-0.17255	-0.19871***	-0.19944***	-0.2039***	1.03229	0.4348***	-0.27589***	0.10182
β_{MOM}	-0.37441**	0.01233	0.01197	-0.01707	-0.14355	-0.30761**	-0.05489	0.01806
Adj. R^2	68.78	90.49	90.48	87.05	50.53	76.34	88.51	60.20

These tables show the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021 regarding the black energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Unconditional Carhart (1997) four-factor model black energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP68379733*	*LP68387162*
Number	49	50
α_p	-0.01415***	-0.01324**
β_p	1.1043***	1.30998***
β_{SMB}	0.02752	0.85637***
β_{HML}	-0.19029	0.52836**
β_{MOM}	-0.22837**	-0.01676
Adj. R^2	74.09	59.10

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021 regarding the black energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

C. Unconditional Carhart (1997) four-factor model renewable energy single fund performance – style index

Lipper RIC	*LP60040112*	*LP60046885*	*LP60051799*	*LP60058385*	*LP60064451*	*LP65017554*	*LP65027053*	*LP65058312*
Number	1	2	3	4	5	6	7	8
α_p	-0.00371	-4e-05	-0.00172	-0.00218	-0.00079	-0.00087	-0.00386	-0.00083
β_p	0.48655***	0.88237***	0.8184***	0.7058***	0.64256***	0.68534***	0.56533***	0.90083***
β_{SMB}	0.10986	0.17124	-0.02719	-0.08024	-0.13238*	-0.26465***	-0.19947	-0.21848*
β_{HML}	0.55403***	0.24423**	-0.01482	-0.02556	-0.03698	0.12756	0.02512	-0.06801
β_{MOM}	-0.16231	-0.21394**	-0.04225	-0.07113	-0.03622	-0.02839	-0.62793***	0.03622
Adj. R²	53.62	85.02	89.41	81.81	78.23	72.36	56.01	68.33

Lipper RIC	*LP65059317*	*LP65064615*	*LP65070185*	*LP65076069*	*LP65076086*	*LP65077966*	*LP65080353*	*LP65086478*
Number	9	10	11	12	13	14	15	16
α_p	-0.00113	0.00294	0.00048	-0.00109	0.00056	0.00012	0.00434*	-0.00053
β_p	0.61852***	0.62662***	0.57745***	0.71896***	0.6576***	0.65423***	0.57098***	0.68183***
β_{SMB}	-0.1577**	-0.19336	0.05892	-0.11478	0.0639	0.15361	-0.01163	-0.2191***
β_{HML}	-0.04967	-0.07163	0.17763*	0.01148	-0.09471	0.00101	0.01081	0.04402
β_{MOM}	-0.04529	0.07225	-0.03042	-0.07317	-0.04351	-0.08212**	-0.06247*	-0.02065
Adj. R²	78.19	62.21	80.61	83.19	78.73	83.73	79.21	80.32

Lipper RIC	*LP65087149*	*LP65106669*	*LP65107476*	*LP65114568*	*LP65118709*	*LP65124361*	*LP65132297*	*LP65134555*
Number	17	18	19	20	21	22	23	24
α_p	0.00283	-0.00595***	-0.00174	0.00147	-0.00081	0.00239	-0.0027	-0.00499
β_p	0.84397***	1.00204***	0.88048***	0.77423***	0.75388***	0.70234***	0.88029***	1.41091***
β_{SMB}	0.09516	-0.10023	-0.04643	-0.12866*	-0.08399	0.11069	-0.40378***	-0.13134
β_{HML}	0.14042	0.07788	-0.07708	-0.03734	0.11175	-0.12067*	-0.15176	-0.09251
β_{MOM}	-0.21699***	-0.00409	0.18163***	-0.04832	-0.06109	-0.07119*	-0.01685	0.29422**
Adj. R²	82.59	81.53	93.14	85.63	83.88	85.66	76.97	69.83

These tables show the regression estimates, using the Ardour Global Alternative Energy, for the period between December 2008 and January 2021 regarding the renewable energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Unconditional Carhart (1997) four-factor model renewable energy single fund performance – style index (continued)

Lipper RIC	*LP65138181*	*LP65149328*	*LP68032885*	*LP68034366*	*LP68036387*	*LP68040134*	*LP68060740*	*LP68063580*
Number	25	26	27	28	29	30	31	32
α_p	0.00437*	-0.00524	0.00191	-0.00279	-0.00211	0.00103	-0.008***	-0.00032
β_p	0.58***	1.2517***	0.53474***	0.62367***	0.50554***	0.61467***	1.00171***	0.5641***
β_{SMB}	0.00306	-0.10875	0.14228	0.16906	-0.05102	0.11173	-0.00105	-0.05204
β_{HML}	0.07529	0.052	-0.02018	0.13974	0.01803	-0.03118	-0.19102	-0.17519
β_{MOM}	-0.02409	0.29177	-0.14682*	-0.13408	0.05021	-0.01335	-0.03091	-0.1939
Adj. R^2	75.35	59.14	74.27	62.85	63.30	82.42	83.36	66.09

Lipper RIC	*LP68082458*	*LP68115151*	*LP68121010*	*LP68138542*	*LP68191873*	*LP68352892*	*LP68356311*	*LP68398137*
Number	33	34	35	36	37	38	39	40
α_p	-0.00749**	-0.00795	-0.00072	-0.00143	-0.00049	-0.0032	-0.00382	-0.00985*
β_p	0.52588***	0.53215***	0.82261***	0.48477***	0.48499***	0.75498***	0.53151***	0.54286***
β_{SMB}	-0.36989***	0.41692	-0.09191	-0.07116	0.06757	0.14253	-0.05564	0.05055
β_{HML}	0.02424	-0.21941	0.01811	-0.05372	0.01116	0.18304*	0.00207	0.02289
β_{MOM}	-0.07894	-0.61265***	-0.04027	-0.08954	-0.07259	0.10128	-0.07061	-0.06186
Adj. R^2	47.16	43.02	84.88	48.87	65.48	79.71	69.89	75.00

Lipper RIC	*LP68411514*	*LP68415654*	*LP68461739*
Number	41	42	43
α_p	0.00209	-0.00643	-0.01557***
β_p	0.57851***	0.38245***	0.66352***
β_{SMB}	0.35721	-0.21684*	-0.00485
β_{HML}	0.27583**	-0.09921	0.01486
β_{MOM}	0.41856*	-0.07592	-0.13475
Adj. R^2	63.33	68.24	84.66

These tables show the regression estimates, using the Ardour Global Alternative Energy, for the period between December 2008 and January 2021 regarding the renewable energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

D. Unconditional Carhart (1997) four-factor model black energy single fund performance – style index

Lipper RIC	*LP40186670*	*LP40187223*	*LP40210457*	*LP40210693*	*LP40211656*	*LP40213027*	*LP40221966*	*LP60017507*
Number	1	2	3	4	5	6	7	8
α_p	0.00202	0.00278	0.00847	-0.00443	-0.00686	-0.00681	0.00462	-2e-04
β_p	0.69504***	0.72112***	1.0245***	1.07047***	0.74901***	0.84738***	0.89802***	0.79678***
β_{SMB}	0.16532	0.17947	0.32273	0.11087	0.05987	0.24362	0.27792	0.03949
β_{HML}	-0.0355	-0.02666	-0.06841	-0.27937*	-0.42512**	-0.44999***	0.14719	-0.11356*
β_{MOM}	-0.00576	-0.01713	-0.16365	-0.01816	-0.38379***	-0.45233**	0.13942	-0.07408**
Adj. R²	60.75	64.24	65.89	70.56	60.11	63.31	75.47	91.32

Lipper RIC	*LP60023233*	*LP60033339*	*LP60033655*	*LP60036138*	*LP60041740*	*LP60041945*	*LP60051702*	*LP60055236*
Number	9	10	11	12	13	14	15	16
α_p	-0.00194*	-0.00239**	-0.00605**	-0.00198	-0.00587***	-0.00165***	-0.00495*	0.00082
β_p	0.94148***	0.97628***	1.17632***	1.07469***	1.06391***	0.98815***	1.08754***	0.65522***
β_{SMB}	-0.00713	-0.01889	0.01028	0.12652***	0.13536	0.02578	0.02435	-0.03384
β_{HML}	-0.00084	-0.08861*	-0.38463***	-0.11258**	-0.09246	-0.04111	-0.22105**	-0.31515**
β_{MOM}	-0.11509***	-0.07534**	-0.13988***	-0.05515***	-0.12783***	-0.02348	-0.22268**	-0.08045
Adj. R²	90.03	95.86	84.36	97.51	90.10	98.85	81.55	62.24

Lipper RIC	*LP60066371*	*LP60067867*	*LP60081158*	*LP60096787*	*LP60098478*	*LP65011647*	*LP65037244*	*LP65054553*
Number	17	18	19	20	21	22	23	24
α_p	-0.0023***	-0.0029	-0.012**	-0.00862*	-0.00248	-0.00291	-0.00072	-0.00070
β_p	0.96613***	1.09097***	1.15574***	1.24149***	0.98082***	0.92296***	0.9288***	0.96557***
β_{SMB}	0.01426	-0.02471	0.33608*	-0.2709	-0.04243	0.36075**	0.04756	-0.13829
β_{HML}	-0.07298**	-0.23475***	0.18269	-0.35475**	-0.27964***	-0.05101	-0.33783***	-0.02873
β_{MOM}	-0.03476	-0.09286*	-0.16312***	-0.4448***	-0.20526***	-0.1121	-0.13691*	-0.04256
Adj. R²	98.05	86.34	85.44	66.06	85.76	74.01	83.38	80.52

These tables show the regression estimates, using the S&P Global 1200 Energy, for the period between December 2008 and January 2021 regarding the black energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Unconditional Carhart (1997) four-factor model black energy single fund performance – style index (continued)

Lipper RIC	*LP65095384*	*LP65101258*	*LP65104187*	*LP65107744*	*LP65114606*	*LP65118711*	*LP65165343*	*LP68014086*
Number	25	26	27	28	29	30	31	32
α_p	-0.00607	-0.00678*	-0.00415	-0.00848***	0.00022	-0.00021	-0.0013	0.00375
β_p	1.14581***	0.78101***	1.2781***	1.25314***	1.07525***	0.88718***	0.65159***	0.97125***
β_{SMB}	0.88408***	-0.26557**	0.18754	0.05632	0.25076	0.17707**	0.26363	-0.01474
β_{HML}	-0.50154**	-0.2232	-0.35653**	-0.22709**	-0.15137	-0.16378	-0.14326	-0.39112*
β_{MOM}	-0.15472**	-0.08152	-0.15422***	-0.3047***	-0.09343	-0.08541	-0.09549	-0.31142**
Adj. R²	82.52	58.02	77.81	89.00	76.23	75.75	50.89	56.65

Lipper RIC	*LP68016919*	*LP68035092*	*LP68042639*	*LP68056995*	*LP68057587*	*LP68068172*	*LP68089605*	*LP68106200*
Number	33	34	35	36	37	38	39	40
α_p	-0.00305**	-0.00568	-0.0058***	0.00817	-0.0045***	-0.00828**	-0.00463*	0.00187
β_p	0.98291***	1.38545***	0.95447***	0.95458***	1.02758***	0.96471***	1.16979***	0.54127***
β_{SMB}	-0.02277	0.22327	0.03971	0.40962	0.06485	0.20901	-0.16687	0.02241
β_{HML}	-0.15203***	-0.33527	-0.22814*	-0.6522**	-0.02607	-0.21279	-0.15563*	-0.46198***
β_{MOM}	-0.14877***	-0.54453***	-0.2787**	-0.34887	0.02397	-0.20291	-0.08103	-0.07153
Adj. R²	94.48	89.59	79.04	42.30	96.44	66.77	87.10	54.60

Lipper RIC	*LP68112671*	*LP68112696*	*LP68112697*	*LP68112711*	*LP68174624*	*LP68175789*	*LP68208421*	*LP68329972*
Number	41	42	43	44	45	46	47	48
α_p	-0.00504	0.00223	0.0035	0.00244	-0.01204***	-0.00133	0.00013	0.00037
β_p	1.11449***	0.54767***	0.54847***	0.54917***	0.99562***	1.01351***	0.4793***	0.35951***
β_{SMB}	-0.05502	0.10041	0.10069	0.04993	0.0499	-0.15438*	0.07802	-0.06471
β_{HML}	-0.36732	-0.52663***	-0.52786***	-0.53345***	0.34334	-0.1376*	-0.68979***	-0.12711
β_{MOM}	-0.40405**	0.00864	0.00809	-0.02704	0.08963	0.03028	-0.12085	0.02021
Adj. R²	80.40	62.04	62.00	58.47	84.64	90.27	53.85	50.75

These tables show the regression estimates, using the S&P Global 1200 Energy, for the period between December 2008 and January 2021 regarding the black energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Unconditional Carhart (1997) four-factor model black energy single fund performance – style index (continued)

Lipper RIC	*LP68379733*	*LP68387162*
Number	49	50
α_p	-0.00793***	-0.00829**
β_p	0.91986***	1.08487***
β_{SMB}	0.11873	0.32066***
β_{HML}	-0.1922	0.01092
β_{MOM}	-0.24671***	0.11429
Adj. R^2	86.14	93.85

This table shows the regression estimates, using the S&P Global 1200 Energy, for the period between December 2008 and January 2021 regarding the black energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

E. Unconditional Fama and French (2015) five-factor model renewable energy single fund performance – S&P Global 1200

Lipper RIC	*LP60040112*	*LP60046885*	*LP60051799*	*LP60058385*	*LP60064451*	*LP65017554*	*LP65027053*	*LP65058312*
Number	1	2	3	4	5	6	7	8
α_p	-0.01105***	-0.00156	-0.00538	-0.01032***	-0.0047*	-0.00719***	-0.01424***	-0.00345
β_p	1.15247***	1.39821***	1.20352***	1.11577***	1.01464***	1.06275***	1.32305***	1.19433***
β_{SMB}	0.27755**	0.56057***	0.34125**	0.17346**	0.1943**	-0.06159	0.0701	0.18609
β_{HML}	0.18465	0.25902	-0.15607	-0.03877	-0.14975	0.09767	0.71207**	-0.13394
β_{RMW}	0.03092	-0.3338	-0.39525**	-0.13831*	-0.02573	-0.23847*	0.31237	-0.52182*
β_{CMA}	0.45281	-0.31282	-0.24111	-0.39881***	-0.21216	-0.33996**	-0.42726	-0.46215
Adj. R²	72.59	78.26	77.07	85.48	73.53	74.59	73.03	52.05

Lipper RIC	*LP65059317*	*LP65064615*	*LP65070185*	*LP65076069*	*LP65076086*	*LP65077966*	*LP65080353*	*LP65086478*
Number	9	10	11	12	13	14	15	16
α_p	-0.00508**	-0.00337	-0.00452***	-0.0111***	-0.00354*	-0.01203***	-0.00032	-0.00493**
β_p	0.9967***	1.17751***	1.03736***	1.15864***	1.07897***	1.14025***	1.02437***	1.10037***
β_{SMB}	0.13378	-0.01993	0.27797***	0.25529***	0.33982***	0.54385***	0.22188***	0.08202
β_{HML}	-0.18735	-0.36493***	-0.07655	-0.02326	-0.20098*	-0.27428*	-0.13928**	-0.01658
β_{RMW}	-0.11262	-0.24002**	-0.18061**	-0.06515	-0.20891*	-0.06875	-0.0967	-0.0915
β_{CMA}	-0.08957	-0.04168	0.05123	-0.57957***	-0.40966**	-0.25251	-0.18322*	-0.28663
Adj. R²	74.27	84.21	90.80	86.51	82.34	86.69	90.28	78.52

Lipper RIC	*LP65087149*	*LP65106669*	*LP65107476*	*LP65114568*	*LP65118709*	*LP65124361*	*LP65132297*	*LP65134555*
Number	17	18	19	20	21	22	23	24
α_p	-0.00128	-0.00614	-0.01455***	-0.0092***	-0.00479*	-0.00505***	-0.01222***	-0.00408
β_p	1.34585***	1.34264***	1.14082***	1.21844***	1.17747***	1.0863***	1.21966***	1.51343***
β_{SMB}	0.48844***	0.15095	0.49672***	0.20808*	0.16679	0.35947***	-0.06413	0.46577
β_{HML}	0.11703	0.17248	-0.33936	-0.21479*	0.08666	-0.1183*	-0.12451	0.08296
β_{RMW}	-0.31387*	-1.014***	-0.55136**	-0.2015	-0.5936***	-0.11734*	-0.35977*	-1.17222**
β_{CMA}	-0.50166**	-0.54264*	-0.38032	-0.21242	-0.43249**	-0.38759***	-0.47658**	-1.70663***
Adj. R²	76.70	66.72	75.86	82.98	81.72	86.00	66.36	46.59

These tables show the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021 regarding the renewable energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Unconditional Fama and French (2015) five-factor model renewable energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP65138181*	*LP65149328*	*LP68032885*	*LP68034366*	*LP68036387*	*LP68040134*	*LP68060740*	*LP68063580*
Number	25	26	27	28	29	30	31	32
α_p	-0.00065	-0.00353	-0.00159	-0.00718***	-0.00558***	-0.00266	-0.0157***	-0.00724*
β_p	1.05525***	1.52949***	0.96442***	1.19623***	0.93492***	0.97536***	1.19592***	0.98459***
β_{SMB}	0.22458***	0.08471	0.31623***	0.26195**	0.06507	0.40724***	0.44587	0.15936
β_{HML}	-0.08952	-0.02291	-0.01547	0.03221	-0.10538	-0.1542	0.51374*	-0.07557
β_{RMW}	-0.09362	-1.78123***	-0.0903	-0.42099**	-0.16794*	-0.13007	-0.81565**	-0.24267
β_{CMA}	-0.2622***	-0.39594	-0.26825**	0.03293	-0.07627	-0.36272***	-1.33853***	-0.00643
Adj. R²	91.01	45.32	83.96	78.33	81.46	83.42	68.20	74.18

Lipper RIC	*LP68082458*	*LP68115151*	*LP68121010*	*LP68138542*	*LP68191873*	*LP68352892*	*LP68356311*	*LP68398137*
Number	33	34	35	36	37	38	39	40
α_p	-0.00894**	-0.01614**	-0.00482	-0.00287	-0.00021	0.00198	-0.00222	-0.00632***
β_p	0.81102***	1.31576***	1.25269***	0.96928***	0.96795***	1.1423***	0.98203***	0.98992***
β_{SMB}	-0.11358	0.4514	0.26947**	0.11211	0.22347***	0.39503*	0.17767**	0.26733***
β_{HML}	-0.05309	0.2817	-0.09122	-0.13377	-0.05107	0.06503	-0.11309	-0.03956
β_{RMW}	-0.13706	0.42011	-0.33582**	-0.12179	-0.0521	-0.06053	0.20862**	0.01007
β_{CMA}	0.20927	-1.60495***	-0.38397	0.00566	-0.06056	-0.38249	-0.0105	-0.23174
Adj. R²	36.49	72.17	78.09	63.74	85.81	80.11	88.31	92.83

Lipper RIC	*LP68411514*	*LP68415654*	*LP68461739*
Number	41	42	43
α_p	0.01336	-0.0024	-0.00155
β_p	0.59801***	0.71039***	1.13074***
β_{SMB}	0.54803	-0.03651	0.2265**
β_{HML}	-0.07918	-0.08481	0.14799*
β_{RMW}	-0.25505	0.04459	-0.18485
β_{CMA}	0.54137	-0.00432	-0.18794
Adj. R²	37.13	87.45	92.61

These tables show the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021 regarding the renewable energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

F. Unconditional Fama and French (2015) five-factor model black energy single fund performance – S&P Global 1200

Lipper RIC	*LP40186670*	*LP40187223*	*LP40210457*	*LP40210693*	*LP40211656*	*LP40213027*	*LP40221966*	*LP60017507*
Number	1	2	3	4	5	6	7	8
α_p	-0.00414	-0.00398	-0.00145	-0.01199**	-0.01419	-0.00986	-0.00684	-0.00864***
β_p	0.96864***	1.01322***	1.62918***	1.5573***	1.30687***	1.42793***	1.23202***	1.09503***
β_{SMB}	0.48097**	0.48925**	0.61834**	0.57383**	0.03402	0.32176	0.87094***	0.20725**
β_{HML}	0.3963*	0.41539*	0.53347*	0.06828	0.05182	-0.26086	0.2956	0.07438
β_{RMW}	0.34778	0.34387	-0.32481	0.43727	-0.77105	-1.31504***	0.48277	0.05716
β_{CMA}	-0.11777	-0.06202	0.45926	0.96661***	1.20795***	1.43532***	0.3523	0.15169
Adj. R^2	57.84	60.76	61.30	68.57	55.66	58.53	71.69	83.04

Lipper RIC	*LP60023233*	*LP60033339*	*LP60033655*	*LP60036138*	*LP60041740*	*LP60041945*	*LP60051702*	*LP60055236*
Number	9	10	11	12	13	14	15	16
α_p	-0.00745***	-0.01094***	-0.01141**	-0.00931***	-0.01189***	-0.0087***	-0.01148***	-0.00665***
β_p	1.10233***	1.16844***	1.26189***	1.14044***	1.20615***	1.07752***	1.25011***	1.00601***
β_{SMB}	0.00967	0.26944**	-0.16776	0.03352	-0.09707	-0.04788	0.09179	0.01577
β_{HML}	0.0282	0.1992	-0.26891	-0.08309	-0.08781	-0.05889	-0.03755	-0.02193
β_{RMW}	-0.26896	0.13363	-0.47577	-0.05259	-0.17393	0.03206	-0.32838	-0.03566
β_{CMA}	0.45074	0.23359	0.1507	0.00906	-0.15976	0.238	0.41038	-0.40669**
Adj. R^2	70.47	71.45	56.71	65.98	65.59	68.40	59.19	72.48

Lipper RIC	*LP60066371*	*LP60067867*	*LP60081158*	*LP60096787*	*LP60098478*	*LP65011647*	*LP65037244*	*LP65054553*
Number	17	18	19	20	21	22	23	24
α_p	-0.01076***	-0.01281***	-0.02079***	-0.01667***	-0.01087***	-0.01297***	-0.00852***	-0.01148***
β_p	1.13823***	1.35026***	1.63187***	1.54828***	1.21292***	1.32262***	1.137***	1.37839***
β_{SMB}	0.26647**	0.24036	0.11274	-0.06799	0.21408	0.4575***	0.19115	-0.00186
β_{HML}	0.13762	0.05512	-0.42208**	0.4325	0.05377	0.07393	-0.02415	0.20347
β_{RMW}	0.01841	-0.03056	0.30969	-0.14758	-0.04303	-0.25216	-0.09511	-0.10004
β_{CMA}	0.41893	0.33287	0.36769	-0.46255	0.3442	0.31807	0.11155	0.08729
Adj. R^2	71.74	66.03	86.57	51.83	61.67	71.25	67.56	79.55

These tables show the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021 regarding the black energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Unconditional Fama and French (2015) five-factor model black energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP65095384*	*LP65101258*	*LP65104187*	*LP65107744*	*LP65114606*	*LP65118711*	*LP65165343*	*LP68014086*
Number	25	26	27	28	29	30	31	32
α_p	-0.01032**	-0.01549***	-0.00852	-0.01839***	-0.00586	-0.00946***	-0.00872***	-0.00173
β_p	1.32193***	1.12186***	1.44818***	1.4074***	1.36238***	1.13248***	1.07248***	1.11192***
β_{SMB}	0.67435**	-0.16336	-0.08557	0.32616	-0.01825	0.42549**	0.15348*	0.08576
β_{HML}	-1.09643***	-0.0428	-0.89869***	0.41274	-0.61036**	0.11026	-0.15668*	0.18276
β_{RMW}	-0.62089	-0.126	-0.96275**	-0.00043	-0.22637	0.32849	-0.18272	0.04379
β_{CMA}	0.19893	0.29555	0.11937	-0.07914	-0.00463	0.54164*	-0.12415	-0.64878
Adj. R²	67.94	54.53	64.98	62.27	70.81	59.30	75.53	40.67

Lipper RIC	*LP68016919*	*LP68035092*	*LP68042639*	*LP68056995*	*LP68057587*	*LP68068172*	*LP68089605*	*LP68106200*
Number	33	34	35	36	37	38	39	40
α_p	-0.01228***	-0.0085*	-0.01108***	-0.00321	-0.0099***	-0.01363**	-0.01463***	-0.00557***
β_p	1.25683***	1.59238***	1.21849***	1.73898***	1.16569***	0.99653***	1.48792***	1.05003***
β_{SMB}	0.25167*	0.24627	0.13623	0.24106	0.29897**	0.39425*	0.26699	0.04115
β_{HML}	0.14204	0.06944	0.89114***	-0.00363	0.39386*	0.04011	0.61436***	-0.12683*
β_{RMW}	0.11251	-0.59345*	0.30245	-1.02883***	-0.0276	0.04128	0.07279	-0.0706
β_{CMA}	0.26919	-1.34927**	-0.6921**	0.2659	0.41602	0.34466	0.24949	-0.01434
Adj. R²	74.82	84.47	65.40	51.97	71.16	40.61	65.68	84.11

Lipper RIC	*LP68112671*	*LP68112696*	*LP68112697*	*LP68112711*	*LP68174624*	*LP68175789*	*LP68208421*	*LP68329972*
Number	41	42	43	44	45	46	47	48
α_p	-0.01326**	-0.00507***	-0.00382***	-0.00512***	-0.02526***	-0.01138***	-0.00609***	-0.00436
β_p	1.4007***	0.99569***	0.99746***	1.02531***	1.17856***	1.41857***	0.95849***	0.6208***
β_{SMB}	-0.21082	0.11431**	0.1143**	0.04855	0.01002	0.17422	0.12861**	0.08825
β_{HML}	0.72367***	-0.18106***	-0.18083***	-0.16552***	1.70065**	0.43039***	-0.16212*	-0.03808
β_{RMW}	0.32228	-0.02629	-0.02697	-0.06521	0.14255	-0.04754	0.00016	0.14214
β_{CMA}	-1.61537***	-0.12336*	-0.12562*	-0.10174	-1.85531**	0.48819	-0.24697***	0.3506*
Adj. R²	70.13	90.52	90.52	87.03	58.98	75.37	88.84	62.22

These tables show the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021 regarding the black energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Unconditional Fama and French (2015) five-factor model black energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP68379733*	*LP68387162*
Number	49	50
α_p	-0.0138***	-0.01174*
β_p	1.18206***	1.37571***
β_{SMB}	0.01463	0.70616***
β_{HML}	-0.06562	0.07867
β_{RMW}	0.0103	-0.47235
β_{CMA}	0.02885	0.93944***
Adj. R^2	70.86	63.88

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021 regarding the black energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

G. Unconditional Fama and French (2015) five-factor model renewable energy single fund performance – style index

Lipper RIC	*LP60040112*	*LP60046885*	*LP60051799*	*LP60058385*	*LP60064451*	*LP65017554*	*LP65027053*	*LP65058312*
Number	1	2	3	4	5	6	7	8
α_p	-0.00418	-0.00039	-0.00157	-0.00193	-0.00092	-0.00073	-0.00571	-0.00052
β_p	0.54217***	0.90157***	0.8271***	0.71687***	0.65367***	0.69028***	0.65114***	0.88622***
β_{SMB}	0.15337	0.22718*	-0.05117	-0.06504	-0.09261	-0.26514**	-0.18554	-0.26922*
β_{HML}	0.51138**	0.40937***	-0.00176	0.05839	0.0116	0.1928*	0.7673**	-0.02766
β_{RMW}	0.15102	0.12821	-0.12953	0.0179	0.17484	-0.02603	0.36644	-0.22294
β_{CMA}	0.36593	-0.26492*	0.05154	-0.09156	-0.02954	-0.02694	-0.46621	-0.07559
Adj. R²	53.02	84.53	89.37	81.37	78.20	72.09	46.52	68.34

Lipper RIC	*LP65059317*	*LP65064615*	*LP65070185*	*LP65076069*	*LP65076086*	*LP65077966*	*LP65080353*	*LP65086478*
Number	9	10	11	12	13	14	15	16
α_p	-0.00129	0.00298	0.00037	-9e-04	0.00109	-0.00013	0.00455**	-0.00061
β_p	0.63613***	0.60582***	0.58801***	0.72896***	0.6477***	0.7016***	0.57791***	0.68716***
β_{SMB}	-0.14203*	-0.19904	0.0655	-0.0929	0.08247	0.13172	0.01483	-0.18533**
β_{HML}	-0.02457	-0.06825	0.14593	0.12006	0.00456	-0.08871	0.08238	0.10879
β_{RMW}	0.08118	-0.08942	-0.01874	0.03444	-0.02113	0.1002	0.06167	0.13447
β_{CMA}	0.08102	-0.05423	0.11994	-0.15032	-0.28513*	0.35125	-0.1194	-0.06344
Adj. R²	77.98	61.70	80.55	82.78	78.93	83.60	78.93	80.26

Lipper RIC	*LP65087149*	*LP65106669*	*LP65107476*	*LP65114568*	*LP65118709*	*LP65124361*	*LP65132297*	*LP65134555*
Number	17	18	19	20	21	22	23	24
α_p	0.00364	-0.00488**	-0.00362*	0.00142	-2e-05	0.00259	-0.00246	-0.0026
β_p	0.87404***	0.97597***	0.85623***	0.79878***	0.74537***	0.71466***	0.88192***	1.28416***
β_{SMB}	0.10084	-0.21606*	-0.0977	-0.16055*	-0.13764	0.1189	-0.43755***	-0.25004
β_{HML}	0.32603**	0.19389**	-0.33704***	-0.09592	0.23722**	-0.06592	-0.11257	0.05226
β_{RMW}	-0.04407	-0.50973***	-0.2149	-0.08957	-0.36669**	0.02661	-0.14834	-0.69228**
β_{CMA}	-0.24915	-0.22502	0.49446**	0.29962	-0.21848	-0.07296	0.05362	-0.93075**
Adj. R²	81.39	82.44	92.19	85.66	84.59	85.29	76.97	70.41

These tables show the regression estimates, using the Ardour Global Alternative Energy, for the period between December 2008 and January 2021 regarding the renewable energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Unconditional Fama and French (2015) five-factor model renewable energy single fund performance – style index (continued)

Lipper RIC	*LP65138181*	*LP65149328*	*LP68032885*	*LP68034366*	*LP68036387*	*LP68040134*	*LP68060740*	*LP68063580*
Number	25	26	27	28	29	30	31	32
α_p	0.00468*	-0.00297	0.00169	-0.00302	-0.00197	0.00133	-0.00749***	-0.00095
β_p	0.57143***	1.17869***	0.54519***	0.63596***	0.49462***	0.60033***	0.977***	0.57816***
β_{SMB}	0.03535	-0.39752*	0.19253**	0.15891	-0.0139	0.15968	0.00502	-0.11299
β_{HML}	0.15593	-0.03121	0.08958	0.16542	0.00968	0.02098	-0.03497	-0.09391
β_{RMW}	0.05668	-1.15992**	0.14722	-0.13532	0.04729	0.04765	-0.10972	-0.13544
β_{CMA}	-0.23156	0.04073	-0.20848	0.05458	-0.05668	-0.22837	-0.35409	0.11969
Adj. R²	75.50	60.65	73.88	62.34	62.89	82.78	83.37	64.16

Lipper RIC	*LP68082458*	*LP68115151*	*LP68121010*	*LP68138542*	*LP68191873*	*LP68352892*	*LP68356311*	*LP68398137*
Number	33	34	35	36	37	38	39	40
α_p	-0.00839**	-0.00634	-0.00035	-0.00168	-0.00078	-0.00187	-0.00337	-0.00949**
β_p	0.56594***	0.53783***	0.82178***	0.49627***	0.48193***	0.68102***	0.49561***	0.49847***
β_{SMB}	-0.34232**	0.52798	-0.0996	0.01293	0.20167	0.22668	0.14741	0.26624*
β_{HML}	0.0068	0.77807*	0.09742	0.01359	0.04184	0.23092***	0.04742	0.06189
β_{RMW}	0.12714	0.6484	-0.08027	0.22861	0.40567*	0.1991	0.51444**	0.50212*
β_{CMA}	0.34638	-1.76976**	-0.13684	-0.09403	-0.16399	-0.52975***	-0.21692	-0.35882**
Adj. R²	47.46	41.69	84.81	48.57	67.11	81.23	72.66	78.59

Lipper RIC	*LP68411514*	*LP68415654*	*LP68461739*
Number	41	42	43
α_p	0.0023	-0.00632*	-0.01444***
β_p	0.55226***	0.36619***	0.65179***
β_{SMB}	0.17988	-0.05691	0.11704
β_{HML}	-0.13831	-0.04404	0.12642
β_{RMW}	-0.21355	0.37732	0.21672
β_{CMA}	0.63699	-0.10169	-0.25331
Adj. R²	60.28	69.42	84.47

These tables show the regression estimates, using the Ardour Global Alternative Energy, for the period between December 2008 and January 2021 regarding the renewable energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

H. Unconditional Fama and French (2015) five-factor model black energy single fund performance – style index

Lipper RIC	*LP40186670*	*LP40187223*	*LP40210457*	*LP40210693*	*LP40211656*	*LP40213027*	*LP40221966*	*LP60017507*
Number	1	2	3	4	5	6	7	8
α_p	0.00234	0.00277	0.00842	-0.00555	-0.00798	-0.00582	0.0032	0.00042
β_p	0.6757***	0.70171***	1.05168***	1.02903***	0.86321***	0.96587***	0.80441***	0.80368***
β_{SMB}	0.24951	0.28021*	0.35046	0.31384	0.06187	0.11072	0.52669*	0.03453
β_{HML}	0.12054	0.10873	0.11395	-0.31122**	-0.28749	-0.26935	0.0272	0.02083
β_{RMW}	0.26063	0.29844	0.01867	0.73689	-0.55479*	-0.83498**	0.87897	-0.06386
β_{CMA}	-0.56202	-0.52324	-0.59151	-0.14925	-0.06565	-0.04976	-0.26247	-0.35078***
Adj. R²	62.49	65.84	66.04	71.80	57.11	62.52	77.02	91.69

Lipper RIC	*LP60023233*	*LP60033339*	*LP60033655*	*LP60036138*	*LP60041740*	*LP60041945*	*LP60051702*	*LP60055236*
Number	9	10	11	12	13	14	15	16
α_p	-0.00122	-0.00194	-0.00456**	-0.00158	-0.00473**	-0.00156***	-0.00377	0.00211
β_p	0.95226***	0.98677***	1.17981***	1.07932***	1.0704***	0.99233***	1.11816***	0.65395***
β_{SMB}	-0.03383	-0.00706	-0.04888	0.1176**	0.10747	0.01666	-0.00066	-0.08268
β_{HML}	0.13428*	0.02422	-0.22528	-0.05133	0.01647	-0.05306**	0.00605	0.00584
β_{RMW}	-0.18868	0.01123	-0.37605***	-0.03709	-0.15843	-0.05287	-0.26299	-0.15125
β_{CMA}	-0.24106**	-0.24839***	-0.36339	-0.15064	-0.21856	0.05907**	-0.32694	-0.90371***
Adj. R²	89.79	95.86	84.56	97.37	89.39	98.83	80.36	66.86

Lipper RIC	*LP60066371*	*LP60067867*	*LP60081158*	*LP60096787*	*LP60098478*	*LP65011647*	*LP65037244*	*LP65054553*
Number	17	18	19	20	21	22	23	24
α_p	-0.00204***	-0.00222	-0.01138**	-0.00575	-0.00152	-0.00185	0.00028	0.00018
β_p	0.97323***	1.10565***	1.20232***	1.29262***	1.02406***	0.93653***	0.9458***	0.96144***
β_{SMB}	-0.01142	-0.05442	0.41103*	-0.32347	-0.07275	0.27328	-0.00334	-0.18345
β_{HML}	-0.04376	-0.11547	0.28263	0.2222	-0.12763	0.04044	-0.2006	0.18185
β_{RMW}	-0.1002*	-0.17381	0.3411	-0.45229	-0.1701	-0.40012**	-0.31836	-0.255
β_{CMA}	-0.04556	-0.23865	-0.00588	-1.00836**	-0.15624	-0.30318*	-0.24268	-0.56627***
Adj. R²	98.05	86.28	84.48	64.65	84.52	74.31	83.31	81.69

Unconditional Fama and French (2015) five-factor model black energy single fund performance – style index (continued)

Lipper RIC	*LP65095384*	*LP65101258*	*LP65104187*	*LP65107744*	*LP65114606*	*LP65118711*	*LP65165343*	*LP68014086*
Number	25	26	27	28	29	30	31	32
α_p	-0.00435	-0.00607	-0.00122	-0.00684**	0.00205	-0.00033	-0.00034	0.00457
β_p	1.13424***	0.79721***	1.23383***	1.29711***	1.0681***	0.91258***	0.63982***	1.02823***
β_{SMB}	0.85313***	-0.32164**	0.14714	0.03226	0.23282	0.20296**	0.24985*	0.07528
β_{HML}	-0.60909**	-0.07381	-0.36995**	0.07871	-0.0588	-0.2027	0.06776	0.17672
β_{RMW}	-0.40153	-0.25136	-0.75813**	-0.2415*	-0.13147	0.20862	-0.35045*	0.08193
β_{CMA}	-0.00437	-0.23021	-0.15958	-0.54306**	-0.32227	0.20112	-0.71705*	-1.27961***
Adj. R²	81.21	58.10	78.06	87.79	75.54	75.60	54.41	57.16

Lipper RIC	*LP68016919*	*LP68035092*	*LP68042639*	*LP68056995*	*LP68057587*	*LP68068172*	*LP68089605*	*LP68106200*
Number	33	34	35	36	37	38	39	40
α_p	-0.00233	-0.00238	-0.0058**	0.00908	-0.00428***	-0.0076**	-0.00456*	0.00241
β_p	1.00862***	1.29953***	0.99408***	1.02629***	1.02219***	1.00422***	1.18213***	0.5437***
β_{SMB}	-0.00807	0.08112	-0.07238	0.05042	0.05683	0.24177	-0.18042	-0.04687
β_{HML}	0.00197	-0.11501	0.07179	-0.35626	-0.00489	-0.04472	0.01124	-0.2315*
β_{RMW}	-0.02191	-0.86478***	-0.08823	-1.16842***	-0.04556	0.07271	-0.01387	-0.17131
β_{CMA}	-0.2714*	-1.26058***	-0.47834**	-0.5302	-0.09567	-0.24569	-0.3305	-0.57559***
Adj. R²	93.94	90.88	78.03	44.03	96.45	65.33	87.16	57.05

Lipper RIC	*LP68112671*	*LP68112696*	*LP68112697*	*LP68112711*	*LP68174624*	*LP68175789*	*LP68208421*	*LP68329972*
Number	41	42	43	44	45	46	47	48
α_p	-0.00489	0.00268	0.00395	0.00287	-0.01194***	-0.00152	-0.00163	-0.00014
β_p	1.07655***	0.52297***	0.52381***	0.53491***	0.99434***	0.99565***	0.50814***	0.33686***
β_{SMB}	-0.30221	0.06908	0.06909	0.00536	-0.01384	-0.08732	0.09885	0.05675
β_{HML}	0.20175	-0.31251***	-0.31241***	-0.2972***	0.41012	-0.07969	-0.28201*	-0.13627
β_{RMW}	-0.27296	-0.02603	-0.02669	-0.06438	-0.11302	0.20535	0.22455	0.33579*
β_{CMA}	-0.94232***	-0.6707***	-0.67398***	-0.66736***	-0.33464	-0.21042	-0.98367***	-0.07325
Adj. R²	80.11	65.96	65.95	62.03	84.47	90.42	63.67	52.08

These tables show the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021 regarding the black energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Unconditional Fama and French (2015) five-factor model black energy single fund performance – style index (continued)

Lipper RIC	*LP68379733*	*LP68387162*
Number	49	50
α_p	-0.00633**	-0.0089***
β_p	0.96095***	1.10498***
β_{SMB}	0.14899	0.31616***
β_{HML}	0.0995	0.04935
β_{RMW}	0.02476	0.00705
β_{CMA}	-0.48966*	-0.3381*
Adj. R^2	83.46	94.23

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021 regarding the black energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

I. Unconditional Fama and French (2018) six-factor model renewable energy single fund performance – S&P Global 1200

Lipper RIC	*LP60040112*	*LP60046885*	*LP60051799*	*LP60058385*	*LP60064451*	*LP65017554*	*LP65027053*	*LP65058312*
Number	1	2	3	4	5	6	7	8
α_p	-0.00451	0.00015	-0.00167	-0.00211	-0.00098	-0.00081	-0.00407	-0.00047
β_p	0.50788***	0.8693***	0.81695***	0.69978***	0.64742***	0.68265***	0.57664***	0.8916***
β_{SMB}	0.13748	0.2021	-0.05588	-0.06929	-0.09551	-0.26844**	-0.15043	-0.26673*
β_{HML}	0.39361	0.29677***	-0.03663	0.00659	-0.00986	0.16759	0.15565	-0.00918
β_{RMW}	0.10404	0.07464	-0.14344	-0.01164	0.16628	-0.03972	0.19611	-0.21556
β_{CMA}	0.43008	-0.25084*	0.07054	-0.06687	-0.01785	-0.01358	-0.18089	-0.08566
β_{MOM}	-0.17207	-0.20153**	-0.05095	-0.07109	-0.03136	-0.03329	-0.61357***	0.02701
Adj. R^2	53.73	85.02	89.39	81.51	78.10	71.93	54.71	68.13

Lipper RIC	*LP65059317*	*LP65064615*	*LP65070185*	*LP65076069*	*LP65076086*	*LP65077966*	*LP65080353*	*LP65086478*
Number	9	10	11	12	13	14	15	16
α_p	-0.00139	0.00311	0.00031	-0.00104	0.00103	-0.001	0.00444**	-0.00062
β_p	0.62634***	0.61961***	0.58098***	0.71229***	0.64107***	0.68012***	0.56652***	0.68364***
β_{SMB}	-0.14656*	-0.19266	0.06224	-0.09789	0.0794	0.13775	0.00956	-0.18643**
β_{HML}	-0.05819	-0.0209	0.12177	0.0676	-0.0182	-0.19719	0.04329	0.09541
β_{RMW}	0.06777	-0.07054	-0.02838	0.00611	-0.03021	0.05832	0.04608	0.12911
β_{CMA}	0.09934	-0.08003	0.1331	-0.11989	-0.27273*	0.4984*	-0.0981	-0.0573
β_{MOM}	-0.04912	0.06919	-0.0353	-0.07124	-0.03325	-0.11161***	-0.05712	-0.01696
Adj. R^2	77.97	61.68	80.48	82.91	78.84	84.08	78.99	80.13

Lipper RIC	*LP65087149*	*LP65106669*	*LP65107476*	*LP65114568*	*LP65118709*	*LP65124361*	*LP65132297*	*LP65134555*
Number	17	18	19	20	21	22	23	24
α_p	0.00323	-0.00483**	-0.0022	0.00109	-1e-04	0.00244	-0.00254	-0.00244
β_p	0.8316***	0.97332***	0.88408***	0.78272***	0.73081***	0.69822***	0.87484***	1.34681***
β_{SMB}	0.08117	-0.21746*	-0.09694	-0.16377*	-0.1407	0.11327	-0.43878***	-0.23046
β_{HML}	0.18028	0.18238	-0.18266**	-0.16007	0.17849	-0.11767	-0.13483	0.29015
β_{RMW}	-0.10221	-0.51339***	-0.15307	-0.12278	-0.38536**	-0.00375	-0.16073	-0.59693*
β_{CMA}	-0.16975	-0.22074	0.27424	0.3587	-0.18678	-0.04852	0.0632	-1.03989**
β_{MOM}	-0.21297***	-0.02042	0.15685***	-0.07146	-0.06966	-0.06868*	-0.03055	0.30159**
Adj. R^2	82.45	82.30	93.22	85.77	84.67	85.45	76.80	71.21

These tables show the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021 regarding the renewable energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Unconditional Fama and French (2018) six-factor model renewable energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP65138181*	*LP65149328*	*LP68032885*	*LP68034366*	*LP68036387*	*LP68040134*	*LP68060740*	*LP68063580*
Number	25	26	27	28	29	30	31	32
α_p	0.00465*	-0.00354	0.00199	-0.00268	-0.00208	0.00133	-0.00746***	-0.00024
β_p	0.56876***	1.2098***	0.52931***	0.61771***	0.50104***	0.6002***	0.97656***	0.55318***
β_{SMB}	0.03412	-0.38111*	0.1878*	0.14928	-0.00997	0.15962	0.0075	-0.09156
β_{HML}	0.14678	0.10404	0.01371	0.08607	0.04007	0.02052	-0.03999	-0.2883
β_{RMW}	0.05303	-1.11698**	0.13177	-0.16052	0.05517	0.04747	-0.10815	-0.18531
β_{CMA}	-0.22658	-0.00957	-0.1787	0.08409	-0.06879	-0.22812	-0.35073	0.19479
β_{MOM}	-0.01337	0.2399	-0.13342	-0.14074	0.05439	-0.00066	-0.00803	-0.20719
Adj. R^2	75.33	60.76	74.39	62.50	62.74	82.66	83.09	65.27

Lipper RIC	*LP68082458*	*LP68115151*	*LP68121010*	*LP68138542*	*LP68191873*	*LP68352892*	*LP68356311*	*LP68398137*
Number	33	34	35	36	37	38	39	40
α_p	-0.00817**	-0.00627	-0.00043	-0.00134	-0.00063	-0.00201	-0.00333	-0.00942**
β_p	0.55213***	0.53869***	0.81363***	0.47967***	0.47427***	0.70159***	0.48909***	0.4955***
β_{SMB}	-0.35143**	0.71202	-0.10337	0.00247	0.19414	0.26208	0.13615	0.26101
β_{HML}	-0.04104	0.30881	0.06941	-0.02908	0.02013	0.28289***	0.03083	0.0558
β_{RMW}	0.10651	0.73534	-0.09144	0.21216	0.39052*	0.22879	0.5048**	0.49554*
β_{CMA}	0.35176	-1.13017	-0.12158	-0.09698	-0.17081	-0.52268***	-0.2193	-0.3604**
β_{MOM}	-0.08435	-0.47206*	-0.04092	-0.07974	-0.04338	0.11952	-0.03809	-0.01701
Adj. R^2	47.24	42.16	84.76	48.31	66.83	81.22	72.20	78.12

Lipper RIC	*LP68411514*	*LP68415654*	*LP68461739*
Number	41	42	43
α_p	0.00048	-0.00608	-0.01422***
β_p	0.62136***	0.35759***	0.63475***
β_{SMB}	0.33631	-0.07506	0.08526
β_{HML}	0.0198	-0.06428	0.07134
β_{RMW}	-0.01825	0.3549	0.18216
β_{CMA}	0.69585***	-0.10867	-0.24191
β_{MOM}	0.43031***	-0.05276	-0.11023
Adj. R^2	64.97	68.88	84.29

These tables show the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021 regarding the renewable energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

J. Unconditional Fama and French (2018) six-factor model black energy single fund performance – S&P Global 1200

Lipper RIC	*LP40186670*	*LP40187223*	*LP40210457*	*LP40210693*	*LP40211656*	*LP40213027*	*LP40221966*	*LP60017507*
Number	1	2	3	4	5	6	7	8
α_p	0.00228	0.00274	0.00841	-0.00554	-0.00625	-0.00518	0.00349	0.00023
β_p	0.68317***	0.70614***	1.0058***	1.03242***	0.71508***	0.80207***	0.85279***	0.79224***
β_{SMB}	0.25129	0.28173	0.32932	0.31579	-0.08177	-0.00065	0.57292**	0.02633
β_{HML}	0.13413	0.11626	0.06402	-0.30803**	-0.36418	-0.46694**	0.09471	-0.01493
β_{RMW}	0.26522	0.30168	-0.01285	0.73972	-0.68184***	-1.05372***	0.94001	-0.07372
β_{CMA}	-0.56807	-0.52633	-0.59422	-0.1452	-0.19316	-0.08683	-0.26488	-0.31841***
β_{MOM}	0.03235	0.01907	-0.16038	0.01281	-0.46183***	-0.56506***	0.2113	-0.05585*
Adj. R^2	62.20	65.55	65.74	71.31	61.52	66.50	76.82	91.79

Lipper RIC	*LP60023233*	*LP60033339*	*LP60033655*	*LP60036138*	*LP60041740*	*LP60041945*	*LP60051702*	*LP60055236*
Number	9	10	11	12	13	14	15	16
α_p	-0.00154	-0.00215*	-0.00515***	-0.00179*	-0.00558**	-0.00171***	-0.00431	0.002
β_p	0.92909***	0.9739***	1.15222***	1.07124***	1.05332***	0.98633***	1.06919***	0.64734***
β_{SMB}	-0.05166	-0.01628	-0.0789	0.10899**	0.09951	0.01119	-0.04041	-0.08742
β_{HML}	0.04615	-0.01598	-0.35654**	-0.10313	-0.12365	-0.08509*	-0.17802	-0.01482
β_{RMW}	-0.22284*	0.00015	-0.43033***	-0.05223	-0.19348*	-0.06698	-0.34342**	-0.15694
β_{CMA}	-0.16704	-0.212***	-0.21208	-0.08551	-0.02581	0.09685**	-0.17037	-0.885***
β_{MOM}	-0.11232***	-0.06278**	-0.13515***	-0.04837***	-0.12592***	-0.03102	-0.22391**	-0.03227
Adj. R^2	90.37	95.97	85.08	97.46	90.03	98.87	81.90	66.68

Lipper RIC	*LP60066371*	*LP60067867*	*LP60081158*	*LP60096787*	*LP60098478*	*LP65011647*	*LP65037244*	*LP65054553*
Number	17	18	19	20	21	22	23	24
α_p	-0.00217***	-0.00252	-0.014***	-0.00733	-0.00224	-0.0022	-0.00019	0.00012
β_p	0.96588***	1.08793***	1.19108***	1.21927***	0.98114***	0.91571***	0.92223***	0.95792***
β_{SMB}	-0.01669	-0.06711	0.34797**	-0.38048*	-0.10349	0.25837	-0.02485	-0.18596
β_{HML}	-0.06672	-0.17081	0.06193	-0.0537	-0.26173**	-0.02458	-0.28899*	0.17087
β_{RMW}	-0.10653**	-0.18907	0.34113	-0.52657	-0.20707	-0.41804**	-0.34271*	-0.25802*
β_{CMA}	-0.02477	-0.18854	0.39345	-0.79525*	-0.03482	-0.2443	-0.17169	-0.55633**
β_{MOM}	-0.03587	-0.08644*	-0.1942***	-0.42065***	-0.20945***	-0.10156	-0.13485*	-0.01714
Adj. R^2	98.08	86.38	85.62	67.28	85.77	74.40	83.96	81.56

These tables show the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021 regarding the black energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Unconditional Fama and French (2018) six-factor model black energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP65095384*	*LP65101258*	*LP65104187*	*LP65107744*	*LP65114606*	*LP65118711*	*LP65165343*	*LP68014086*
Number	25	26	27	28	29	30	31	32
α_p	-0.00672*	-0.00635*	-0.00319	-0.00783***	0.00119	-0.00061	-0.00048	0.00409
β_p	1.12405***	0.78046***	1.22433***	1.24656***	1.06394***	0.8936***	0.62829***	0.97547***
β_{SMB}	0.79595***	-0.33364***	0.10255	-0.01387	0.21329	0.19195*	0.23812	0.02102
β_{HML}	-0.8092***	-0.12614	-0.56021***	-0.11166	-0.14212	-0.27744*	0.02173	-0.01948
β_{RMW}	-0.40151	-0.26578	-0.75937**	-0.29184*	-0.13201	0.19251	-0.36705*	0.00677
β_{CMA}	0.3577	-0.18282	0.16652	-0.39098*	-0.17946	0.26353	-0.66829*	-1.08445***
β_{MOM}	-0.17608**	-0.08175	-0.16693***	-0.28997***	-0.07311	-0.09619	-0.05765	-0.25244**
Adj. R^2	82.09	58.06	78.65	89.44	75.34	75.72	54.18	58.88

Lipper RIC	*LP68016919*	*LP68035092*	*LP68042639*	*LP68056995*	*LP68057587*	*LP68068172*	*LP68089605*	*LP68106200*
Number	33	34	35	36	37	38	39	40
α_p	-0.0028**	-0.00244	-0.00493**	0.00966	-0.00436***	-0.00822**	-0.0045*	0.00249
β_p	0.98022***	1.32578***	0.94873***	0.94294***	1.02554***	0.96556***	1.16433***	0.53053***
β_{SMB}	-0.02841	0.15215	-0.00308	0.03696	0.05348	0.20717	-0.18749	-0.05019
β_{HML}	-0.08674	-0.08626	-0.0599	-0.52125	0.00529	-0.20179	-0.0171	-0.25453**
β_{RMW}	-0.04636	-0.54233	-0.07891	-1.21798***	-0.04675	0.01618	-0.02674	-0.17985
β_{CMA}	-0.19106	-1.09491**	-0.38304*	-0.44916	-0.09657	-0.10341	-0.32054	-0.56544***
β_{MOM}	-0.13856***	-0.22284	-0.2539***	-0.37031	0.02558	-0.19341	-0.07485	-0.05633
Adj. R^2	94.54	90.90	78.89	44.48	96.43	66.27	87.11	56.80

Lipper RIC	*LP68112671*	*LP68112696*	*LP68112697*	*LP68112711*	*LP68174624*	*LP68175789*	*LP68208421*	*LP68329972*
Number	41	42	43	44	45	46	47	48
α_p	-0.00458	0.00265	0.00392	0.00288	-0.01211***	-0.00156	-0.0013	-8e-05
β_p	1.07258***	0.52968***	0.5304***	0.5324***	0.99179***	1.00669***	0.46835***	0.34825***
β_{SMB}	-0.24798	0.07174	0.0717	0.00437	-0.02434	-0.08288	0.08492	0.06732
β_{HML}	-0.04253	-0.30173***	-0.30182***	-0.30123***	0.45929	-0.0658	-0.34484**	-0.12252
β_{RMW}	-0.26358	-0.02121	-0.02196	-0.06618	-0.1008	0.21546	0.17546	0.34729*
β_{CMA}	-0.62776	-0.67447***	-0.67769***	-0.66596***	-0.34309	-0.20942	-0.99698***	-0.07536
β_{MOM}	-0.278	0.02817	0.02767	-0.01052	0.07424	0.04232	-0.13707	0.04763
Adj. R^2	80.39	65.68	65.67	61.68	83.70	90.34	64.15	51.43

These tables show the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021 regarding the black energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Unconditional Fama and French (2018) six-factor model black energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP68379733*	*LP68387162*
Number	49	50
α_p	-0.00747***	-0.00889***
β_p	0.9151***	1.1048***
β_{SMB}	0.10689	0.31798***
β_{HML}	-0.13856	0.04954
β_{RMW}	-0.07108	0.01059
β_{CMA}	-0.22	-0.32617*
β_{MOM}	-0.23116***	0.01202
Adj. R^2	86.09	93.96

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021 regarding the black energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

K. Unconditional Fama and French (2018) six-factor model renewable energy single fund performance – Style Index

Lipper RIC	*LP60040112*	*LP60046885*	*LP60051799*	*LP60058385*	*LP60064451*	*LP65017554*	*LP65027053*	*LP65058312*
Number	1	2	3	4	5	6	7	8
α_p	-0.00451	0.00015	-0.00167	-0.00211	-0.00098	-0.00081	-0.00407	-0.00047
β_p	0.50788***	0.8693***	0.81695***	0.69978***	0.64742***	0.68265***	0.57664***	0.8916***
β_{SMB}	0.13748	0.2021	-0.05588	-0.06929	-0.09551	-0.26844**	-0.15043	-0.26673*
β_{HML}	0.39361	0.29677***	-0.03663	0.00659	-0.00986	0.16759	0.15565	-0.00918
β_{RMW}	0.10404	0.07464	-0.14344	-0.01164	0.16628	-0.03972	0.19611	-0.21556
β_{CMA}	0.43008	-0.25084*	0.07054	-0.06687	-0.01785	-0.01358	-0.18089	-0.08566
β_{MOM}	-0.17207	-0.20153**	-0.05095	-0.07109	-0.03136	-0.03329	-0.61357***	0.02701
Adj. R^2	53.73	85.02	89.39	81.51	78.10	71.93	54.71	68.13

Lipper RIC	*LP65059317*	*LP65064615*	*LP65070185*	*LP65076069*	*LP65076086*	*LP65077966*	*LP65080353*	*LP65086478*
Number	9	10	11	12	13	14	15	16
α_p	-0.00139	0.00311	0.00031	-0.00104	0.00103	-0.001	0.00444**	-0.00062
β_p	0.62634***	0.61961***	0.58098***	0.71229***	0.64107***	0.68012***	0.56652***	0.68364***
β_{SMB}	-0.14656*	-0.19266	0.06224	-0.09789	0.07940	0.13775	0.00956	-0.18643**
β_{HML}	-0.05819	-0.0209	0.12177	0.0676	-0.01820	-0.19719	0.04329	0.09541
β_{RMW}	0.06777	-0.07054	-0.02838	0.00611	-0.03021	0.05832	0.04608	0.12911
β_{CMA}	0.09934	-0.08003	0.1331	-0.11989	-0.27273*	0.4984*	-0.0981	-0.0573
β_{MOM}	-0.04912	0.06919	-0.0353	-0.07124	-0.03325	-0.11161***	-0.05712	-0.01696
Adj. R^2	77.97	61.68	80.48	82.91	78.84	84.08	78.99	80.13

Lipper RIC	*LP65087149*	*LP65106669*	*LP65107476*	*LP65114568*	*LP65118709*	*LP65124361*	*LP65132297*	*LP65134555*
Number	17	18	19	20	21	22	23	24
α_p	0.00323	-0.00483**	-0.0022	0.00109	-1e-04	0.00244	-0.00254	-0.00244
β_p	0.8316***	0.97332***	0.88408***	0.78272***	0.73081***	0.69822***	0.87484***	1.34681***
β_{SMB}	0.08117	-0.21746*	-0.09694	-0.16377*	-0.1407	0.11327	-0.43878***	-0.23046
β_{HML}	0.18028	0.18238	-0.18266**	-0.16007	0.17849	-0.11767	-0.13483	0.29015
β_{RMW}	-0.10221	-0.51339***	-0.15307	-0.12278	-0.38536**	-0.00375	-0.16073	-0.59693*
β_{CMA}	-0.16975	-0.22074	0.27424	0.35870	-0.18678	-0.04852	0.0632	-1.03989**
β_{MOM}	-0.21297***	-0.02042	0.15685***	-0.07146	-0.06966	-0.06868*	-0.03055	0.30159**
Adj. R^2	82.45	82.30	93.22	85.77	84.67	85.45	76.80	71.21

These tables show the regression estimates, using the Ardour Global Alternative Energy, for the period between December 2008 and January 2021 regarding the renewable energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Unconditional Fama and French (2018) six-factor model renewable energy single fund performance – Style Index (continued)

Lipper RIC	*LP65138181*	*LP65149328*	*LP68032885*	*LP68034366*	*LP68036387*	*LP68040134*	*LP68060740*	*LP68063580*
Number	25	26	27	28	29	30	31	32
α_p	0.00465*	-0.00354	0.00199	-0.00268	-0.00208	0.00133	-0.00746***	-0.00024
β_p	0.56876***	1.2098***	0.52931***	0.61771***	0.50104***	0.6002***	0.97656***	0.55318***
β_{SMB}	0.03412	-0.38111*	0.1878*	0.14928	-0.00997	0.15962	0.0075	-0.09156
β_{HML}	0.14678	0.10404	0.01371	0.08607	0.04007	0.02052	-0.03999	-0.2883
β_{RMW}	0.05303	-1.11698**	0.13177	-0.16052	0.05517	0.04747	-0.10815	-0.18531
β_{CMA}	-0.22658	-0.00957	-0.1787	0.08409	-0.06879	-0.22812	-0.35073	0.19479
β_{MOM}	-0.01337	0.2399	-0.13342	-0.14074	0.05439	-0.00066	-0.00803	-0.20719
Adj. R^2	75.33	60.76	74.39	62.50	62.74	82.66	83.09	65.27

Lipper RIC	*LP68082458*	*LP68115151*	*LP68121010*	*LP68138542*	*LP68191873*	*LP68352892*	*LP68356311*	*LP68398137*
Number	33	34	35	36	37	38	39	40
α_p	-0.00817**	-0.00627	-0.00043	-0.00134	-0.00063	-0.00201	-0.00333	-0.00942**
β_p	0.55213***	0.53869***	0.81363***	0.47967***	0.47427***	0.70159***	0.48909***	0.4955***
β_{SMB}	-0.35143**	0.71202	-0.10337	0.00247	0.19414	0.26208	0.13615	0.26101
β_{HML}	-0.04104	0.30881	0.06941	-0.02908	0.02013	0.28289***	0.03083	0.0558
β_{RMW}	0.10651	0.73534	-0.09144	0.21216	0.39052*	0.22879	0.5048**	0.49554*
β_{CMA}	0.35176	-1.13017	-0.12158	-0.09698	-0.17081	-0.52268***	-0.2193	-0.3604**
β_{MOM}	-0.08435	-0.47206*	-0.04092	-0.07974	-0.04338	0.11952	-0.03809	-0.01701
Adj. R^2	47.24	42.16	84.76	48.31	66.83	81.22	72.20	78.12

Lipper RIC	*LP68411514*	*LP68415654*	*LP68461739*
Number	41	42	43
α_p	0.00048	-0.00608	-0.01422***
β_p	0.62136***	0.35759***	0.63475***
β_{SMB}	0.33631	-0.07506	0.08526
β_{HML}	0.01980	-0.06428	0.07134
β_{RMW}	-0.01825	0.35490	0.18216
β_{CMA}	0.69585***	-0.10867	-0.24191
β_{MOM}	0.43031***	-0.05276	-0.11023
Adj. R^2	64.97	68.88	84.29

These tables show the regression estimates, using the Ardour Global Alternative Energy, for the period between December 2008 and January 2021 regarding the renewable energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

L. Unconditional Fama and French (2018) six-factor model black energy single fund performance – style index

Lipper RIC	*LP40186670*	*LP40187223*	*LP40210457*	*LP40210693*	*LP40211656*	*LP40213027*	*LP40221966*	*LP60017507*
Number	1	2	3	4	5	6	7	8
α_p	0.00228	0.00274	0.00841	-0.00554	-0.00625	-0.00518	0.00349	0.00023
β_p	0.68317***	0.70614***	1.0058***	1.03242***	0.71508***	0.80207***	0.85279***	0.79224***
β_{SMB}	0.25129	0.28173	0.32932	0.31579	-0.08177	-0.00065	0.57292**	0.02633
β_{HML}	0.13413	0.11626	0.06402	-0.30803**	-0.36418	-0.46694**	0.09471	-0.01493
β_{RMW}	0.26522	0.30168	-0.01285	0.73972	-0.68184***	-1.05372***	0.94001	-0.07372
β_{CMA}	-0.56807	-0.52633	-0.59422	-0.1452	-0.19316	-0.08683	-0.26488	-0.31841***
β_{MOM}	0.03235	0.01907	-0.16038	0.01281	-0.46183***	-0.56506***	0.2113	-0.05585*
Adj. R²	62.20	65.55	65.74	71.31	61.52	66.50	76.82	91.79

Lipper RIC	*LP60023233*	*LP60033339*	*LP60033655*	*LP60036138*	*LP60041740*	*LP60041945*	*LP60051702*	*LP60055236*
Number	9	10	11	12	13	14	15	16
α_p	-0.00154	-0.00215*	-0.00515***	-0.00179*	-0.00558**	-0.00171***	-0.00431	0.002
β_p	0.92909***	0.9739***	1.15222***	1.07124***	1.05332***	0.98633***	1.06919***	0.64734***
β_{SMB}	-0.05166	-0.01628	-0.0789	0.10899**	0.09951	0.01119	-0.04041	-0.08742
β_{HML}	0.04615	-0.01598	-0.35654**	-0.10313	-0.12365	-0.08509*	-0.17802	-0.01482
β_{RMW}	-0.22284*	0.00015	-0.43033***	-0.05223	-0.19348*	-0.06698	-0.34342**	-0.15694
β_{CMA}	-0.16704	-0.212***	-0.21208	-0.08551	-0.02581	0.09685**	-0.17037	-0.885***
β_{MOM}	-0.11232***	-0.06278**	-0.13515***	-0.04837***	-0.12592***	-0.03102	-0.22391**	-0.03227
Adj. R²	90.37	95.97	85.08	97.46	90.03	98.87	81.90	66.68

Lipper RIC	*LP60066371*	*LP60067867*	*LP60081158*	*LP60096787*	*LP60098478*	*LP65011647*	*LP65037244*	*LP65054553*
Number	17	18	19	20	21	22	23	24
α_p	-0.00217***	-0.00252	-0.014***	-0.00733	-0.00224	-0.0022	-0.00019	0.00012
β_p	0.96588***	1.08793***	1.19108***	1.21927***	0.98114***	0.91571***	0.92223***	0.95792***
β_{SMB}	-0.01669	-0.06711	0.34797**	-0.38048*	-0.10349	0.25837	-0.02485	-0.18596
β_{HML}	-0.06672	-0.17081	0.06193	-0.0537	-0.26173**	-0.02458	-0.28899*	0.17087
β_{RMW}	-0.10653**	-0.18907	0.34113	-0.52657	-0.20707	-0.41804**	-0.34271*	-0.25802*
β_{CMA}	-0.02477	-0.18854	0.39345	-0.79525*	-0.03482	-0.2443	-0.17169	-0.55633**
β_{MOM}	-0.03587	-0.08644*	-0.1942***	-0.42065***	-0.20945***	-0.10156	-0.13485*	-0.01714
Adj. R²	98.08	86.38	85.62	67.28	85.77	74.40	83.96	81.56

These tables show the regression estimates, using the S&P Global 1200 Energy, for the period between December 2008 and January 2021 regarding the black energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Unconditional Fama and French (2018) six-factor model black energy single fund performance – style index (continued)

Lipper RIC	*LP65095384*	*LP65101258*	*LP65104187*	*LP65107744*	*LP65114606*	*LP65118711*	*LP65165343*	*LP68014086*
Number	25	26	27	28	29	30	31	32
α_p	-0.00672*	-0.00635*	-0.00319	-0.00783***	0.00119	-0.00061	-0.00048	0.00409
β_p	1.12405***	0.78046***	1.22433***	1.24656***	1.06394***	0.8936***	0.62829***	0.97547***
β_{SMB}	0.79595***	-0.33364***	0.10255	-0.01387	0.21329	0.19195*	0.23812	0.02102
β_{HML}	-0.8092***	-0.12614	-0.56021***	-0.11166	-0.14212	-0.27744*	0.02173	-0.01948
β_{RMW}	-0.40151	-0.26578	-0.75937**	-0.29184*	-0.13201	0.19251	-0.36705*	0.00677
β_{CMA}	0.3577	-0.18282	0.16652	-0.39098*	-0.17946	0.26353	-0.66829*	-1.08445***
β_{MOM}	-0.17608**	-0.08175	-0.16693***	-0.28997***	-0.07311	-0.09619	-0.05765	-0.25244**
Adj. R^2	82.09	58.06	78.65	89.44	75.34	75.72	54.18	58.88

Lipper RIC	*LP68016919*	*LP68035092*	*LP68042639*	*LP68056995*	*LP68057587*	*LP68068172*	*LP68089605*	*LP68106200*
Number	33	34	35	36	37	38	39	40
α_p	-0.0028**	-0.00244	-0.00493**	0.00966	-0.00436***	-0.00822**	-0.0045*	0.00249
β_p	0.98022***	1.32578***	0.94873***	0.94294***	1.02554***	0.96556***	1.16433***	0.53053***
β_{SMB}	-0.02841	0.15215	-0.00308	0.03696	0.05348	0.20717	-0.18749	-0.05019
β_{HML}	-0.08674	-0.08626	-0.0599	-0.52125	0.00529	-0.20179	-0.0171	-0.25453**
β_{RMW}	-0.04636	-0.54233	-0.07891	-1.21798***	-0.04675	0.01618	-0.02674	-0.17985
β_{CMA}	-0.19106	-1.09491**	-0.38304*	-0.44916	-0.09657	-0.10341	-0.32054	-0.56544***
β_{MOM}	-0.13856***	-0.22284	-0.2539***	-0.37031	0.02558	-0.19341	-0.07485	-0.05633
Adj. R^2	94.54	90.90	78.89	44.48	96.43	66.27	87.11	56.80

Lipper RIC	*LP68112671*	*LP68112696*	*LP68112697*	*LP68112711*	*LP68174624*	*LP68175789*	*LP68208421*	*LP68329972*
Number	41	42	43	44	45	46	47	48
α_p	-0.00458	0.00265	0.00392	0.00288	-0.01211***	-0.00156	-0.0013	-8e-05
β_p	1.07258***	0.52968***	0.5304***	0.5324***	0.99179***	1.00669***	0.46835***	0.34825***
β_{SMB}	-0.24798	0.07174	0.0717	0.00437	-0.02434	-0.08288	0.08492	0.06732
β_{HML}	-0.04253	-0.30173***	-0.30182***	-0.30123***	0.45929	-0.0658	-0.34484**	-0.12252
β_{RMW}	-0.26358	-0.02121	-0.02196	-0.06618	-0.10080	0.21546	0.17546	0.34729*
β_{CMA}	-0.62776	-0.67447***	-0.67769***	-0.66596***	-0.34309	-0.20942	-0.99698***	-0.07536
β_{MOM}	-0.27800	0.02817	0.02767	-0.01052	0.07424	0.04232	-0.13707	0.04763
Adj. R^2	80.39	65.68	65.67	61.68	83.70	90.34	64.15	51.43

These tables show the regression estimates, using the S&P Global 1200 Energy, for the period between December 2008 and January 2021 regarding the black energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Unconditional Fama and French (2018) six-factor model black energy single fund performance – style index (continued)

Lipper RIC	*LP68379733*	*LP68387162*
Number	49	50
α_p	-0.00747***	-0.00889***
β_p	0.9151***	1.1048***
β_{SMB}	0.10689	0.31798***
β_{HML}	-0.13856	0.04954
β_{RMW}	-0.07108	0.01059
β_{CMA}	-0.22000	-0.32617*
β_{MOM}	-0.23116***	0.01202
Adj. R^2	86.09	93.96

This table shows the regression estimates, using the S&P Global 1200 Energy, for the period between December 2008 and January 2021 regarding the black energy single fund performance. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Appendix 4 – Conditional Single Fund Performance

A. Conditional Carhart (1997) four-factor model renewable energy single fund performance – S&P Global 1200

Lipper RIC	*LP60040112*	*LP60046885*	*LP60051799*	*LP60058385*	*LP60064451*	*LP65017554*	*LP65027053*	*LP65058312*
Number	1	2	3	4	5	6	7	8
α_p	-0.00965***	-0.00301	-0.007*	-0.01207***	-0.00493*	-0.00771**	-0.01328***	-0.0041
α_{STR}	0.03275***	-0.01217	-0.01361	0.01537**	-0.01539	0.00515	0.02699	-0.03501*
α_{DY}	0.02028	-0.06889***	0.00548	0.01276	0.00649	0.01026	0.02072	0.00224
βp	1.19001***	1.34752***	1.22871***	1.16469***	1.02276***	1.10999***	1.19504***	1.21487***
β_{SMB}	0.36621***	0.46433***	0.33049**	0.26656***	0.16151*	0.09795	-0.13541	0.28578*
β_{HML}	0.50423***	0.07152	-0.12367	-0.19899**	-0.16195	-0.09393	0.14427	-0.12734
β_{MOM}	-0.12401	-0.30269***	-0.12044	-0.06829	-0.08982*	-0.09733*	-0.3423***	-0.09172
$\beta_{MKT*STR}$	0.08739	-0.24718	0.09836	-0.17446	0.07602	-0.21412	-3.46714***	0.20748
β_{MKT*DY}	-0.16903	0.74145**	-0.21582	0.10117	-0.11257	-0.10167	0.49564	-0.58459**
$\beta_{SMB*STR}$	0.32848*	0.22529	-0.50389	-0.46932*	-0.27127	-0.74109***	5.66099	-0.62905
β_{SMB*DY}	-0.11935	-0.82682	-0.63401	-0.19286	-0.11085	-0.00118	-0.21945	0.03241
$\beta_{HML*STR}$	1.1803***	-0.07117	0.30416	0.71784***	-0.04281	0.50322**	0.9355	0.0356
β_{HML*DY}	0.66237	0.2135	0.5716	0.5015*	0.08775	0.60958	0.40406	1.05129
$\beta_{MOM*STR}$	0.55527***	-0.33862	0.02867	0.43967**	-0.11776	0.13081	-1.74683	-0.12092
β_{MOM*DY}	0.72287***	0.04744	0.06682	0.4618***	0.0329	0.38933**	-0.03625	0.05501
Adj. R^2	78.25	79.71	77.99	86.74	73.72	74.02	75.15	51.54

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Carhart (1997) four-factor model renewable energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP65059317*	*LP65064615*	*LP65070185*	*LP65076069*	*LP65076086*	*LP65077966*	*LP65080353*	*LP65086478*
Number	9	10	11	12	13	14	15	16
α_p	-0.00542**	-0.00292	-0.00577***	-0.01217***	-0.00431*	-0.01382***	-0.0016	-0.00361
α_{STR}	-0.01169	-0.00485	0.00385	0.01953*	-0.01693**	0.02051**	-0.00924	-0.02105
α_{DY}	0.00519	0.00363	-0.01052	0.01193	0.00261	-0.00482	-0.00423	0.01333
βp	0.9956***	1.21468***	1.06142***	1.18613***	1.10303***	1.17804***	1.04015***	1.08741***
β_{SMB}	0.12419	0.10927*	0.29457***	0.25889***	0.34151***	0.42392***	0.17905***	0.00722
β_{HML}	-0.16104**	-0.28584***	-0.04492	-0.18246*	-0.21245***	-0.16324	-0.14218***	-0.11003
β_{MOM}	-0.11271***	0.14327***	-0.09588**	-0.07624	-0.02557	-0.00081	-0.05235	-0.10257**
$\beta_{MKT*STR}$	3e-05	0.15225	0.07948	-0.35079	0.04933	0.63918***	0.04549	-0.20605*
β_{MKT*DY}	-0.15875	0.05702	0.00593	0.05297	-0.08553	-0.03586	0.09375	0.1655
$\beta_{SMB*STR}$	-0.18796	-0.17205	-0.28222**	-0.71606**	0.07484	-0.6546**	-0.11199	0.17453
β_{SMB*DY}	-0.15141	0.50404**	-0.11294	-0.19225	-0.20128	-0.24959*	-0.14362	-0.77832***
$\beta_{HML*STR}$	0.08889	-0.12575	0.10478	1.00783***	0.17042	0.28056	0.0433	-0.53325
β_{HML*DY}	0.09594	0.00587	-0.06129	0.62554**	0.37619	0.52127**	-0.19127	0.55899*
$\beta_{MOM*STR}$	-0.1691	0.0677	-0.18501**	0.37139**	0.21223	0.66125***	-0.12593	-0.34153*
β_{MOM*DY}	-0.0221	0.13778	-0.12071*	0.44643***	0.21372	0.14438	-0.15528	0.03494
Adj. R^2	75.02	84.35	91.17	86.93	81.95	88.50	90.91	79.91

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Carhart (1997) four-factor model renewable energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP65087149*	*LP65106669*	*LP65107476*	*LP65114568*	*LP65118709*	*LP65124361*	*LP65132297*	*LP65134555*
Number	17	18	19	20	21	22	23	24
α_p	-0.00251	-0.01108**	-0.01534***	-0.01197***	-0.00784**	-0.00637**	-0.01526***	-0.01513
α_{STR}	-0.02327	-0.00477	0.03433**	0.01564	-0.00341	0.00279	0.01705	-0.01527
α_{DY}	0.00178	-0.0923**	0.00769	-0.00819	-0.01711	0.00329	-0.00921	-0.08011
βp	1.34955***	1.38182***	1.2119***	1.25076***	1.23761***	1.1338***	1.30237***	1.7427***
β_{SMB}	0.45079***	0.32272	0.66242***	0.15439	0.15294	0.41895***	0.04018	0.35774
β_{HML}	0.04739	-0.0946	0.02732	-0.28416**	-0.08162	-0.27453***	-0.45943**	-0.25202
β_{MOM}	-0.3157***	-0.17266	-0.05975	-0.10631	-0.17894**	-0.09643**	-0.20079**	-0.02853
$\beta_{MKT*STR}$	0.15054	-0.08169	-0.9671**	-0.31054	0.08414	-0.14914	-0.45652	0.02013
β_{MKT*DY}	0.1642	0.82574	-0.43797**	0.08653	0.07797	-0.09859	0.2033	1.01621
$\beta_{SMB*STR}$	0.05891	-0.66354	-0.69798	-0.82429***	0.27529	-0.49017**	-0.50156	-0.40367
β_{SMB*DY}	-0.31274	0.29	-0.18732	-0.33956**	-0.94681***	-0.30037**	-0.19318	-1.43166
$\beta_{HML*STR}$	0.29541	0.15093	2.00588***	0.72907***	0.32887	0.49913**	0.78016	0.55466
β_{HML*DY}	0.041	-1.06532	0.92451**	-0.01594	0.30377	0.46075**	-0.07263	0.90392
$\beta_{MOM*STR}$	-0.14146	-0.86422*	-0.1046	0.05203	-0.02559	0.2793**	-0.19765	-0.58589
β_{MOM*DY}	0.10867	0.41291	0.16732	0.0243	-0.07388	0.26521***	0.08987	-0.78675*
Adj. R^2	78.79	65.39	73.95	82.75	79.91	86.61	64.07	43.54

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Carhart (1997) four-factor model renewable energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP65138181*	*LP65149328*	*LP68032885*	*LP68034366*	*LP68036387*	*LP68040134*	*LP68060740*	*LP68063580*
Number	25	26	27	28	29	30	31	32
α_p	-0.00017	-0.0104	-0.00088	-0.00833***	-0.00604***	-0.00527**	-0.01767***	-0.00923***
α_{STR}	-0.01652**	-0.03105	-0.00879	0.0023	-0.0025	-0.00054	-0.01054	0.13282***
α_{DY}	0.00527	-0.18152***	0.00094	-0.02917	-0.00113	-0.0173*	-0.06114*	-0.06648***
βp	1.0756***	1.59376***	0.94576***	1.1825***	0.97215***	1.0179***	1.24472***	0.91677***
β_{SMB}	0.24514***	0.34336	0.40635***	0.35268***	0.13156***	0.3575***	0.9251***	0.09866
β_{HML}	-0.07126	-0.27093	-0.08386	0.08282	-0.09393	-0.22258**	0.17713	-0.00851
β_{MOM}	-0.01618	-0.02368	-0.07625	-0.08213	0.09971**	-0.02306	0.1111	-0.13251
$\beta_{MKT*STR}$	0.11582	0.5036	0.02127	0.05159	0.02201	0.03721	2.51358	-0.7666
β_{MKT*DY}	-0.0616	1.94642*	0.36506**	0.35029	0.03743	-0.08386	-0.91243	0.47881*
$\beta_{SMB*STR}$	0.0149	-1.34718	-0.62209***	0.04445	-0.32066***	-0.05171	-24.59855*	-2.42553
β_{SMB*DY}	0.00454	1.71721	0.05349	0.22843	-0.41621	-0.23185	0.32325	-1.29896*
$\beta_{HML*STR}$	-0.02343	-0.87738	-0.40496**	0.32384	-0.30972	0.13134	-10.18336	-8.70312***
β_{HML*DY}	0.32805*	-3.33892*	1.10125**	0.49077	1.09971**	0.0747	0.5142	1.58389
$\beta_{MOM*STR}$	-0.06853	-1.42748***	-0.64593***	-0.12215	-0.30421	0.05398	-13.5563**	-2.19438
β_{MOM*DY}	0.04545	0.02049	0.24802	-0.48591	-0.09112	-0.22488*	-1.68048	-1.20818
Adj. R^2	91.09	46.69	86.72	77.68	82.21	82.60	65.23	83.70

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Carhart (1997) four-factor model renewable energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP68082458*	*LP68115151*	*LP68121010*	*LP68138542*	*LP68191873*	*LP68352892*	*LP68356311*	*LP68398137*
Number	33	34	35	36	37	38	39	40
α_p	-0.0143***	-0.01994***	-0.00579	-0.00236	6e-04	0.00181	-0.00125	-0.00869***
α_{STR}	0.0294**	0.29808***	-0.01223	-0.01022	-0.01063*	-0.02615***	-0.00877*	0.00025
α_{DY}	-0.05752*	0.02608	0.00755	0.01719	0.00735	-0.0085	0.00264	-0.04266**
βp	0.78078***	1.49598***	1.28918***	0.95257***	1.03128***	1.27831***	0.99501***	1.07252***
β_{SMB}	-0.05799	-0.191	0.27166**	0.13877*	0.30175***	0.21149	0.24305**	0.16365
β_{HML}	-0.08762	-1.97095***	-0.16959	-0.07237	0.02641	0.10246	-0.06412	-0.12879***
β_{MOM}	-0.08784	-0.97999***	-0.17588**	0.01516	0.0626	0.11015	0.06856	-0.03015
$\beta_{MKT*STR}$	-0.45686**	-19.09586***	0.13207	-0.03039	0.26174**	0.0661	-0.0271	-0.12098***
β_{MKT*DY}	-0.10709	1.8311**	0.11765	-0.76967**	0.36749	0.76917	0.10857	1.214***
$\beta_{SMB*STR}$	-1.46627***	-0.27916	-0.42403	0.13591	-0.15474	-0.00186	-0.38705***	0.13066
β_{SMB*DY}	0.11255	-6.2074***	-0.45949	0.15207	0.14245	-1.10926	0.39823	-0.27072
$\beta_{HML*STR}$	0.74737**	29.86036***	0.05344	-0.1228	-0.15773	-0.24178	-0.36223**	-0.13819
β_{HML*DY}	-1.73225*	-2.6391*	0.08483	-1.16959***	-0.36156	-0.22476	0.26663	0.09789
$\beta_{MOM*STR}$	-0.7108***	-5.54696	-0.30815	-0.11807	-0.50547***	-0.33307*	-0.49115***	-0.35991**
β_{MOM*DY}	-0.04202	3.41196**	-0.01131	-1.09441**	0.01934	0.31882	0.22558	0.86865**
Adj. R^2	46.64	78.28	77.92	62.88	91.26	83.24	89.01	94.35

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Carhart (1997) four-factor model renewable energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP68411514*	*LP68415654*	*LP68461739*
Number	41	42	43
α_p	0.00077	-0.00222	0.00114
α_{STR}	-0.01691	-0.00383	-0.02303***
α_{DY}	-0.12105*	5e-05	0.02224
βp	0.58978***	0.66456***	1.07436***
β_{SMB}	0.26066	0.0535	0.34011***
β_{HML}	-0.11745	-0.11788**	0.22797
β_{MOM}	-0.0285	-0.01779	-0.0263
$\beta_{MKT*STR}$	-0.51317**	-0.08416	0.07519
β_{MKT*DY}	-0.63259	-0.28275	0.32758
$\beta_{SMB*STR}$	-0.90325	-0.31388**	0.09033
β_{SMB*DY}	-1.41851*	0.42486	-0.14366
$\beta_{HML*STR}$	-0.66951**	-0.22365	-0.14311
β_{HML*DY}	-0.7425	-0.01307	0.67338
$\beta_{MOM*STR}$	-0.93387***	-0.33466***	-0.31047*
β_{MOM*DY}	-0.17259	-0.09785	0.82687
Adj. R^2	83.16	87.51	95.07

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

B. Conditional Carhart (1997) four-factor model black energy single fund performance – S&P Global 1200

Lipper RIC	*LP40186670*	*LP40187223*	*LP40210457*	*LP40210693*	*LP40211656*	*LP40213027*	*LP40221966*	*LP60017507*
Number	1	2	3	4	5	6	7	8
α_p	-0.00363	-0.00353	-0.00101	-0.01556***	-0.00129	-0.01163	-0.01684**	-0.00747***
α_{STR}	-0.00238	-0.00272	0.00275	0.01817	-0.05095	0.01085	0.03093	0.01553*
α_{DY}	0.01245	0.01558	-0.04384	0.00537	-0.13798*	-0.04215	-0.04777	0.01499
βp	0.78489***	0.82144***	1.14946***	0.99047***	0.85009***	0.07248	1.12429***	1.11108***
β_{SMB}	0.27523**	0.27982**	0.51771***	0.25178*	0.08821	0.46581*	0.47157	0.27313***
β_{HML}	0.37214**	0.39789***	0.35303	0.26735*	-0.55456	-0.17077	-0.02558	0.20191***
β_{MOM}	-0.11252	-0.13627	-0.54683***	-0.13396	-0.66898**	-1.31797**	-0.22357	-0.14476**
$\beta_{MKT*STR}$	-0.47518**	-0.50926**	-0.58307	-0.79827***	-0.5651	1.99829	-0.81473***	0.06369
β_{MKT*DY}	0.40941	0.28283	1.65618	0.60166	-0.04074	1.34627	2.53605*	-0.1021
$\beta_{SMB*STR}$	-0.10372	-0.14926	0.51459	-0.00222	-1.31984	-0.13238	-0.39186	-0.07183
β_{SMB*DY}	0.00518	-0.11458	1.58846	3.78598*	2.45919	-1.11881	0.47274	0.1738
$\beta_{HML*STR}$	-0.41919	-0.42789	-0.78454	-1.1596*	5.1276**	0.478	-0.7666	0.49712*
β_{HML*DY}	1.43063	1.51577*	-0.90019	-1.54524	-1.462	-1.52667	-1.00196	0.25073
$\beta_{MOM*STR}$	0.32762*	0.29784**	0.16444	0.21152	0.98553	2.56375**	-0.15867	0.04146
β_{MOM*DY}	-1.67757**	-1.63237**	-1.91455	-1.89008	-3.27173	-1.74113	0.06535	0.36489**
Adj. R^2	63.84	66.45	68.20	80.23	42.61	41.99	81.70	85.85

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Carhart (1997) four-factor model black energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP60023233*	*LP60033339*	*LP60033655*	*LP60036138*	*LP60041740*	*LP60041945*	*LP60051702*	*LP60055236*
Number	9	10	11	12	13	14	15	16
α_p	-0.00643***	-0.0096***	-0.00966**	-0.00666	-0.01066**	-0.00458	-0.01445***	-0.00457*
α_{STR}	0.0138*	0.02636***	-0.02218	-0.00685	0.0049	0.01027	0.02723**	-0.00858
α_{DY}	0.01947**	0.01944	0.00055	0.00145	9e-05	0.0054	-0.02452**	0.02185***
βp	1.14359***	1.2003***	1.3683***	1.18419***	1.23836***	1.09155***	1.29894***	1.02003***
β_{SMB}	0.14677	0.31883***	0.10778	0.36527**	0.22613	0.22326	0.0648	0.16433*
β_{HML}	0.27294**	0.37834***	0.41043*	0.48255**	0.34223	0.53812**	0.23916	-0.05259
β_{MOM}	-0.24658***	-0.19756**	-0.39339**	-0.22369*	-0.28323*	-0.21888**	-0.26953***	-0.16704***
$\beta_{MKT*STR}$	-0.00379	0.17199	1.56562***	0.46238	0.64567	0.23632	0.39386	0.04999
β_{MKT*DY}	-0.17869	-0.23057	0.43298*	0.11827	-0.04823	0.18669	0.30678	-0.27659*
$\beta_{SMB*STR}$	0.7393***	0.03448	1.21513**	1.46293**	1.87283***	1.27189***	1.13334***	-0.47445**
β_{SMB*DY}	0.28016	-0.0898	0.03064	0.43645*	-0.14387	0.15614	-0.19913	0.52779***
$\beta_{HML*STR}$	0.96715***	0.88779**	1.2578**	1.64166***	1.17733***	1.97735***	1.99148***	0.18339
β_{HML*DY}	0.67869**	0.68591	1.6698***	1.39021**	1.0996**	1.44379***	0.63116	0.66879***
$\beta_{MOM*STR}$	0.0223	0.36583**	0.14768	0.19899	0.18052	0.20866	0.73857***	-0.46347**
β_{MOM*DY}	0.47159***	0.60793***	0.72091**	0.63894**	0.24434	0.68108***	0.46624***	0.24516
Adj. R^2	76.06	75.70	70.34	76.02	73.04	80.51	69.94	76.51

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Carhart (1997) four-factor model black energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP60066371*	*LP60067867*	*LP60081158*	*LP60096787*	*LP60098478*	*LP65011647*	*LP65037244*	*LP65054553*
Number	17	18	19	20	21	22	23	24
α_p	-0.00944***	-0.01449***	-0.01805***	-0.02128***	-0.01165***	-0.01095***	-0.00706**	-0.00985***
α_{STR}	0.03052***	0.03273***	0.0588**	0.03453	0.02714***	0.00365	0.0033	0.01655**
α_{DY}	0.01606	0.00268	-0.00624	-0.00015	0.0014	0.02094	0.01707	0.02008**
βp	1.15***	1.41757***	1.59667***	1.59981***	1.22924***	1.32037***	1.15151***	1.37407***
β_{SMB}	0.36209***	0.20018	0.21535	-0.17841	0.19898	0.59642***	0.23399**	0.13809
β_{HML}	0.41027***	0.25301*	-0.46732**	0.2378	0.27543**	0.42623***	0.19021	0.1984*
β_{MOM}	-0.16024	-0.23266*	0.00522	-0.48318***	-0.30242**	-0.19131	-0.12403	-0.13095*
$\beta_{MKT*STR}$	-0.00795	0.07876	-0.1452	-0.80862*	0.1781	0.05918	0.23294	0.02459
β_{MKT*DY}	-0.04755	0.24197	0.08933	0.72452	0.42902	-0.64324**	0.12622	-0.1507
$\beta_{SMB*STR}$	0.32225	-0.11659	0.03471	0.48069	0.34606	-0.05175	0.58166	-0.6989***
β_{SMB*DY}	-0.03602	-0.48973	0.14376	-0.49621	-0.19807	-0.25894	0.4818	0.19248
$\beta_{HML*STR}$	1.1099***	1.14669**	0.4366	2.1537***	1.29883***	0.95702***	0.77873*	0.18313
β_{HML*DY}	0.50026	-0.29036	-0.47761	-0.72799	-0.1551	1.56038**	0.5768	0.53727
$\beta_{MOM*STR}$	0.37402***	0.2309	0.45266	-0.42173	0.3036*	-0.01479	0.25041	-0.0671
β_{MOM*DY}	0.63096***	0.46032	0.19237	-0.06561	0.4203**	0.263	0.42506	0.49907***
Adj. R^2	76.09	70.64	86.65	58.09	68.08	73.12	70.19	80.95

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Carhart (1997) four-factor model black energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP65095384*	*LP65101258*	*LP65104187*	*LP65107744*	*LP65114606*	*LP65118711*	*LP65165343*	*LP68014086*
Number	25	26	27	28	29	30	31	32
α_p	-0.01366**	-0.01712***	-0.01499**	-0.01955***	-0.00953*	-0.00888**	-0.00995***	0.00062
α_{STR}	-0.02848	0.00737	-0.0928***	0.03693**	-0.04353*	0.0362***	0.02227	-0.04152
α_{DY}	-0.00357	-0.01149	-0.02349*	0.00796	-0.01316	-0.00781	0.00195	0.01863
βp	1.3073***	1.12543***	1.60981***	1.39822***	1.2298***	0.9753***	1.11469***	1.15651***
β_{SMB}	1.34672***	-0.11277	-0.01	0.3714*	0.64895	0.47318***	0.189	0.12372
β_{HML}	-0.44938**	0.06187	0.09543	0.41725**	-0.23811	0.20229	-0.10754	0.36461
β_{MOM}	0.15094	-0.14729	0.01995	-0.38168***	-0.10484	-0.23706	0.08976	-0.26952
$\beta_{MKT*STR}$	0.421	-0.05733	1.83546***	-0.03644	-1.24557***	-1.14911***	-0.68523	2.09951*
β_{MKT*DY}	-0.08153	-0.43907	1.23012***	0.17597	-0.43511	0.58998	0.0018	-0.13596
$\beta_{SMB*STR}$	3.40716***	-0.46963	3.26145***	0.38993	2.95596***	0.18563	-0.52892	1.61555
β_{SMB*DY}	0.92432*	0.35016	-1.14557**	0.72539	1.36833***	0.21199	-0.09061	0.15771
$\beta_{HML*STR}$	0.23246	0.35982	0.81187	1.12201**	0.86652	0.05677	1.33515***	0.11311
β_{HML*DY}	0.08672	-0.1862	1.15623**	-0.21792	-0.35952	0.22308	0.61205*	2.13986**
$\beta_{MOM*STR}$	0.90174**	-0.20374	0.84842***	0.26948	-0.87018**	-0.48557*	0.22176	0.93749*
β_{MOM*DY}	0.42492	-0.07856	0.64041***	0.448***	-0.47195	0.52363	0.19714	0.71917
Adj. R^2	74.06	55.50	79.12	67.05	75.86	63.78	76.26	46.97

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Carhart (1997) four-factor model black energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP68016919*	*LP68035092*	*LP68042639*	*LP68056995*	*LP68057587*	*LP68068172*	*LP68089605*	*LP68106200*
Number	33	34	35	36	37	38	39	40
α_p	-0.01149***	-0.01466***	-0.0105***	-0.00622	-0.01062***	-0.01287***	-0.0166***	-0.00577***
α_{STR}	0.02656**	0.06663	-0.02513	0.00106	0.02222	0.02585	0.03544***	-0.00765
α_{DY}	0.02653	-0.01651	0.02962	-0.09565*	0.01308	0.01511	0.01209	-0.00506
βp	1.22398***	1.58862***	1.28801***	1.62449***	1.11484***	0.9729***	1.37118***	1.03762***
β_{SMB}	0.26954**	-0.13092	0.01456	0.42075	0.22091	0.37061*	-0.00791	0.05049
β_{HML}	0.23206**	-0.35006	0.52966	-0.23608	0.60002***	0.11788	0.3874**	-0.14347**
β_{MOM}	-0.175**	-0.0933	-0.56613***	-0.51241	-0.07528	-0.46695***	-0.43786***	-0.04421
$\beta_{MKT*STR}$	-0.13588	0.36531	-2.43911*	-0.3749	-0.03326	-0.27856	-0.67585***	0.02556
β_{MKT*DY}	-0.2524	2.11428***	0.36873	0.71511	0.54145*	-0.18087	0.17899	-0.14077
$\beta_{SMB*STR}$	0.0949	-1.64927	3.22919	-1.41779	0.67112	1.26297**	0.97435***	-0.16127
β_{SMB*DY}	-0.18913	-0.18544	-4.07722**	-0.94397	0.19197	0.10807	-1.53063*	-0.20883
$\beta_{HML*STR}$	0.58318	8.70591*	-1.45334	0.07025	0.25482	0.78687	0.10037	-0.18048
β_{HML*DY}	0.22247	-0.21266	5.57675***	0.0868	0.55569	-0.08654	-1.29496	0.46465
$\beta_{MOM*STR}$	0.49501***	-9.18914***	0.50596	-1.32308	-0.37334	-0.41001	0.82285***	-0.18716
β_{MOM*DY}	0.57913**	-0.59741	-0.95032	1.24634	-0.15894	0.05633	-0.20555	-0.62847***
Adj. R^2	78.95	85.81	72.35	52.93	70.84	46.76	70.95	84.27

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Carhart (1997) four-factor model black energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP68112671*	*LP68112696*	*LP68112697*	*LP68112711*	*LP68174624*	*LP68175789*	*LP68208421*	*LP68329972*
Number	41	42	43	44	45	46	47	48
α_p	-0.01615***	-0.00528***	-0.00403***	-0.00528***	-0.02798***	-0.01342***	-0.00517**	-0.00418**
α_{STR}	-0.15964	-0.00344	-0.00346	-0.00495	-0.14658	0.02766***	-0.00398	-0.00684
α_{DY}	0.00414	-0.01431	-0.01447	-0.00447	-0.07786**	-0.01055	-0.002	0.01543
βp	1.74043***	0.99499***	0.99699***	1.02949***	1.66197***	1.2384***	0.90554***	0.54241***
β_{SMB}	-0.99462**	0.15107***	0.15198***	0.08812	-0.12548	-0.08176	0.15785**	0.07976
β_{HML}	-0.4005	-0.20949***	-0.21019***	-0.1978***	3.95295***	0.28447**	-0.29904*	-0.00517
β_{MOM}	-0.81083**	-5e-05	-0.00028	-0.01997	1.7131***	-0.37049***	-0.12899	-0.02483
$\beta_{MKT*STR}$	-17.34584***	-0.02265	-0.02134	0.01549	11.59429*	-0.58979***	0.36405*	-0.20098*
β_{MKT*DY}	2.4787**	-0.14862	-0.15468	-0.26491*	2.47899	0.25751	-0.91***	-1.38855***
$\beta_{SMB*STR}$	-4.85455	-0.23678*	-0.23942*	-0.17058	-35.29435**	0.94821***	-0.13055	-0.50441***
β_{SMB*DY}	-11.98181***	0.37227	0.38283	0.03062	-6.32202**	-1.12962**	-0.29906	-0.54091
$\beta_{HML*STR}$	14.68921	-0.12067	-0.12188	-0.0726	-32.5779*	-0.00362	0.04347	-0.54724***
β_{HML*DY}	2.67994	0.15619	0.15099	0.42011	33.79217***	-0.94582	0.31814	1.26375**
$\beta_{MOM*STR}$	4.10389	-0.16571*	-0.16633*	-0.10138	28.95625	0.74973***	0.26259	-0.20948*
β_{MOM*DY}	0.9025	-0.1928	-0.19868	-0.34965	29.55293***	-0.78501	-0.68865*	-0.80639*
Adj. R^2	77.63	90.27	90.27	86.45	68.01	80.59	88.14	71.43

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Carhart (1997) four-factor model black energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP68379733*	*LP68387162*
Number	49	50
α_p	-0.01215***	0.0261
α_{STR}	0.02423	-0.02945
α_{DY}	0.01067	-0.06323
βp	1.08445***	-2.6847***
β_{SMB}	0.32018*	4.34352***
β_{HML}	0.03384	-0.27363
β_{MOM}	-0.3455***	3.39099***
$\beta_{MKT*STR}$	-1.36632***	8.58421***
β_{MKT*DY}	0.00258	3.19682
$\beta_{SMB*STR}$	0.96198***	-6.30835***
β_{SMB*DY}	1.02678***	26.04046***
$\beta_{HML*STR}$	2.09557***	3.14262***
β_{HML*DY}	0.34742	-4.01436
$\beta_{MOM*STR}$	-0.42944	-7.56099***
β_{MOM*DY}	0.29038	14.13617**
Adj. R^2	79.17	74.25

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

C. Conditional Carhart (1997) four-factor model renewable energy single fund performance – style index

Lipper RIC	*LP60040112*	*LP60046885*	*LP60051799*	*LP60058385*	*LP60064451*	*LP65017554*	*LP65027053*	*LP65058312*
Number	1	2	3	4	5	6	7	8
α_p	-0.00135	0.00227	-0.00074	0.00023	0.00079	0.00055	-0.0016	0.0011
α_{STR}	0.03386	-0.00646	-0.00416	-0.01598**	-0.00997	-0.00831	-0.09689	-0.02291**
α_{DY}	0.02173	0.01998	0.00843*	0.01414**	0.01077	0.0101	0.10744***	-0.0017
βp	0.55089***	0.89868***	0.84505***	0.70733***	0.67528***	0.68819***	0.63997***	0.9072***
β_{SMB}	0.28123*	0.22718*	-0.02206	-0.05174	-0.10518	-0.20183**	-0.58787***	-0.14429
β_{HML}	0.63536***	0.25776**	-0.00799	-0.06105	-0.06464	0.02492	0.10362	-0.02439
β_{MOM}	-0.19818*	-0.18849**	-0.06257	-0.06611	-0.05521	-0.07087	-0.31888*	8e-04
$\beta_{MKT*STR}$	0.01731	0.08309	0.09851*	0.06003	0.09843	-0.01954	-2.07132*	0.17464**
β_{MKT*DY}	-0.05377	0.23103	-0.00843	0.14385	0.10146	0.1612	0.47441	-0.24059**
$\beta_{SMB*STR}$	0.60435	0.0653	-0.1779	0.17288	-0.01357	-0.29061	10.35265*	-0.31354
β_{SMB*DY}	0.69779	0.32069	0.1157	0.07726	0.36166	0.21783	2.51669	1.03257***
$\beta_{HML*STR}$	0.69066*	-0.31743	-0.11045	-0.33736*	-0.38836**	-0.46671**	4.86836*	-0.32827*
β_{HML*DY}	0.32776	0.85534	-0.06195	0.13542	-0.37502*	-0.19155	2.55232	0.16492
$\beta_{MOM*STR}$	0.44797**	-0.17728	-0.03043	0.12209	-0.16437	-0.17747	-1.07666	-0.15053
β_{MOM*DY}	0.79921**	-0.148	0.14891	0.41787**	0.15045	0.30705**	0.17477	0.07784
Adj. R^2	58.69	85.38	89.30	82.60	78.99	72.87	65.97	67.93

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Carhart (1997) four-factor model renewable energy single fund performance – style index (continued)

Lipper RIC	*LP65059317*	*LP65064615*	*LP65070185*	*LP65076069*	*LP65076086*	*LP65077966*	*LP65080353*	*LP65086478*
Number	9	10	11	12	13	14	15	16
α_p	2e-04	0.00568*	0.00116	0.00098	0.00276	-0.00014	0.00525**	0.0028
α_{STR}	-0.00685	-0.00682	0.00515	-0.01071	-0.01667	0.00565	-0.00744	-0.01742*
α_{DY}	0.0087	0.01185	-0.00405	0.01637*	0.00793	0.00015	0.0034	0.02315***
βp	0.64661***	0.67639***	0.62587***	0.72674***	0.68723***	0.69109***	0.59979***	0.70201***
β_{SMB}	-0.13014*	-0.07611	0.09538	-0.04719	0.09828	0.11285	0.00073	-0.19961**
β_{HML}	-0.05884	-0.1609*	0.06368	-0.01563	-0.09074	-0.0807	-0.03322	-0.00142
β_{MOM}	-0.08236	0.12184*	-0.0968**	-0.06994	-0.00676	0.02209	-0.06014	-0.0539
$\beta_{MKT*STR}$	0.06257	0.18487***	0.11309*	0.10523	0.15263**	0.47554***	0.0708	0.04056
β_{MKT*DY}	0.07374	0.27245*	0.191**	0.16767	0.12533	0.17563*	0.20801***	0.23364*
$\beta_{SMB*STR}$	0.06373	0.06877	-0.04355	0.04454	0.29891	-0.17818	0.13426	0.252
β_{SMB*DY}	0.32951	0.88451***	0.27896	0.06482	0.28761	0.04188	0.23356	-0.09587
$\beta_{HML*STR}$	-0.2559	-0.57192**	-0.28039	-0.17105	-0.22746	-0.41172	-0.34961*	-0.77435***
β_{HML*DY}	-0.34164	-0.26742	-0.37572*	0.28128	0.06075	-0.07467	-0.45227*	-0.01263
$\beta_{MOM*STR}$	-0.20084	0.00678	-0.23911**	0.13138	0.19828	0.45278	-0.19383	-0.29726**
β_{MOM*DY}	0.10293	0.34492	0.03782	0.43605*	0.38286	0.11286	-0.00823	0.22141
Adj. R^2	78.67	66.76	82.60	83.50	79.34	82.60	80.02	82.07

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Carhart (1997) four-factor model renewable energy single fund performance – style index (continued)

Lipper RIC	*LP65087149*	*LP65106669*	*LP65107476*	*LP65114568*	*LP65118709*	*LP65124361*	*LP65132297*	*LP65134555*
Number	17	18	19	20	21	22	23	24
α_p	0.00564**	-0.00365	-0.00179	0.00156	3e-04	0.00413**	-3e-04	-0.0067
α_{STR}	-0.01962*	-0.00354	-0.02071***	-0.02912**	-0.00506	-0.0222**	-0.01443	-0.00502
α_{DY}	0.01288*	-0.0065	0.00112	-0.00225	-0.00373	3e-05	0.00086	-0.05286***
βp	0.91494***	1.0553***	0.90151***	0.79765***	0.82704***	0.70711***	0.9266***	1.53789***
β_{SMB}	0.10043	0.0044	-0.03365	-0.1545*	-0.13352	0.11151	-0.42774***	-0.29394
β_{HML}	0.18175	0.09156	-0.0996	-0.13113	0.04675	-0.19603***	-0.2809***	-0.10547
β_{MOM}	-0.26087***	0.02081	0.03976	-0.09895	-0.11501*	-0.08835*	-0.18997***	0.23416
$\beta_{MKT*STR}$	0.21588***	0.35523***	-0.05809	0.12654	0.24136***	0.00506	0.23145	0.47188**
β_{MKT*DY}	0.27991***	0.36311**	0.03326	0.2778***	0.22506**	0.07907	0.35312**	0.6399*
$\beta_{SMB*STR}$	0.35769	-0.72246	0.15305	0.46073**	0.40994	0.05744	0.07314	-0.31873
β_{SMB*DY}	0.17024	1.01935	-0.12792	-0.15649	-0.29777	0.00539	-0.18013	-0.56227
$\beta_{HML*STR}$	-0.17737	0.00272	-0.08714	-0.54879**	-0.04002	-0.41248***	-0.50962**	0.33481
β_{HML*DY}	-0.33922	-0.7017	-0.05286	-0.42397*	-0.23593	-0.08548	-0.35914	0.1152
$\beta_{MOM*STR}$	-0.1927	-0.55172**	-0.3435	-0.31358	-0.01135	-0.06266	-0.5056**	-0.42747
β_{MOM*DY}	0.29354*	0.10713	0.10371	-0.00212	0.084	0.20067	0.14042	-0.53028**
Adj. R^2	84.28	83.94	93.19	86.20	85.47	86.24	79.03	72.27

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Carhart (1997) four-factor model renewable energy single fund performance – style index (continued)

Lipper RIC	*LP65138181*	*LP65149328*	*LP68032885*	*LP68034366*	*LP68036387*	*LP68040134*	*LP68060740*	*LP68063580*
Number	25	26	27	28	29	30	31	32
α_p	0.00744***	2e-04	0.00531***	-0.00112	0.00017	0.00117	-0.00897***	0.00078
α_{STR}	-0.01959*	-0.04144	-0.00931	0.00477	-0.00095	-0.00066	0.11057	-0.00273
α_{DY}	0.01091	-0.06907	0.03268***	0.0165	0.02298	-0.01143*	0.00345	-0.00037
βp	0.61393***	1.33199***	0.57047***	0.63975***	0.52919***	0.66354***	0.90319***	0.48741***
β_{SMB}	0.06198	-0.05665	0.2615***	0.33512*	0.03701	0.10114	0.19539	-0.29057
β_{HML}	0.04479	-0.08133	0.01878	0.21858**	0.01521	-0.11343	0.01103	0.04856
β_{MOM}	-0.02618	0.24434	-0.05175	-0.04958	0.10971	0.00918	0.30079*	-0.03244
$\beta_{MKT*STR}$	0.19483***	0.83337***	0.15624**	0.13636	0.10487	0.16906**	4.05417	-0.83352
β_{MKT*DY}	0.19038	0.88987*	0.5148***	-0.08913	0.22876	0.19628*	0.29841	1.01466**
$\beta_{SMB*STR}$	0.20736	-1.53038**	-0.53794*	-0.15203	-0.30862	0.1519	-16.34578*	1.69931
β_{SMB*DY}	0.38429	2.12416	-0.04226	2.12653**	0.49321	0.08877	0.69284	-0.76349
$\beta_{HML*STR}$	-0.412**	-1.21386	-0.60526***	-0.01532	-0.57979**	-0.21448	-2.59014	-3.82488
β_{HML*DY}	0.07466	-2.68144*	1.02804**	0.44304	0.55602	-0.24652	0.74315	1.91827
$\beta_{MOM*STR}$	-0.08939	-1.18125**	-0.53752***	-0.07851	-0.26213	0.05768	-11.83395***	-2.66213
β_{MOM*DY}	0.24267	-0.35732	0.17317	-0.92105*	-0.09158	-0.02563	-1.31525	-1.12386
Adj. R^2	77.43	65.56	80.85	66.21	66.66	83.97	84.55	74.72

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Carhart (1997) four-factor model renewable energy single fund performance – style index (continued)

Lipper RIC	*LP68082458*	*LP68115151*	*LP68121010*	*LP68138542*	*LP68191873*	*LP68352892*	*LP68356311*	*LP68398137*
Number	33	34	35	36	37	38	39	40
α_p	-0.01115***	-0.00045	0.00203	-0.00024	0.00145	-5e-04	-0.00403	-0.01442
α_{STR}	0.03632***	0.01189	-0.01004	0.00166	-0.0015	-0.00809	0.01013	0.0184
α_{DY}	-0.00624	0.17139***	0.01808***	0.03814	0.00261	-0.00615	-0.00957	-0.07606
βp	0.51937***	0.57121***	0.89621***	0.52807***	0.58542***	0.84324***	0.60346***	0.62197***
β_{SMB}	-0.27071**	-0.53075	-0.08632	-0.01312	0.1767**	0.29064	0.29233*	0.3153
β_{HML}	0.02418	-1.02142**	-0.03848	-0.00772	0.00816	0.20713*	-0.03645	-0.1205
β_{MOM}	-0.04316	-0.42769**	-0.11166*	-0.00123	-0.01637	0.20689**	0.07545	-0.03319
$\beta_{MKT*STR}$	-0.11659	-8.68825	0.24328***	0.00544	0.16106**	0.2195**	0.0381	-0.00905
β_{MKT*DY}	0.38303	1.29769*	0.28291**	0.30684	0.84803**	0.43854	0.47923	0.46628
$\beta_{SMB*STR}$	-1.33118***	-6.0856	-0.15626	0.15114	-0.19652	-0.48777*	-0.65358**	-0.32265
β_{SMB*DY}	-0.2801	-1.11601	-0.03784	0.27267	0.2837	1.05851	1.66576	2.32755
$\beta_{HML*STR}$	0.72767**	15.48495	-0.38781***	-0.23113	-0.3775	-0.28772	-0.40568	-0.26687
β_{HML*DY}	-1.14841	-1.07793	-0.27389	-0.49329	-0.20104	-0.61445	0.09909	-1.00859
$\beta_{MOM*STR}$	-0.53815**	-17.14999	-0.32957*	-0.15875	-0.61846***	-0.36902*	-0.59324***	-0.40154
β_{MOM*DY}	0.41474	0.51925	0.1939	-0.14524	0.50205	0.20916	0.65243	0.27037
Adj. R^2	51.78	71.70	87.15	49.42	74.63	80.74	75.49	79.60

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Carhart (1997) four-factor model renewable energy single fund performance – style index (continued)

Lipper RIC	*LP68411514*	*LP68415654*	*LP68461739*
Number	41	42	43
α_p	-0.0102***	-0.00868**	-0.01084
α_{STR}	0.0114	0.0122	-0.00782
α_{DY}	-0.09617**	-0.01775	0.01498
βp	0.42496***	0.42217***	0.6852***
β_{SMB}	0.19766	0.00255	0.32917
β_{HML}	-0.1379	-0.20756*	0.00644
β_{MOM}	0.07358	-0.01615	-0.00858
$\beta_{MKT*STR}$	-0.31305***	-0.02651	0.11347
β_{MKT*DY}	-0.44172	0.26052	-0.11212
$\beta_{SMB*STR}$	-1.07156***	-0.49593*	-0.53531*
β_{SMB*DY}	-0.39866	1.1474	2.22455
$\beta_{HML*STR}$	-0.53574***	-0.29076	-0.57014
β_{HML*DY}	-0.89996*	-0.24877	-0.0067
$\beta_{MOM*STR}$	-0.83472***	-0.37209**	-0.37771
β_{MOM*DY}	-0.32366	0.29874	0.12581
Adj. R^2	90.72	69.13	84.54

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

D. Conditional Carhart (1997) four-factor model black energy single fund performance – style index

Lipper RIC	*LP40186670*	*LP40187223*	*LP40210457*	*LP40210693*	*LP40211656*	*LP40213027*	*LP40221966*	*LP60017507*
Number	1	2	3	4	5	6	7	8
α_p	0.0015	0.00229	0.00924	-0.00624*	0.00421	-0.00796	0.00026	-0.00026
α_{STR}	-0.02158**	-0.02368**	-0.02827	-0.00847	-0.04849	-0.00403	-0.00805	-0.01482***
α_{DY}	-0.01249	-0.00991	-0.05581	-0.02229	-0.1966**	-0.05626	0.02976	-0.00275
βp	0.6237***	0.64584***	0.99921***	0.81212***	0.74262***	0.85808**	0.90816***	0.8227***
β_{SMB}	0.07103	0.0982	0.28407	0.13038	-0.01871	0.30085	0.21469	0.00201
β_{HML}	0.02463	0.03444	-0.11069	-0.20334	-0.99122***	-0.29134	-0.09752	-0.17207***
β_{MOM}	0.00873	0.00185	-0.17913	0.07186	-0.46362***	-0.60978**	0.17297	-0.07093
$\beta_{MKT*STR}$	-0.29631*	-0.31485**	-0.27556	-0.62849***	0.06776	-0.2433	-0.38742*	0.08766*
β_{MKT*DY}	0.53123	0.4172	1.133*	0.05845	0.32068	0.05427	1.69508***	0.1396**
$\beta_{SMB*STR}$	-0.12349	-0.20219	0.19973	-0.20193	-2.588	-0.29774	-0.31867	-0.18048
β_{SMB*DY}	0.23683	0.23509	2.44257	2.99491*	1.35193	0.9413	-0.38762	0.22969
$\beta_{HML*STR}$	-0.38676	-0.42371	-0.93236	-1.13042***	2.43753	-0.33218	-0.50953	-0.45083***
β_{HML*DY}	1.16906	1.39185	-1.41407	-1.78336	-7.61903***	-0.49002	-0.6279	-0.23678*
$\beta_{MOM*STR}$	-0.16935	-0.23749	-0.56427	-0.44101	-1.39062	0.92777	-0.66024***	-0.24519**
β_{MOM*DY}	-1.79392**	-1.79483**	-1.93879	-2.59058	-2.16606	-2.04998	0.29087	-0.15101*
Adj. R^2	70.96	73.78	76.60	84.26	63.70	57.00	88.78	92.48

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$ β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Carhart (1997) four-factor model black energy single fund performance – style index (continued)

Lipper RIC	*LP60023233*	*LP60033339*	*LP60033655*	*LP60036138*	*LP60041740*	*LP60041945*	*LP60051702*	*LP60055236*
Number	9	10	11	12	13	14	15	16
α_p	-0.00168	-0.00277**	-0.0066***	-0.00266	-0.00692***	-0.00148***	-0.00851***	0.00242
α_{STR}	-0.00332	-0.00456	-0.02415	-0.00429	0.00715	0.00014	0.00594	-0.03577***
α_{DY}	0.00878*	-0.00365	-0.01193	-0.00435	-0.00993**	-0.00219*	-0.03353***	0.00641
βp	0.95539***	0.9914***	1.18625***	1.08847***	1.08694***	0.9882***	1.12475***	0.69078***
β_{SMB}	0.01286	-0.05498	-0.13328	0.0981**	0.04289	0.0045	-0.0387	-0.04195
β_{HML}	-0.05023	-0.11897*	-0.2964*	-0.06456	-0.20317	0.0116	-0.22894***	-0.33608***
β_{MOM}	-0.14217***	-0.07346*	-0.19605**	-0.03539	-0.18918*	-0.00604	-0.1377	-0.12647
$\beta_{MKT*STR}$	0.09617	0.02405	1.60108**	0.29131*	0.21577	0.46557***	-0.14289	0.19284*
β_{MKT*DY}	-0.13542	-0.00935	0.38907**	0.05539	0.0576	0.17619***	0.17567	0.02058
$\beta_{SMB*STR}$	-0.31185*	-0.02158	1.73752*	0.05773	0.50374	0.47407***	-0.16301	-0.58646**
β_{SMB*DY}	-0.04812	-0.04553	-0.40592*	-0.02111	-0.47645**	-0.23129***	-0.28334	0.54371*
$\beta_{HML*STR}$	-0.47266***	-0.16536*	-0.31018	0.08216	-0.2388	0.21004**	0.48941*	-0.6202**
β_{HML*DY}	-0.1724	-0.13867	0.32826	0.14769	-0.40078**	0.40359*	-0.42355	0.30829
$\beta_{MOM*STR}$	-0.03316	-0.09839	0.52471	0.24035	-0.09413	0.46656***	0.3552	-0.59902**
β_{MOM*DY}	0.11296	-0.14734***	0.25872	0.1825	-0.31766***	0.32568**	-0.13231	-0.06941
Adj. R^2	90.36	95.72	86.14	97.57	90.28	99.42	83.39	70.28

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$ β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Carhart (1997) four-factor model black energy single fund performance – style index (continued)

Lipper RIC	*LP60066371*	*LP60067867*	*LP60081158*	*LP60096787*	*LP60098478*	*LP65011647*	*LP65037244*	*LP65054553*
Number	17	18	19	20	21	22	23	24
α_p	-0.00255***	-0.00568**	-0.01304***	-0.00935	-0.00461**	-0.00299	-0.00026	-0.00057
α_{STR}	-0.00476*	-0.00813	0.04382**	-0.01536	-0.00685	-0.0328	-0.02543***	-0.0226**
α_{DY}	-0.00382*	-0.01828**	-0.01258	-0.01321	-0.01468*	-0.0024	0.00041	-0.00039
βp	0.98853***	1.14606***	1.27565***	1.2053***	1.05649***	1.03146***	0.94908***	1.0021***
β_{SMB}	-0.02171	-0.20193	-0.01274	-0.39228**	-0.18922*	0.1985	-0.02899	-0.18071**
β_{HML}	-0.05016	-0.28051***	-0.47027**	-0.33083**	-0.21329***	0.00307	-0.28726***	-0.23093***
β_{MOM}	-0.01764	-0.095	-0.23678*	-0.41964**	-0.15413**	-0.06734	-0.03796	-0.04447
$\beta_{MKT*STR}$	0.10052***	0.10609	-0.43912	-0.59065***	0.26758***	0.50265***	0.24951	0.17438
β_{MKT*DY}	0.10257**	0.32502*	-0.05734	0.31708	0.35213**	-0.11138	0.1291	0.08029
$\beta_{SMB*STR}$	0.16179**	-0.31138	-2.69926***	-0.07742	0.09993	-0.2956	0.07858	-0.85882***
β_{SMB*DY}	-0.05591	-0.41599	-0.10962	-0.54829	-0.21198	-0.50416	0.12274	0.25275
$\beta_{HML*STR}$	0.04582	-0.15857	-1.04358**	0.05834	0.15108	-0.06866	-0.38758*	-0.98363***
β_{HML*DY}	0.0117	-0.78806***	-1.38107***	-0.88653	-0.46508**	1.03225***	0.02484	0.09765
$\beta_{MOM*STR}$	0.06644	-0.16876	-0.54433	-0.85101	0.06055	0.00812	0.02052	-0.34025*
β_{MOM*DY}	-0.01616	-0.3241*	-0.48295**	-0.92565	-0.24706*	-0.06385	-0.10873	-0.06642
Adj. R^2	98.27	87.25	87.20	66.99	87.53	78.11	84.65	83.92

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$ β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Carhart (1997) four-factor model black energy single fund performance – style index (continued)

Lipper RIC	*LP65095384*	*LP65101258*	*LP65104187*	*LP65107744*	*LP65114606*	*LP65118711*	*LP65165343*	*LP68014086*
Number	25	26	27	28	29	30	31	32
α_p	-0.01073**	-0.00956***	-0.00867	-0.01032***	-0.00488	-0.00206	-0.00235	0.00318
α_{STR}	-0.02661*	-0.02594	-0.08064***	-0.0099	-0.06526***	-0.00765	0.00346	-0.00918
α_{DY}	-0.01284	-0.03217**	-0.02448*	-0.01828*	-0.0183	-0.01912*	0.00098	0.0061
βp	1.13334***	0.83134***	1.28347***	1.25044***	1.03871***	0.87389***	0.70133***	1.00128***
β_{SMB}	0.99132***	-0.39858***	-0.13161	-0.0079	0.46611	0.08877	0.30855*	-0.07329
β_{HML}	-0.5889***	-0.30659	0.03388	-0.25271***	-0.30582	-0.20747*	-0.31171**	-0.37839
β_{MOM}	-0.0564	-0.06978	-0.2319	-0.25012**	-0.27684***	-0.11629	0.10699	-0.1792
$\beta_{MKT*STR}$	-0.14781	0.04256	0.89999**	-0.11127	-1.51539***	-0.31003*	-0.7438*	0.47416
β_{MKT*DY}	-0.0585	-0.07388	0.78332***	0.17761	-0.46847**	0.63512**	-0.09381	-0.17409
$\beta_{SMB*STR}$	0.93929	-0.54643	2.03287**	-0.10608	-0.7388	0.30634*	-1.69916**	0.43143
β_{SMB*DY}	0.52884	0.38352	-1.17709***	0.31805	1.14368***	0.12689	0.11552	-0.02848
$\beta_{HML*STR}$	-0.68517**	-0.58421	0.47386	-0.33877*	-0.95965**	0.11002	-0.52474*	-0.42673
β_{HML*DY}	-1.08249***	-0.75106*	0.62844	-0.83429***	-1.42567***	-1.00948**	-0.22497	0.00727
$\beta_{MOM*STR}$	-0.04713	-0.49849	0.01283	-0.26957	-1.9748***	-0.39898	-0.08858	0.39073
β_{MOM*DY}	-0.23157	-0.57696***	-0.0319	-0.42444**	-1.0945***	-0.38332*	-0.22931	0.00326
Adj. R^2	82.34	59.79	82.54	89.03	82.21	78.14	58.98	53.44

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$ β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Carhart (1997) four-factor model black energy single fund performance – style index (continued)

Lipper RIC	*LP68016919*	*LP68035092*	*LP68042639*	*LP68056995*	*LP68057587*	*LP68068172*	*LP68089605*	*LP68106200*
Number	33	34	35	36	37	38	39	40
α_p	-0.0034**	-0.00796**	-0.00548**	0.00627	-0.00537***	-0.00767*	-0.00536*	0.00275
α_{STR}	-0.0132***	0.1103	-0.02012	-0.0402	0.0065*	0.00022	-0.00738	-0.02817***
α_{DY}	0.00415	-0.05187***	0.01133	-0.12592*	-0.01215	0.00271	-0.0239	-0.03183
βp	0.98999***	1.28214***	1.0219***	1.03717***	1.03847***	0.95458***	1.1755***	0.53809***
β_{SMB}	-0.09313	0.00234	-0.13384	0.36022	0.0992	0.19319	-0.27267	0.03404
β_{HML}	-0.22256***	-0.38435*	0.13831	-0.73909**	-0.0679	-0.27922*	-0.15147*	-0.44129***
β_{MOM}	-0.05162	-0.43703***	-0.26874**	-0.37861	0.04399	-0.3325***	-0.06048	-0.06431
$\beta_{MKT*STR}$	-0.05284	1.94397	0.07452	0.03722	-0.23346***	-0.14567	-0.07462	-0.03076
β_{MKT*DY}	-0.0304	0.6534*	-0.21789	0.08919	0.03524	-0.25744	-0.35474	-0.13911
$\beta_{SMB*STR}$	-0.00256	-6.18262	1.0147	-2.17427**	-0.2421	0.32043	0.45278**	-0.49816*
β_{SMB*DY}	-0.11812	1.25457**	-2.08798	1.64516	0.56045	-0.24176	0.17823	1.32542***
$\beta_{HML*STR}$	-0.54173***	5.04165	-5.32305	-0.48622	0.29786	-0.35178	-0.11012	-0.64434***
β_{HML*DY}	-0.3362***	1.1403	5.35693***	0.29426	-0.00688	-0.46955	-0.83483	0.84901
$\beta_{MOM*STR}$	0.0782	-4.08092	2.45415	-1.88389	-0.2155	-0.51387	0.29791	-0.68953***
β_{MOM*DY}	-0.11864*	-1.30849**	-2.33652**	0.20406	-0.22212	-0.30824	-1.62576***	-1.02978**
Adj. R^2	95.44	91.90	80.66	48.23	96.70	65.75	87.40	61.16

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$ β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Carhart (1997) four-factor model black energy single fund performance – style index (continued)

Lipper RIC	*LP68112671*	*LP68112696*	*LP68112697*	*LP68112711*	*LP68174624*	*LP68175789*	*LP68208421*	*LP68329972*
Number	41	42	43	44	45	46	47	48
α_p	-0.00807***	0.00349*	0.00476**	0.0039*	-0.01239*	-0.00175	0.00307	0.00173
α_{STR}	-0.11483	-0.02383***	-0.02386***	-0.02627***	0.08208	-0.0102*	-0.02397	-0.02054***
α_{DY}	-0.01503	-0.04109**	-0.04133**	-0.03149	0.00609	-0.02045	-0.02112	-0.01685
βp	1.2761***	0.5312***	0.53201***	0.53919***	1.24055***	0.97219***	0.49714***	0.31813***
β_{SMB}	-0.67543***	0.15403	0.15486	0.10255	-0.4091	-0.24888**	0.18654	-0.01676
β_{HML}	-0.04251	-0.5141***	-0.51538***	-0.50214***	-0.15143	-0.18876***	-0.75728***	-0.19798**
β_{MOM}	-0.63091***	0.01516	0.01475	-0.00799	0.74776***	-0.02739	-0.13121	0.00276
$\beta_{MKT*STR}$	-11.38614***	-0.08684	-0.08652	-0.0447	-11.03197***	-0.19516*	-0.10931	-0.17429*
β_{MKT*DY}	0.33733	-0.15595	-0.15918	-0.27535	2.24777*	0.15835	-0.67251	-0.41894
$\beta_{SMB*STR}$	-9.50978	-0.5405**	-0.54338**	-0.5207**	4.08387	0.47851**	-0.54369	-0.5407**
β_{SMB*DY}	-9.60976***	1.78607***	1.79884***	1.58822***	-5.50867***	0.11757	1.48465	0.01755
$\beta_{HML*STR}$	5.77966	-0.55483***	-0.55745***	-0.55689**	30.74778**	-0.34575*	0.03012	-0.69353***
β_{HML*DY}	5.53368*	0.6662	0.66437	1.03741	-2.45971**	-0.55204	-0.95883	1.98602***
$\beta_{MOM*STR}$	0.47117	-0.7***	-0.70173***	-0.62163***	7.3222	0.05967	0.09145	-0.62152***
β_{MOM*DY}	-3.54568***	-0.63908	-0.64503	-0.8571	8.93859***	-1.03433**	-1.55867	-0.36465
Adj. R^2	89.26	69.38	69.37	64.20	83.48	91.73	52.22	65.24

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$ β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Carhart (1997) four-factor model black energy single fund performance – style index (continued)

Lipper RIC	*LP68379733*	*LP68387162*
Number	49	50
α_p	-0.00749***	0.00302
α_{STR}	-0.01362*	-0.03633
α_{DY}	0.00616	-0.0268
βp	0.90952***	1.49493**
β_{SMB}	0.20582*	0.07043
β_{HML}	-0.37666***	-0.48877**
β_{MOM}	-0.23776***	-0.27054
$\beta_{MKT*STR}$	-1.03618***	-0.92603
β_{MKT*DY}	0.03384	-0.10842
$\beta_{SMB*STR}$	-1.50464***	0.50646
β_{SMB*DY}	0.84776***	0.1852
$\beta_{HML*STR}$	-0.53349**	0.76702
β_{HML*DY}	-0.65941**	-2.65973
$\beta_{MOM*STR}$	-0.73158**	0.74589
β_{MOM*DY}	-0.16332	-1.68091
Adj. R^2	88.59	93.12

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$ β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

E. Conditional Fama and French (2015) five-factor model renewable energy single fund performance – S&P Global 1200

Lipper RIC	*LP60040112*	*LP60046885*	*LP60051799*	*LP60058385*	*LP60064451*	*LP65017554*	*LP65027053*	*LP65058312*
Number	1	2	3	4	5	6	7	8
α_p	-0.01081***	-0.00443	-0.00503	-0.01152***	-0.00368	-0.00805**	-0.01838***	-0.00152
α_{STR}	0.02757*	-0.00989	-0.01855	0.00862	-0.02265**	0.00518	0.02133	-0.04198***
α_{DY}	0.02012	-0.05248***	0.01149	0.00824	0.00904	0.0032	0.0316*	0.00649
βp	1.2208***	1.43129***	1.21056***	1.1569***	1.04835***	1.08769***	1.30141***	1.19272***
β_{SMB}	0.36227***	0.40554**	0.23089*	0.19931***	0.11314	0.01623	-0.21481	0.09432
β_{HML}	0.37526**	0.33703**	0.0532	-0.00695	0.01524	0.13328	0.96147*	0.12583
β_{RMW}	-0.11768	-0.28558	-0.51947***	-0.15319	-0.10173	-0.29087*	0.16594	-0.75311**
β_{CMA}	0.34694	-0.31699	-0.34706	-0.55619***	-0.28817	-0.50047***	-1.31836***	-0.54352
$\beta_{MKT*STR}$	-0.20816	-0.16038	-0.04966	-0.38152***	0.04357	-0.08585	-0.64259	0.08764
β_{MKT*DY}	-0.12432	0.82823**	-0.24632	0.16605	0.05371	-0.25102*	0.42519	-0.61426***
$\beta_{SMB*STR}$	-0.08895	0.22507	-0.55128	-0.52629***	-0.07482	-0.67522***	6.97105	-0.44834
β_{SMB*DY}	-0.14447	-1.38618	-0.50339*	-0.16637	-0.24488	0.0719	0.63856	-0.00981
$\beta_{HML*STR}$	0.26059	0.39354	0.52187	0.08409	-0.03208	-0.04621	-5.1542	0.23894
β_{HML*DY}	-1.31799***	-0.40138	0.46861	-0.93534**	-0.37636	-0.16973	-1.63916	0.81513
$\beta_{RMW*STR}$	0.17636	-0.49747	0.09208	-0.31773	0.08544	0.3585	-3.45734	0.00657
β_{RMW*DY}	-1.63991***	0.4606	0.31693	-0.3867	0.62897	-0.00134	-1.05104	0.91787
$\beta_{CMA*STR}$	0.59065	-0.5971	-0.64988	1.02089	-0.19113	1.29814**	15.88233***	-0.44179
β_{CMA*DY}	2.21573**	2.27298**	0.90059	1.73428***	1.98892**	0.76111	5.1212**	1.85977
Adj. R^2	76.73	78.94	79.15	87.00	75.62	74.45	77.94	54.10

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2015) five-factor model renewable energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP65059317*	*LP65064615*	*LP65070185*	*LP65076069*	*LP65076086*	*LP65077966*	*LP65080353*	*LP65086478*
Number	9	10	11	12	13	14	15	16
α_p	-0.00417*	-0.00321	-0.00506***	-0.01252***	-0.00319*	-0.01288***	-6e-05	-0.00407
α_{STR}	-0.01811*	-0.00294	0.00062	0.02436**	-0.01764***	0.00943	-0.01355	-0.01847
α_{DY}	0.01011	-0.0019	-0.00711	0.00464	0.00692	-0.00669	0.00246	0.00716
βp	1.02133***	1.17435***	1.07962***	1.17429***	1.06672***	1.16167***	1.02716***	1.11026***
β_{SMB}	0.08406	-0.00233	0.26504***	0.20541***	0.33515***	0.33154**	0.161**	-0.05624
β_{HML}	0.00258	-0.40609***	-0.00742	0.03229	-0.06452	-0.10818	-0.01517	0.05653
β_{RMW}	-0.17552	-0.28603***	-0.14637	-0.13652	-0.2612**	-0.25134	-0.1297	-0.15735
β_{CMA}	-0.18908	0.02036	-0.00359	-0.66064***	-0.51009***	-0.28772	-0.21579**	-0.29162*
$\beta_{MKT*STR}$	-0.07442	0.12486	0.10912	-0.52766**	-0.32133**	-0.52909**	0.01967	-0.15447
β_{MKT*DY}	-0.01717	-0.06972	0.05368	0.04996	-0.14162	0.17615	0.18928	0.14608
$\beta_{SMB*STR}$	-0.02748	-0.09914	-0.1876	-0.83838***	0.07203	-0.18008	-0.12347	0.45085**
β_{SMB*DY}	-0.18806	0.31662	-0.04727	-0.12055	-0.08634	-0.29235	-0.20269	-0.82536**
$\beta_{HML*STR}$	0.21722	-0.31608	0.28425	0.46483	0.17929	1.09894**	0.25471	-0.35551
β_{HML*DY}	-0.2567	-0.20796	0.07379	-0.74035**	-0.44285	0.38691	-0.20975	0.42907
$\beta_{RMW*STR}$	0.40029	-0.17147	0.14059	-0.18188	1.20352***	-4.03003***	-0.04206	0.04254
β_{RMW*DY}	0.49113	-0.20266	0.35472	-0.29999	-0.20604	0.12003	-0.10838	0.53633
$\beta_{CMA*STR}$	-0.39701	0.46796	-0.13982	1.69413**	-0.38093	-0.3543	-0.64581**	0.18046
β_{CMA*DY}	1.7953**	0.13534	0.38213	1.37921***	1.47308*	-0.61066	0.69721	0.82866
Adj. R^2	76.40	83.39	90.88	87.75	84.54	87.59	91.36	79.67

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2015) five-factor model renewable energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP65087149*	*LP65106669*	*LP65107476*	*LP65114568*	*LP65118709*	*LP65124361*	*LP65132297*	*LP65134555*
Number	17	18	19	20	21	22	23	24
α_p	-0.00074	-0.01044**	-0.01518***	-0.01166***	-0.00602**	-0.00519**	-0.0159***	-0.0081
α_{STR}	-0.02997*	-0.00729	0.09743***	0.01054	-0.00676	-0.00388	0.01934	-0.0252
α_{DY}	0.0078	-0.07734**	-0.01273	-0.01322	-0.01517	0.0013	-0.0197	-0.06822
βp	1.37724***	1.39063***	1.18868***	1.27627***	1.24***	1.1292***	1.30423***	1.5989***
β_{SMB}	0.37454**	-0.01529	0.45837**	0.13873	0.05698	0.40316***	-0.03609	0.02683
β_{HML}	0.41282***	0.23755	0.07295	-0.08667	0.17937*	-0.07491	-0.05738	0.32841
β_{RMW}	-0.3478*	-0.94332***	-0.67879**	-0.24211*	-0.59062***	-0.17597	-0.27266	-1.48184***
β_{CMA}	-0.62074***	-0.5113*	-0.70293	-0.40564*	-0.47771***	-0.56286**	-0.89132***	-1.44917***
$\beta_{MKT*STR}$	0.07456	-0.09542	-0.72057**	-0.08354	-0.11842	-0.25041*	-0.18912	0.23599
β_{MKT*DY}	0.20575	0.95126*	-0.69256***	0.03412	0.0549	-0.13002	0.17371	0.89365
$\beta_{SMB*STR}$	0.10594	0.00118	-1.69793***	-1.34286***	0.31982	-0.49217**	-0.54284	-0.47179
β_{SMB*DY}	-0.28911	-0.55666	-0.23384	-0.17171	-0.71697***	-0.11568	-0.23009	-1.87953**
$\beta_{HML*STR}$	0.30001	0.69925	1.43822***	0.47042	0.04973	0.15602	0.25322	0.7443
β_{HML*DY}	-0.39418	-1.54955	0.17281	-0.45472	0.64658	-0.32428	-0.61762	1.75594
$\beta_{RMW*STR}$	-0.10282	-0.34272	-1.14614	1.62357	0.34154	0.46563	-0.45983	-2.28737**
β_{RMW*DY}	0.38805	0.55162	0.07375	0.37959	0.83287*	0.16742	0.27733	0.14386
$\beta_{CMA*STR}$	-0.23209	-0.44415	5.4828***	1.84636*	0.24367	0.84364	2.42516**	-0.43366
β_{CMA*DY}	1.41452	2.3034*	0.39987	1.50068	0.87322	1.23236	0.97209	1.72703
Adj. R^2	78.51	67.24	80.01	83.45	82.24	87.15	65.50	48.21

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2015) five-factor model renewable energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP65138181*	*LP65149328*	*LP68032885*	*LP68034366*	*LP68036387*	*LP68040134*	*LP68060740*	*LP68063580*
Number	25	26	27	28	29	30	31	32
α_p	-3e-05	-0.01038	-0.00133	-0.00783**	-0.00503**	-0.00288	-0.0222***	-0.00709***
α_{STR}	-0.01581**	-0.0319	-0.00997	-9e-04	-0.00472	-0.00529	0.12905	0.12675***
α_{DY}	0.00402	-0.18508***	0.00153	-0.02152	0.00037	-0.00828	-0.08435**	-0.0389**
βp	1.06083***	1.64795***	0.97864***	1.21853***	0.94375***	0.99186***	1.47492***	0.88849***
β_{SMB}	0.21188***	-0.24418	0.29427***	0.21201	0.04226	0.37638***	0.96225**	-0.16005
β_{HML}	-0.01501	-0.06821	0.01186	0.03917	-0.11121	-0.08497	0.50729	0.27415
β_{RMW}	-0.11456	-1.4973***	-0.06131	-0.45567**	-0.12836	-0.15453	0.14964	-0.47553**
β_{CMA}	-0.25583***	-0.10344	-0.18291	0.16307	-0.06451	-0.42257***	-1.18541	-0.41572
$\beta_{MKT*STR}$	0.05616	-0.03659	0.07334	-0.06296	0.10743	-0.00906	-3.89611	0.16229
β_{MKT*DY}	-0.11238	2.78154**	0.50057**	0.63806	-0.04102	-0.01406	0.07988	0.28099
$\beta_{SMB*STR}$	0.13635	0.44804	0.06655	0.27219	0.05575	-0.12854	-13.71831	7.02523***
β_{SMB*DY}	-0.07168	0.76968	-0.19877	-0.5766	-0.23277	-0.1501	1.60423	-2.57252**
$\beta_{HML*STR}$	-0.10371	-0.05507	-0.01363	-0.01115	-0.18122	0.24091	-3.75267	-7.93978
β_{HML*DY}	0.06388	-5.32685	0.96628*	-0.02974	1.49815**	0.12349	-0.42218	3.73807***
$\beta_{RMW*STR}$	0.26771	1.91072	0.43996	0.0016	-0.08943	0.05267	-15.66596	5.69498**
β_{RMW*DY}	-0.16061	0.84113	0.75074	-1.26244	0.62285	0.25084	6.52679	-2.33239
$\beta_{CMA*STR}$	0.3134	-0.49338	0.12309	0.69548	0.04402	-0.32442	-10.9005	5.51893
β_{CMA*DY}	0.41911	5.38518	0.56604	1.51025	-1.06333	0.59163	-0.01083	-2.75472***
Adj. R^2	91.47	49.40	84.93	78.21	81.11	83.03	69.04	82.76

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2015) five-factor model renewable energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP68082458*	*LP68115151*	*LP68121010*	*LP68138542*	*LP68191873*	*LP68352892*	*LP68356311*	*LP68398137*
Number	33	34	35	36	37	38	39	40
α_p	-0.01349**	-0.02935***	-0.00439	-0.00248	-0.00025	0.00495	-0.00199	-0.00639***
α_{STR}	0.02385	0.39025**	-0.01775	-0.00388	-0.00956*	-0.03214***	-0.00864	-0.00949**
α_{DY}	-0.05046	0.0389*	0.00962	0.00962	-0.00043	0.02157	-0.00275	-0.01625
βp	0.81459***	1.75789***	1.30103***	0.95689***	1.04357***	1.09548***	1.03409***	1.10122***
β_{SMB}	-0.16234	0.1426	0.15209	0.09443	0.20669*	0.10057	0.104	-0.04104
β_{HML}	0.02725	0.03862	0.07909	-0.03741	0.0172	0.34969***	-0.09163	0.04356
β_{RMW}	-0.05142	1.39193**	-0.38365***	-0.14507	0.08377	0.15858	0.2063	-0.11852
β_{CMA}	0.00571	-2.19114***	-0.43017	-0.11192	-0.06525	-0.84335***	0.01978	-0.42125***
$\beta_{MKT*STR}$	-0.49605***	-12.35914**	0.14934	-0.2804	0.31416*	0.07426	-0.01978	-0.16668**
β_{MKT*DY}	-0.05768	2.6605***	0.1562	0.32481	0.49976	0.3219	0.45893	0.70758**
$\beta_{SMB*STR}$	-0.65713	19.32727**	-0.20258	0.42432	0.47764	0.43082	0.21953	0.72772***
β_{SMB*DY}	0.20003	-0.21859	-0.60133	0.0212	-0.24486	-2.05544	-0.77734	-1.41751***
$\beta_{HML*STR}$	1.25441***	40.45555***	0.11417	0.29511	0.10987	0.04461	-0.0692	-0.56432***
β_{HML*DY}	-1.34956	1.09091	-0.09317	-1.02111*	-0.65291*	0.71867	0.27571	0.1519
$\beta_{RMW*STR}$	1.28062***	18.08535*	-0.17552	0.89837**	0.20492	0.01916	0.38578	0.57851***
β_{RMW*DY}	-0.09658	11.24798***	0.35517	-0.39437	0.94606	-0.09477	-0.69397	-1.5921**
$\beta_{CMA*STR}$	0.07653	-5.16884	0.0449	-0.66472***	0.11755	-0.45436	0.12343	1.13373***
β_{CMA*DY}	-1.12046	-2.29431	1.33017	0.12337	0.88591	-2.0236**	0.37362	-1.30081**
Adj. R^2	44.46	75.42	78.42	62.10	89.44	85.18	86.78	96.03

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2015) five-factor model renewable energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP68411514*	*LP68415654*	*LP68461739*
Number	41	42	43
α_p	0.00043	-0.00123	0.00168
α_{STR}	-0.02309	-0.00621	-0.02612***
α_{DY}	-0.09087*	0.00824	0.04808**
βp	0.80792***	0.6746***	1.09621***
β_{SMB}	-0.43881	-0.07449	0.1773**
β_{HML}	0.0985	-0.00574	0.42995***
β_{RMW}	-0.67476	0.05029	-0.25326
β_{CMA}	-0.32704	-0.12572	-0.30189
$\beta_{MKT*STR}$	-0.49181*	-0.0215	0.04219
β_{MKT*DY}	1.32503*	-0.15322	-0.09413
$\beta_{SMB*STR}$	0.00881	0.05279	0.52991***
β_{SMB*DY}	-6.89204***	-0.0953	-1.00819
$\beta_{HML*STR}$	-0.33301	0.00317	-0.02699
β_{HML*DY}	1.57971	0.24883	0.17987
$\beta_{RMW*STR}$	-0.50802	0.0975	0.20048
β_{RMW*DY}	-6.28876**	0.01673	0.29213
$\beta_{CMA*STR}$	0.50915	-0.01663	0.1489
β_{CMA*DY}	-1.2359	-0.54931	1.03787
Adj. R^2	78.99	83.55	94.60

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

F. Conditional Fama and French (2015) five-factor model black energy single fund performance – S&P Global 1200

Lipper RIC	*LP40186670*	*LP40187223*	*LP40210457*	*LP40210693*	*LP40211656*	*LP40213027*	*LP40221966*	*LP60017507*
Number	1	2	3	4	5	6	7	8
α_p	-0.00320	-0.00316	0.00772	-0.01433***	0.00096	-0.02379	-0.01076*	-0.00844***
α_{STR}	-0.00472	-0.00576	-0.01767	0.01516	-0.07993**	0.04246	0.00947	0.01265
α_{DY}	0.01221	0.01597	-0.00465	-0.05612	-0.08640	-0.00414	-0.00673	0.01301*
βp	0.83431***	0.8965***	1.43519***	1.08069***	1.03949***	1.51673***	1.23716***	1.14453***
β_{SMB}	0.28025***	0.27289***	0.38844**	0.28977**	0.09191	-0.02819	0.25000	0.25054***
β_{HML}	0.26488*	0.29863***	0.22561	-0.08927	-0.72649***	0.38551	0.00417	0.20209**
β_{RMW}	0.06087	0.02679	-1.23915*	-0.11464	-0.34967	-1.80563**	-0.81933**	-0.02271
β_{CMA}	0.01659	0.03146	1.10236**	1.10328***	2.492***	1.5213**	0.44961**	0.09453
$\beta_{MKT*STR}$	0.11849	0.06129	-0.26855	-0.12598	0.75867	-0.78029	-0.49865*	-0.02210
β_{MKT*DY}	0.50893	0.34236	2.0092***	1.75884***	1.86769***	1.26564	1.62075	-0.06180
$\beta_{SMB*STR}$	-0.10518	-0.02269	0.38000	-0.39233	-0.69691	0.93332	-0.00045	-0.10574
β_{SMB*DY}	1.65119*	1.69575	3.89018**	5.42209***	5.76911***	1.96275	1.50363	0.01526
$\beta_{HML*STR}$	-1.46947***	-1.5767***	-2.59639***	-2.00182***	4.16577**	-2.12133	-1.90098***	0.09382
β_{HML*DY}	1.79610	1.72829	0.61050	-2.44957	-3.33374**	2.27504	-0.69352	-0.82681***
$\beta_{RMW*STR}$	-1.93443*	-1.66472*	-0.07898	-1.23451	-1.88173	2.14111	-0.43344	0.04907
β_{RMW*DY}	4.6512***	4.98365***	-1.23393	4.93706**	-4.68591**	0.27423	0.20077	-0.83308***
$\beta_{CMA*STR}$	2.30377***	2.58969***	3.45166***	1.69882**	-4.51116***	0.17372	2.61478***	0.45234
β_{CMA*DY}	-2.52418**	-2.45354**	-5.08821**	0.15175	8.87325***	-1.52121	-2.88415**	1.33871**
Adj. R^2	70.20	73.28	74.06	86.72	42.29	48.41	88.10	85.02

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2015) five-factor model black energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP60023233*	*LP60033339*	*LP60033655*	*LP60036138*	*LP60041740*	*LP60041945*	*LP60051702*	*LP60055236*
Number	9	10	11	12	13	14	15	16
α_p	-0.00772***	-0.01048***	-0.01235***	-0.00894**	-0.01047**	-0.0074**	-0.01308***	-0.00564**
α_{STR}	0.00398	0.02073	-0.04540	-0.03728*	-0.05883**	-0.02419	0.00296	-0.00477
α_{DY}	0.00618	0.02319*	-0.01563	-0.00662	0.00549	-0.00443	-0.01685	0.01261***
βp	1.19612***	1.22968***	1.42313***	1.2178***	1.27482***	1.14045***	1.37199***	1.0247***
β_{SMB}	0.01068	0.35773**	-0.14209	0.17396	-0.03793	0.11737	-0.00524	0.04182
β_{HML}	0.48641***	0.36494**	0.70783**	0.83231**	0.74738**	0.79576***	0.45702**	0.20238***
β_{RMW}	-0.07383	-0.03585	-0.02239	0.20354	0.00143	0.32713*	-0.11954	-0.09474
β_{CMA}	-0.19809	0.17883	-0.21703	-0.49038	-0.68430	-0.21702	-0.12073	-0.50241**
$\beta_{MKT*STR}$	0.39081**	-0.16449	1.20853***	0.6122**	0.00724	0.49694**	-0.02278	0.05547
β_{MKT*DY}	0.20911	-0.14926	1.15347***	0.6891***	0.62512***	0.63227***	0.90829***	-0.3871**
$\beta_{SMB*STR}$	0.93704***	-0.29978	2.51562***	1.80262***	2.75991***	1.73852***	0.66803**	-0.10963
β_{SMB*DY}	0.10918	-0.16143	-0.36929*	-0.00065	-0.68292***	-0.01163	-0.19498	0.23907
$\beta_{HML*STR}$	-1.06739***	0.12490	-0.74676	-0.72916**	0.37777	-0.11593	0.00580	0.56736***
β_{HML*DY}	-1.68268***	-1.46972***	-1.04169	-1.8689***	-0.37264	-1.22591**	-2.72056***	0.50933
$\beta_{RMW*STR}$	-0.84185	0.59438	-5.37578**	-1.53659	-4.31892***	0.13953	-1.73170	-0.01460
β_{RMW*DY}	-0.55374	-2.23106***	-0.47377	-1.42456***	-0.9977*	-0.74579	-2.22619*	0.26149
$\beta_{CMA*STR}$	4.02171***	0.42167	3.47536**	2.49221***	-2.56542**	1.87215**	2.43234***	-0.34563
β_{CMA*DY}	3.29874***	2.43694**	2.86605*	4.20832***	1.74449	3.67268***	4.03252***	0.29488
Adj. R^2	77.86	75.46	70.11	77.77	73.61	80.03	67.93	73.52

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2015) five-factor model black energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP60066371*	*LP60067867*	*LP60081158*	*LP60096787*	*LP60098478*	*LP65011647*	*LP65037244*	*LP65054553*
Number	17	18	19	20	21	22	23	24
α_p	-0.01055***	-0.01413***	-0.01798***	-0.02096***	-0.01132***	-0.0108***	-0.00637*	-0.01184***
α_{STR}	0.02463	0.02136*	0.02606	0.02607	0.01582	-0.00264	-0.01545	0.01862***
α_{DY}	0.01712*	0.01146	-0.00353	-0.00275	0.01345	0.02144	0.02035	0.01076
βp	1.18638***	1.45861***	1.70157***	1.60933***	1.292***	1.35675***	1.11744***	1.40768***
β_{SMB}	0.34313**	0.21108	0.17689	-0.38241	0.23786	0.46004***	0.10344	0.04922
β_{HML}	0.30579*	0.33116*	-0.08276	0.86486***	0.34281	0.37693*	0.22429	0.19105
β_{RMW}	-0.15163	-0.16454	0.68080	0.08446	-0.12362	-0.45724***	-0.21899	-0.17806**
β_{CMA}	0.36830	0.15600	-0.22865	-0.89590	0.29069	0.26615	0.09741	0.07472
$\beta_{MKT*STR}$	-0.26327	-0.19761	-0.20889	-0.12419	-0.09658	0.07368	0.25763**	-0.09592
β_{MKT*DY}	0.02180	0.47186	0.52265**	1.23737**	0.65302	-0.6309***	0.49024*	-0.27619
$\beta_{SMB*STR}$	-0.02036	-0.46461	0.14277	0.64607	-0.14185	-0.12508	0.36773	-0.51816**
β_{SMB*DY}	-0.15053	-0.67593*	0.03822	-0.94852**	-0.18409	-0.29683	0.05229	0.13751
$\beta_{HML*STR}$	0.21127	0.43912	0.10602	0.46243	0.59463	0.69431	-1.08506**	0.06692
β_{HML*DY}	-1.47733**	-2.42091***	-1.74363**	-2.22965	-2.12836*	1.16931**	-2.38325***	-0.25201
$\beta_{RMW*STR}$	0.17797	0.29483	0.56099	-3.52998**	0.34322	-0.61661	-0.95762**	0.52625
β_{RMW*DY}	-1.89394***	-2.05591**	-0.13760	-2.49260	-1.95176*	-0.04092	-3.48836***	-0.09100
$\beta_{CMA*STR}$	0.66250	0.12279	0.00721	3.54967*	0.00123	0.16604	2.05691**	0.50666
β_{CMA*DY}	2.34364*	3.45003***	2.32610	0.76623	2.87511*	0.94458	3.39397***	0.87864
Adj. R^2	75.50	70.91	87.22	59.14	66.32	72.60	74.61	79.37

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2015) five-factor model black energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP65095384*	*LP65101258*	*LP65104187*	*LP65107744*	*LP65114606*	*LP65118711*	*LP65165343*	*LP68014086*
Number	25	26	27	28	29	30	31	32
α_p	-0.01357**	-0.01708***	-0.01446***	-0.01937***	-0.01133***	-0.01186***	-0.01116***	-0.00272
α_{STR}	-0.00948	0.00734	-0.17276***	0.02846	-0.00294	0.03115**	0.04967***	-0.00539
α_{DY}	-0.00979	-0.00493	-0.01150	0.01635	-0.01043	-0.01554	-0.00962	0.00655
βp	1.23343***	1.13259***	1.56344***	1.39108***	1.16346***	1.08929***	1.08197***	1.21789***
β_{SMB}	1.22267**	-0.09349	-0.15863	0.28313	0.45545	0.33976**	0.18557	0.10362
β_{HML}	-0.66065*	0.12353	0.12939	0.70659**	-0.45572**	0.02123	-0.16060	0.83989***
β_{RMW}	-0.34560	-0.17081	-0.07303	-0.05757	-0.35864	0.00507	-0.3354**	0.35470
β_{CMA}	-0.16904	0.10012	0.29840	-0.25662	0.08677	0.73569**	-0.17395	-1.29393**
$\beta_{MKT*STR}$	-0.84935	-0.16980	1.09607**	-0.06158	-0.94095***	-0.79504***	-0.43489***	1.16675*
β_{MKT*DY}	0.00082	-0.49989	1.72145***	0.51157	-0.41541**	0.7248**	-0.30194**	0.05642
$\beta_{SMB*STR}$	3.57302***	-0.45538	3.79789***	0.15465	2.53569***	0.46784	-1.37908***	0.86152
β_{SMB*DY}	0.83153	0.52249	-1.3833***	0.72237*	0.72825**	-0.32192	0.13785	0.41390
$\beta_{HML*STR}$	0.10052	0.56954	-0.66936	0.12276	-0.00397	-0.39115	0.97247***	-0.91061
β_{HML*DY}	-0.74681	-0.41294	-0.81649	-2.42528**	-0.39754	-1.45905	0.12770	-0.67004
$\beta_{RMW*STR}$	-4.40581***	0.78402	-0.29871	-1.25415	-3.97852***	-0.98768	2.41372***	-2.18431
β_{RMW*DY}	-0.55523	-0.90351	-1.45976*	-2.58621**	-1.93723***	-1.12560	0.06003	-1.26289
$\beta_{CMA*STR}$	0.73401	-0.18808	-3.35297**	0.69011	1.43705**	1.38909	3.01811***	4.10592***
β_{CMA*DY}	-0.71738	-0.04449	3.4745**	1.62019	-1.67295*	2.00067*	0.66073	0.62715
Adj. R^2	71.64	54.97	78.32	65.82	77.27	63.36	78.41	45.79

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2015) five-factor model black energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP68016919*	*LP68035092*	*LP68042639*	*LP68056995*	*LP68057587*	*LP68068172*	*LP68089605*	*LP68106200*
Number	33	34	35	36	37	38	39	40
α_p	-0.01212***	-0.01097*	-0.0081*	-0.00407	-0.01113***	-0.01474***	-0.01615***	-0.00491***
α_{STR}	0.02196	0.11706	-0.10803	-0.02268	0.00776	0.01902	0.03111*	-0.00901*
α_{DY}	0.03013**	0.02268	0.07211*	-0.05189	0.00037	0.01697	0.04684	0.00052
βp	1.24859***	1.61891***	1.22731***	1.73227***	1.15726***	1.05728***	1.46268***	1.0355***
β_{SMB}	0.29045*	0.15467	-0.37635	0.07692	0.20771	0.34871	0.13702	0.00268
β_{HML}	0.20151	0.46755	1.50306***	0.00536	0.75834**	0.47614**	0.5758***	-0.10330
β_{RMW}	-0.09215	0.22554	-0.36333	-1.06927**	0.21598	0.27240	-0.20019	-0.05923
β_{CMA}	0.19388	-0.94961**	-1.22106***	0.25864	-0.19922	-0.21143	-0.09295	-0.02068
$\beta_{MKT*STR}$	-0.41693	-0.46057	1.74469	0.13736	0.31285	0.09470	-0.82031**	0.10781
β_{MKT*DY}	-0.22670	1.50793***	-0.27942	-0.38117	0.68268***	0.30210	-0.50200	0.07294
$\beta_{SMB*STR}$	-0.36629	-0.74295	9.15659	-0.83423	0.59179	1.39893***	0.27082	0.00749
β_{SMB*DY}	-0.13191	-0.75404	-5.40937***	-0.98718	-0.08661	-0.09071	0.10717	-0.29459
$\beta_{HML*STR}$	-0.06654	-0.71515	-12.67976	-0.08688	-2.35099*	-1.14759	-0.80457*	-0.06784
β_{HML*DY}	-1.39642**	4.22491*	8.06579***	1.23939	-0.18522	-2.53032***	-1.47640	0.91844
$\beta_{RMW*STR}$	0.18820	-14.70803	4.75138	-0.96238	-1.80441**	-1.29512	0.71497	-0.21410
β_{RMW*DY}	-1.64207**	0.55281	-5.65298*	-1.30334	-1.29796	-2.72033**	1.09474	0.09381
$\beta_{CMA*STR}$	0.20831	-13.16635	20.04117*	1.49953	5.00992***	3.71175***	0.88901	-0.01390
β_{CMA*DY}	1.49352	-7.41119**	-1.19410	-1.93663	2.43603	2.41739	-1.52954	-0.74094
Adj. R^2	77.02	86.73	69.03	50.93	73.38	46.09	67.37	82.97

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2015) five-factor model black energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP68112671*	*LP68112696*	*LP68112697*	*LP68112711*	*LP68174624*	*LP68175789*	*LP68208421*	*LP68329972*
Number	41	42	43	44	45	46	47	48
α_p	-0.01204	-0.00505***	-0.00378***	-0.00463***	-0.04853***	-0.01428***	-0.00611***	-0.00366
α_{STR}	-0.30560	-0.00328	-0.00327	-0.00561	0.42509	0.028**	0.00119	-0.00675
α_{DY}	0.07830	-0.01330	-0.01340	0.00121	-0.29002	0.00045	0.01049	0.00076
βp	1.68771***	0.98558***	0.9872***	1.01618***	2.43982***	1.40427***	0.95639***	0.57***
β_{SMB}	-0.93928*	0.11703**	0.11796**	0.04383	-0.29274	0.04589	0.1729**	0.08031
β_{HML}	1.74049**	-0.17734***	-0.17724***	-0.14075*	2.91503***	0.29431**	-0.15856	-0.09127
β_{RMW}	0.54441	-0.00906	-0.00915	-0.06477	-2.13945	-0.23286	-0.07197	0.22693*
β_{CMA}	-2.75022***	-0.10106	-0.10292	-0.12329	-0.63935	0.44771	-0.11374	0.27388
$\beta_{MKT*STR}$	-7.07992*	-0.00762	-0.00540	0.01477	-24.96254	-0.62283*	0.09745	-0.02792
β_{MKT*DY}	1.99799	-0.03428	-0.03895	-0.13543	14.22097**	0.21889	-0.57585***	-0.925***
$\beta_{SMB*STR}$	16.48997	-0.06444	-0.06812	-0.05586	34.34747**	0.41057	-0.13451	-0.27596
β_{SMB*DY}	-5.52174	0.27198	0.28541	-0.16367	2.79038	1.04559	0.89903	-0.07433
$\beta_{HML*STR}$	7.56088	0.09982	0.10341	0.05738	-65.07648***	-1.00965***	0.14853	-0.41868
β_{HML*DY}	9.49305**	0.18589	0.18367	0.61133	8.73680	-1.54543	0.53411	1.7369**
$\beta_{RMW*STR}$	29.92462***	0.04407	0.04052	-0.01647	89.23588***	0.42548	0.28399	-0.06785
β_{RMW*DY}	8.44023	0.14662	0.15528	-0.13778	-22.71343	3.03632**	0.89189*	0.82149
$\beta_{CMA*STR}$	32.33145*	-0.19489	-0.20351	-0.12344	29.82777	1.31535***	-0.61117	0.24044
β_{CMA*DY}	-5.35340	-0.08892	-0.09508	-0.34485	19.99726**	0.57211	1.07334	-0.94681
Adj. R^2	77.49	89.82	89.82	85.86	79.60	79.36	88.41	70.28

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2015) five-factor model black energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP68379733*	*LP68387162*
Number	49	50
α_p	-0.01569***	0.02791
α_{STR}	0.04026	-0.04839
α_{DY}	0.00088	-0.07945
βp	1.12898***	-3.14955
β_{SMB}	0.19566	4.15428**
β_{HML}	0.14700	-0.62139
β_{RMW}	0.16962	1.84867
β_{CMA}	0.08258	-3.97217
$\beta_{MKT*STR}$	-1.09707***	9.54932*
β_{MKT*DY}	0.32290	2.72372
$\beta_{SMB*STR}$	1.53055**	-5.16002
β_{SMB*DY}	0.79123***	24.91061**
$\beta_{HML*STR}$	0.79466	2.64504
β_{HML*DY}	-1.16427*	-3.88279
$\beta_{RMW*STR}$	-2.86343*	-2.82538
β_{RMW*DY}	-0.93092	5.10823
$\beta_{CMA*STR}$	2.86232**	10.91013***
β_{CMA*DY}	0.39581	-16.30502
Adj. R^2	76.87	69.14

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

G. Conditional Fama and French (2015) five-factor model renewable energy single fund performance – style index

Lipper RIC	*LP60040112*	*LP60046885*	*LP60051799*	*LP60058385*	*LP60064451*	*LP65017554*	*LP65027053*	*LP65058312*
Number	1	2	3	4	5	6	7	8
α_p	-0.00464	0.0027	-0.00193	-0.00074	2e-04	-0.00175	-0.00526	0.00079
α_{STR}	0.03821	-0.00725	0.00188	-0.018**	-0.01195	-0.00039	-0.06904	-0.02062
α_{DY}	0.01604	0.0339	0.00482	0.01739***	0.00723	0.002	0.11115***	-0.00573
βp	0.58245***	0.91969***	0.83354***	0.69236***	0.6948***	0.67288***	0.67615***	0.88104***
β_{SMB}	0.29602	0.28806**	-0.02574	-0.10186*	-0.08938	-0.24043**	-0.77641***	-0.1999
β_{HML}	0.49387***	0.35983***	0.00598	-0.00541	-0.00377	0.05026	0.79263**	0.03179
β_{RMW}	0.06487	0.1428	-0.07436	-0.07174	0.23632*	-0.07256	0.13942	-0.21838
β_{CMA}	0.46176	-0.06974	0.03129	0.15587	0.00206	0.09467	-0.81241**	-0.08891
$\beta_{MKT*STR}$	-0.10394	0.17468**	0.02364	0.00194	0.13865	0.08939	-0.21025	0.12797
β_{MKT*DY}	-0.15284	0.10981	-0.12184	0.11113	0.10986	0.01585	0.32318	-0.3254**
$\beta_{SMB*STR}$	0.06887	-0.17497	-0.20813	0.19787	0.15701	-0.2072	13.50409***	-0.11732
β_{SMB*DY}	0.83415	0.17787	0.36139	0.02708	0.19861	0.33249	0.60341	1.08453**
$\beta_{HML*STR}$	-0.14851	0.16318	0.10942	-0.85276***	-0.44715*	-0.62366**	1.50662	-0.12439
β_{HML*DY}	-1.48818**	1.53893	-0.09033	-0.97765**	-0.70297*	-0.55326	0.49955	0.05303
$\beta_{RMW*STR}$	-0.04428	-0.40847	0.28165	0.20027	0.04319	0.43717	0.14966	0.26687
β_{RMW*DY}	-2.48336***	-0.99657	-0.38993	-1.45739**	0.033	-0.88361***	-6.55737***	0.28259
$\beta_{CMA*STR}$	0.49573	-0.73727	-0.3878	-0.57088	0.04098	0.21463	9.95613***	-0.14763
β_{CMA*DY}	0.35285	-1.3863	-0.77197	0.87474	0.77144	-0.55682	4.69335*	0.1512
Adj. R^2	57.28	85.02	89.29	82.33	78.52	71.90	67.35	67.19

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2015) five-factor model renewable energy single fund performance – style index (continued)

Lipper RIC	*LP65059317*	*LP65064615*	*LP65070185*	*LP65076069*	*LP65076086*	*LP65077966*	*LP65080353*	*LP65086478*
Number	9	10	11	12	13	14	15	16
α_p	-0.00053	0.00267	-0.00025	-0.00021	0.00077	-0.00034	0.00464*	0.00203
α_{STR}	-0.00693	0.00365	0.0092	-0.00694	-0.00711	-0.04962***	-0.00473	-0.01633*
α_{DY}	0.00714	-0.00486	-0.00831	0.0201**	0.00145	0.01942***	0.00334	0.02509***
βp	0.6646***	0.64819***	0.64739***	0.70395***	0.65353***	0.69505***	0.59709***	0.70852***
β_{SMB}	-0.11099	-0.12873	0.11088	-0.08514	0.14648	0.00096	0.02745	-0.21419***
β_{HML}	-0.0064	-0.35332**	0.01173	-0.00878	-0.04284	-0.36504	0.01944	0.05321
β_{RMW}	0.14817	-0.02629	0.13166	-0.03715	0.05151	-0.17491	0.10215	0.19489*
β_{CMA}	0.08741	0.21973	0.22402	0.07938	-0.24782	0.63312*	-0.027	-0.06285
$\beta_{MKT*STR}$	0.06688	0.16503*	0.14733**	-0.00725	-0.0388	-0.00432	0.07245	0.12503
β_{MKT*DY}	0.06353	0.0233	0.10222	0.13218	-0.00753	0.27615**	0.15681*	0.09775
$\beta_{SMB*STR}$	0.19464	0.05512	0.01134	0.25486	0.25553	0.92766**	0.08056	0.48805***
β_{SMB*DY}	0.29541	0.95751**	0.43528*	0.02359	0.49911	-0.40471	0.19795	-0.17705
$\beta_{HML*STR}$	-0.19694	-0.73056*	-0.11303	-0.80983***	-0.29282	-0.85313**	-0.13682	-0.68215***
β_{HML*DY}	-0.57375	-0.53607	-0.2426	-0.94122**	-0.70392*	-0.47794	-0.42465*	-0.0719
$\beta_{RMW*STR}$	0.33512	-0.37932	0.0438	-0.35126	0.98331*	-2.49878*	-0.13536	0.08217
β_{RMW*DY}	-0.09224	-0.95546	-0.32022	-1.58418**	-0.80082*	-1.55727***	-0.77364*	-0.86275**
$\beta_{CMA*STR}$	-0.17043	0.48206	-0.03687	-0.4934	-0.14437	-3.34338***	-0.5537	0.45507*
β_{CMA*DY}	0.51616	-1.21539	-0.81018*	0.41099	-0.06235	0.13474	-0.46616	-1.50028**
Adj. R^2	77.84	65.69	82.35	83.40	79.54	85.09	80.31	81.48

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2015) five-factor model renewable energy single fund performance – style index (continued)

Lipper RIC	*LP65087149*	*LP65106669*	*LP65107476*	*LP65114568*	*LP65118709*	*LP65124361*	*LP65132297*	*LP65134555*
Number	17	18	19	20	21	22	23	24
α_p	0.0044*	-0.00214	-0.00466*	0.00152	-0.00025	0.00303	-0.00344	-0.00272
α_{STR}	-0.01697	-0.00962	0.00606	-0.04301***	-8e-04	-0.01848*	-0.00435	-0.01479
α_{DY}	0.00702	-0.00103	-0.00302	0.00831	-0.00418	-0.00134	-0.00372	-0.04331**
βp	0.93691***	1.03588***	0.88884***	0.80617***	0.81604***	0.69977***	0.92388***	1.44166***
β_{SMB}	0.09366	-0.15695	-0.15947	-0.17964*	-0.11304	0.12845**	-0.47924***	-0.4549**
β_{HML}	0.37696***	0.12575	-0.37821**	-0.20434	0.14395	-0.17535**	-0.09256	0.07825
β_{RMW}	0.11118	-0.34124*	-0.22827	-0.05748	-0.14821	-0.04114	0.02834	-0.58732*
β_{CMA}	-0.22154	0.00194	0.49431**	0.49187**	-0.15715	0.07864	-0.04227	-0.70782*
$\beta_{MKT*STR}$	0.22614**	0.41556**	0.30272**	0.23305**	0.17244*	0.00222	0.58249***	0.67189**
β_{MKT*DY}	0.21781	0.26807	0.02081	0.27861**	0.14495	-0.0256	0.4016***	0.59428
$\beta_{SMB*STR}$	0.40855	-0.41952	-0.8251**	0.46442	0.31785	0.15406	-0.04069	-0.278
β_{SMB*DY}	0.20483	0.5265	-0.3734	-0.24737	0.02149	0.2599	-0.40923*	-1.4796**
$\beta_{HML*STR}$	-0.2732	0.3185	-0.93684***	-0.87468***	-0.20012	-0.42493	-1.26168**	0.31769
β_{HML*DY}	-0.73457	0.04271	-0.96484***	-0.68625	-0.40401	-0.34987	-1.05614*	0.87879
$\beta_{RMW*STR}$	-0.19123	-0.53925	0.69261	0.7554	0.31171	1.04836*	-0.67833	-2.05299**
β_{RMW*DY}	-0.35427	-1.24024	-1.14279***	-0.88948**	-0.40539	-0.4938	-1.02412	-1.20681
$\beta_{CMA*STR}$	0.13907	-0.17446	2.20152***	-1.33332**	0.37681	-0.38304	1.76052*	0.44173
β_{CMA*DY}	-0.17761	-1.10455	1.13447	0.80217	-0.59528	-0.21598	0.42281	-0.44894
Adj. R^2	82.75	83.76	92.69	86.52	85.42	86.10	77.76	72.42

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2015) five-factor model renewable energy single fund performance – style index (continued)

Lipper RIC	*LP65138181*	*LP65149328*	*LP68032885*	*LP68034366*	*LP68036387*	*LP68040134*	*LP68060740*	*LP68063580*
Number	25	26	27	28	29	30	31	32
α_p	0.00518**	0.0021	0.00561***	0.00126	0.00113	0.00104	-0.00966***	0.0028
α_{STR}	-0.01148	-0.04617	-0.01255	-0.0033	-0.00402	0.00076	0.11954	0.03111
α_{DY}	8e-05	-0.06819	0.03202**	0.03485	0.01703	-0.0111	-0.00171	0.01075
βp	0.60822***	1.31363***	0.59164***	0.65728***	0.51282***	0.66186***	0.97189***	0.47653***
β_{SMB}	0.07256	-0.44918*	0.23248**	0.27405	0.02255	0.16235*	0.53582**	-0.53214*
β_{HML}	0.02148	-0.20116	0.02304	0.0537	-0.0944	-0.10409	-0.04658	0.04787
β_{RMW}	0.15153	-0.84147**	0.2051	-0.1703	0.11962	0.17812	0.54584**	-0.51897**
β_{CMA}	-0.04355	0.47955	0.02487	0.4094	0.13701	-0.12895	0.10516	0.12141
$\beta_{MKT*STR}$	0.17715**	0.57149	0.21563**	0.16805	0.19076	0.18141***	2.48182	-0.02233
β_{MKT*DY}	0.03239	1.33345**	0.47129***	-0.02342	0.01632	0.19769*	0.38495	0.7846**
$\beta_{SMB*STR}$	0.25076	0.08001	-0.09022	-0.18954	-0.13242	0.04592	-19.93078***	10.60246**
β_{SMB*DY}	0.45836**	0.87842	-0.03227	1.42243	1.20439	0.05759	0.92521	-3.06096***
$\beta_{HML*STR}$	-0.51992	-0.83546	-0.27491	-0.20063	-0.32888	-0.21613	-0.91788	0.96577
β_{HML*DY}	-0.22589	-2.9872	1.50911***	1.24442	1.58035*	-0.25096	1.58711	3.69893
$\beta_{RMW*STR}$	-0.01217	1.97503	0.39178	-0.09645	-0.10581	-0.15519	-20.62057***	7.86541***
β_{RMW*DY}	-0.78692	-1.82355	-0.54632	-2.7617***	0.03409	-0.28558	1.37012	-4.67993***
$\beta_{CMA*STR}$	0.40242	0.19413	0.09633	0.38734	-0.1776	-0.05058	-13.19694	-1.59576
β_{CMA*DY}	-0.81406	1.24115	-1.21863*	-1.9773*	-3.0487***	-0.37122	-2.92407	-2.4473
Adj. R^2	77.42	65.24	79.99	67.17	67.40	84.23	84.07	77.80

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2015) five-factor model renewable energy single fund performance – style index (continued)

Lipper RIC	*LP68082458*	*LP68115151*	*LP68121010*	*LP68138542*	*LP68191873*	*LP68352892*	*LP68356311*	*LP68398137*
Number	33	34	35	36	37	38	39	40
α_p	-0.01125***	-0.00708	0.00053	0.00021	0.0017	0.0035	-0.00399	-0.01013*
α_{STR}	0.03471***	0.10718	-0.00722	0.00513	-0.00334	-0.01635	0.00838	0.00793
α_{DY}	-0.00312	0.18152***	0.00801	0.04236*	0.00368	0.00304	-0.025	-0.04894*
βp	0.55094***	0.68746***	0.90784***	0.52425***	0.61058***	0.6644***	0.58975***	0.56487***
β_{SMB}	-0.29476**	-0.13347	-0.12553	0.06536	0.23483	0.26743	0.30034*	0.40422***
β_{HML}	0.03338	0.65849	0.03012	0.01358	-0.04177	0.26599***	-0.16459*	-0.15852
β_{RMW}	0.20429	1.07074**	0.08057	0.0651	0.38775*	0.37488	0.34176*	0.91002***
β_{CMA}	0.25494	-1.71882***	-0.02645	0.02328	0.10335	-0.53792**	0.24677	-0.00958
$\beta_{MKT*STR}$	-0.14904	-3.57172	0.30071***	-0.10977	0.217	0.20879**	0.06608	0.17825*
β_{MKT*DY}	0.19017	0.65754	0.1775	0.50206	0.69147*	-0.01907	0.28811	-0.6285*
$\beta_{SMB*STR}$	-0.80424**	-10.88599	0.05542	0.12141	0.21344	-0.15946	-0.30474	0.20731
β_{SMB*DY}	0.26002	-1.21993	-0.09852	0.0516	0.0575	1.27788	1.8734	4.95074***
$\beta_{HML*STR}$	1.2101***	19.53594*	-0.43127	0.36953	0.10553	0.35047	0.24986	-0.28079
β_{HML*DY}	-0.32972	6.42693**	-0.3957	0.53902	0.41644	0.62193	0.36301	-1.41762*
$\beta_{RMW*STR}$	1.37042**	-6.34829	-0.3024	1.06095	0.62771	0.03913	0.55695	0.42014
β_{RMW*DY}	-0.87321	-0.44837	-0.29384	-2.01062*	-1.5743	-0.42061	-1.5003	3.53707**
$\beta_{CMA*STR}$	-0.02971	-3.88411	0.43245	-1.13629**	-0.21571	-1.05889	-0.56677	0.55474**
β_{CMA*DY}	-2.36887*	-6.10935	-0.19693	-1.71603*	-1.55758*	-3.93955***	-1.48369	-2.37368***
Adj. R^2	53.16	71.18	85.88	51.66	75.21	83.20	74.59	84.02

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2015) five-factor model renewable energy single fund performance – style index (continued)

Lipper RIC	*LP68411514*	*LP68415654*	*LP68461739*
Number	41	42	43
α_p	-0.01026*	-0.00621**	-0.00702*
α_{STR}	0.00572	0.00788	-0.00955
α_{DY}	-0.12938***	-0.01385	0.01227
βp	0.49796***	0.3805***	0.64144***
β_{SMB}	-0.25694	0.11595	0.4314**
β_{HML}	-0.10034	-0.19977	0.00048
β_{RMW}	-0.20103	0.54071**	0.60664
β_{CMA}	-0.05414	0.16781	0.24431
$\beta_{MKT*STR}$	-0.2854**	0.10626	0.29395***
β_{MKT*DY}	0.46365	-0.44156	-1.06318**
$\beta_{SMB*STR}$	-0.18895	-0.29873	-0.12934
β_{SMB*DY}	-3.54956**	3.17909**	5.61849**
$\beta_{HML*STR}$	-0.16091	0.16413	-0.09266
β_{HML*DY}	0.3817	-0.46581	-1.2214
$\beta_{RMW*STR}$	-0.08628	0.10384	0.07022
β_{RMW*DY}	-3.67176**	2.00595	4.74031**
$\beta_{CMA*STR}$	0.24278	-0.38662	-0.16139
β_{CMA*DY}	-1.94663	-1.13853	-0.42454
Adj. R^2	83.36	69.11	84.69

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

H. Conditional Fama and French (2015) five-factor model black energy single fund performance – style index

Lipper RIC	*LP40186670*	*LP40187223*	*LP40210457*	*LP40210693*	*LP40211656*	*LP40213027*	*LP40221966*	*LP60017507*
Number	1	2	3	4	5	6	7	8
α_p	0.00187	0.00261	0.01746	-0.00823***	0.01005	-0.00808	0.00285	-0.00025
α_{STR}	-0.01337*	-0.01633**	-0.04093*	0.01245	-0.06815**	0.00923	-0.02457	-0.01141***
α_{DY}	-0.00552	-0.00354	-0.01497	-0.04667	-0.13193	-0.03568	0.03704	-0.0024
βp	0.59247***	0.61916***	0.99437***	0.70648***	0.83984***	1.2558***	0.89221***	0.83564***
β_{SMB}	0.06695	0.08331	0.02129	0.16992	-0.01445	0.07803	-0.35171	-0.02254
β_{HML}	0.07459	0.08416	-0.04706	-0.36518***	-0.97251*	0.07319	-0.04324	-0.02739
β_{RMW}	0.0389	0.04735	-0.8573	-0.02288	-0.09708	-0.83407	-0.66622*	0.00115
β_{CMA}	-0.31368	-0.30854	0.20627	0.55101***	1.22758	-0.13263	-0.18871	-0.30603***
$\beta_{MKT*STR}$	0.05837	0.04398	-0.23045	-0.28597	-0.79603	-1.49774*	-0.35528***	0.17287***
β_{MKT*DY}	0.57888**	0.47253*	1.77114***	0.93152*	1.67209**	0.79283	1.86521***	0.11416
$\beta_{SMB*STR}$	-0.01292	0.0404	0.87707*	-0.31214	-0.15682	0.10787	0.54863	-0.1279
β_{SMB*DY}	1.44682**	1.55296**	2.56738	4.84368***	7.73494***	3.79547	-2.11659	0.15586
$\beta_{HML*STR}$	-1.0264***	-1.1084***	-1.77072**	-0.84411	3.63983	-1.20209	-1.14813*	-0.05944
β_{HML*DY}	1.72279	1.84987*	0.5374	-0.79628	-4.08313	4.1842*	0.66062	0.19363
$\beta_{RMW*STR}$	-1.80909***	-1.60546**	0.26392	-0.1153	-1.00973	0.24532	-0.13873	-0.24491
β_{RMW*DY}	4.04893***	4.32216***	-3.07868	6.01795***	-0.01696	3.94079	-3.9971	0.33007
$\beta_{CMA*STR}$	1.32455***	1.54514**	2.02648***	-0.21879	-3.09025	1.05878	1.63223***	-0.46694*
β_{CMA*DY}	-2.59101**	-2.5848***	-6.78664***	-5.45931	-1.31671	-8.77612*	-4.46098***	-0.66646**
Adj. R^2	74.26	77.12	78.98	85.03	45.89	57.72	89.66	92.66

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2015) five-factor model black energy single fund performance – style index (continued)

Lipper RIC	*LP60023233*	*LP60033339*	*LP60033655*	*LP60036138*	*LP60041740*	*LP60041945*	*LP60051702*	*LP60055236*
Number	9	10	11	12	13	14	15	16
α_p	-0.00152	-0.00182	-0.0048*	-0.00304**	-0.00495*	-0.00182***	-0.006*	0.00138
α_{STR}	-0.00202	-0.00758	-0.04438**	-0.01044	-0.0365**	-0.00691	-0.00096	-0.02532**
α_{DY}	0.0026	0.00346	-0.0101	-0.00855**	0.0034	-0.00539**	-0.02299*	-0.00351
βp	1.00128***	0.98733***	1.21778***	1.07931***	1.08801***	0.99717***	1.19638***	0.73327***
β_{SMB}	-0.01906	-0.00212	-0.21316	0.0159	-0.08033	-0.00792	0.03984	-0.21175**
β_{HML}	0.05842	0.03466	0.0039	0.02792	-0.03498	-0.02175	-0.1374	0.04996
β_{RMW}	-0.19905*	0.02045	-0.13453	-0.08803	-0.30779**	0.01396	-0.13352	-0.05416
β_{CMA}	-0.31232*	-0.22482***	-0.50257**	-0.2118**	-0.2786	0.0498	-0.23138	-0.92546***
$\beta_{MKT*STR}$	0.06482	0.02402	0.6882***	0.0578	-0.43292***	0.03651	-0.64785***	0.39766***
β_{MKT*DY}	-0.26518*	0.02505	0.48306***	0.16194*	0.02244	0.14989*	0.04711	-0.09583
$\beta_{SMB*STR}$	-0.22402	-0.11504	1.28031**	-0.03221	0.48953	0.19995	-0.81507***	-0.32502
β_{SMB*DY}	0.14583	0.00411	-0.27435	-0.08594	-0.5972***	-0.04757	0.125	0.20615
$\beta_{HML*STR}$	-0.12525	0.00402	-0.23141	-0.17283	0.76937***	0.15306**	1.33649***	0.37071
β_{HML*DY}	0.18968	-0.17278	0.66289	-0.20223	1.353***	0.25977*	0.53785	1.16247***
$\beta_{RMW*STR}$	0.56065	0.42798*	-4.31245***	-2.02786***	-4.17429***	-0.49122	-1.13368	-0.58441
β_{RMW*DY}	1.18066***	-0.57309**	0.80096	-0.11972	0.30605	0.37422*	0.56164	1.23525***
$\beta_{CMA*STR}$	0.06724	-0.47095**	-0.80116	0.63355***	-4.29309***	-0.11579	-1.58094**	-1.20289***
β_{CMA*DY}	-0.3068	0.1208	-1.1287	-0.04273	-2.49996***	-0.29443	-1.93671	-1.26502***
Adj. R^2	90.81	95.98	86.84	97.79	91.27	98.93	82.31	73.47

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2015) five-factor model black energy single fund performance – style index (continued)

Lipper RIC	*LP60066371*	*LP60067867*	*LP60081158*	*LP60096787*	*LP60098478*	*LP65011647*	*LP65037244*	*LP65054553*
Number	17	18	19	20	21	22	23	24
α_p	-0.00217***	-0.00353	-0.01054*	-0.01019*	-0.00228	-0.00195	0.00017	-0.00169
α_{STR}	-0.00531*	-0.01309	0.04245*	0.0169	-0.01354**	-0.02993**	-0.02291***	-0.01242
α_{DY}	-0.00153	-0.00507	0.00082	-0.0073	9e-04	-0.00226	0.00819	-0.01033
βp	0.98474***	1.14201***	1.29833***	1.30137***	1.06315***	1.04956***	0.93142***	1.02997***
β_{SMB}	-0.02617	-0.16785	0.24088	-0.37205	-0.11904	0.06482	-0.01546	-0.30035***
β_{HML}	-0.02624	-0.02795	-0.40231	0.05143	-0.00592	0.12244	-0.25423**	-0.07062
β_{RMW}	-0.07678	-0.11653	0.09676	-0.32408	-0.06336	-0.36654**	-0.32915**	-0.13832
β_{CMA}	-0.02096	-0.32617*	-0.12676	-0.71356	-0.15987	-0.31167	-0.03462	-0.44512**
$\beta_{MKT*STR}$	0.0805***	0.1541	-0.55894**	-0.55201**	0.23642***	0.55713***	0.13362	0.27017***
β_{MKT*DY}	0.09474***	0.35693**	-0.39582	-0.07113	0.38274***	-0.24577	0.04799	-0.03169
$\beta_{SMB*STR}$	0.04937	-0.50397	-2.66767***	-0.35897	-0.24665	-0.36197	-0.23437	-0.58919*
β_{SMB*DY}	-0.00056	-0.37553	0.33342	-0.17692	0.08821	-0.40085	0.21711	0.25612
$\beta_{HML*STR}$	0.0307	0.20877	0.78799	2.33917**	0.39701**	0.45735*	-0.18026	-0.1629
β_{HML*DY}	0.04521	-0.44287*	0.12293	2.52329**	-0.17959	2.08811***	0.02628	1.00376***
$\beta_{RMW*STR}$	-0.14412	-0.06425	2.45468*	-0.40618	0.06609	-1.33089***	0.39085	-0.03894
β_{RMW*DY}	-0.172	-0.28142	1.00668	1.13937	-0.29228	1.51966**	-1.22893*	1.44183***
$\beta_{CMA*STR}$	-0.13345	-0.93239**	-2.98243**	-1.8161	-0.96024**	-0.95069**	-0.60582	-0.56904
β_{CMA*DY}	-0.17672	0.22802	-1.49165	-6.62394***	-0.17775	-1.16021	-0.81498	-1.5815**
Adj. R^2	98.22	86.98	86.18	67.38	86.05	80.04	86.20	84.95

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2015) five-factor model black energy single fund performance – style index (continued)

Lipper RIC	*LP65095384*	*LP65101258*	*LP65104187*	*LP65107744*	*LP65114606*	*LP65118711*	*LP65165343*	*LP68014086*
Number	25	26	27	28	29	30	31	32
α_p	-0.0113***	-0.00897**	-0.00675	-0.00884***	-0.00666*	-0.00204	-0.00352	0.00219
α_{STR}	-0.00026	-0.01939	-0.11619***	-0.00678	-0.01298	-0.00801	0.0449***	0.00964
α_{DY}	-0.01641*	-0.02573**	-0.00419	-0.00934	-0.01601*	-0.01244	-0.00702	0.00394
βp	1.11657***	0.83285***	1.2255***	1.28865***	1.0192***	0.88705***	0.69664***	1.0649***
β_{SMB}	0.97493**	-0.3994***	-0.05681	0.02165	0.3308	0.08234	0.30204*	0.02628
β_{HML}	-1.05878***	-0.09946	-0.06509	0.0164	-0.70304**	-0.2803**	-0.54346***	0.07498
β_{RMW}	-0.53217	-0.12302	-0.37262	-0.17068	-0.52543	0.1432	-0.64835***	0.27686
β_{CMA}	0.08534	-0.28945	0.2016	-0.4403**	0.18086	0.42401*	-0.03479	-1.20062***
$\beta_{MKT*STR}$	-0.83266***	0.14998	0.11317	-0.07288	-0.6023***	-0.08743	-0.74564***	-0.16573
β_{MKT*DY}	-0.35038	-0.0737	0.55918***	0.07972	-0.61228***	0.67035***	-0.62402***	-0.25142
$\beta_{SMB*STR}$	0.50216	-0.4533	1.44547	-0.42384**	0.2659	0.27303	-2.36112***	-0.28998
β_{SMB*DY}	0.6391	0.5448	-0.89902***	0.49528**	0.58252*	-0.06235	0.37609	0.30682
$\beta_{HML*STR}$	0.51328	0.37638	0.70871	0.7565***	0.12727	-0.19486	1.07282**	0.56906
β_{HML*DY}	0.75044	0.41322	1.24618	0.55283	0.77274	-0.40147	1.15369**	0.79986
$\beta_{RMW*STR}$	-3.44018**	0.30499	0.40558	0.03989	-2.25277	-1.54047***	2.85234***	-2.44261
β_{RMW*DY}	0.81299	0.38302	-0.44211	0.47726	-0.63518	-0.30397	0.87781	0.3842
$\beta_{CMA*STR}$	-1.2601	-1.02389*	-4.43635**	-1.82779***	-1.2422	0.36658	0.13128	-0.4209
β_{CMA*DY}	-4.34086***	-1.85024***	-0.66317	-2.72406***	-4.27236***	-0.69971	-2.28001**	-3.66992*
Adj. R^2	83.15	59.43	81.53	89.18	80.56	79.27	64.70	55.85

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2015) five-factor model black energy single fund performance – style index (continued)

Lipper RIC	*LP68016919*	*LP68035092*	*LP68042639*	*LP68056995*	*LP68057587*	*LP68068172*	*LP68089605*	*LP68106200*
Number	33	34	35	36	37	38	39	40
α_p	-0.00274*	-0.00149	0.001	0.00944	-0.00489***	-0.00954**	-0.0046	0.00425
α_{STR}	-0.01167**	0.03157	-0.19679*	-0.05123*	0.00687**	0.01487	-0.00303	-0.02609***
α_{DY}	0.00812**	-0.00863	0.05812*	-0.0703	-0.00683	0.00095	-0.00299	-0.00434
βp	0.99214***	1.16679***	0.92426***	1.029***	1.04189***	1.01411***	1.16667***	0.50931***
β_{SMB}	-0.07954	-0.00675	-0.56125**	-0.00151	0.12027	0.26066	-0.26089	-0.05074
β_{HML}	-0.11877	0.26102	0.69627	-0.29378	-0.06317	-0.052	0.06105	-0.16356
β_{RMW}	-0.03589	-0.43363	-0.90181**	-1.05094**	-0.00279	0.24257	-0.02432	-0.15086
β_{CMA}	-0.19948	-0.80931**	-0.71678***	-0.31658	-0.10346	-0.38821	-0.46594*	-0.43486**
$\beta_{MKT*STR}$	-0.06445	3.52929**	3.39202	0.66757*	-0.25672***	-0.10297	-0.13717*	0.18401*
β_{MKT*DY}	-0.06468	0.10999	-0.52573**	-0.4118	-0.02586	-0.20872	-0.01747	0.0077
$\beta_{SMB*STR}$	-0.16275	-4.45101	5.75107	-2.01858	-0.32477	0.44022	0.31854	-0.43475
β_{SMB*DY}	0.05938	0.656	-4.72769***	1.38931	0.40711	-0.00936	-0.06302	0.77925
$\beta_{HML*STR}$	-0.25977**	-4.20035	-17.06754	0.419	0.32096	0.03734	0.04021	0.25096
β_{HML*DY}	0.13856	4.00587***	7.72856**	2.62085	0.17705	0.14542	-0.68731	2.03615**
$\beta_{RMW*STR}$	-0.21334	-9.1165	9.29177**	-1.90998	0.00098	-0.08465	-0.07447	-0.5252
β_{RMW*DY}	0.20441	-3.23732**	-5.50637**	-0.9983	0.04562	0.16207	0.43868	-0.40364
$\beta_{CMA*STR}$	-0.54785**	-5.57205	15.64748*	-0.91298	0.21283	0.81312	-0.49817	-1.36893**
β_{CMA*DY}	-1.06209***	-6.47708***	-4.04486	-3.47543	-0.76095	-2.11519	-0.94659	-2.27956**
Adj. R^2	95.39	92.43	81.22	46.87	96.55	63.71	86.44	60.86

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2015) five-factor model black energy single fund performance – style index (continued)

Lipper RIC	*LP68112671*	*LP68112696*	*LP68112697*	*LP68112711*	*LP68174624*	*LP68175789*	*LP68208421*	*LP68329972*
Number	41	42	43	44	45	46	47	48
α_p	0.00476	0.00412*	0.00539**	0.00494**	-0.00651**	-0.00261	0.00243	0.00052
α_{STR}	-0.47484***	-0.02065***	-0.02064***	-0.02364***	-0.4957***	-0.00425	-0.00827	-0.01616**
α_{DY}	0.10895**	-0.02111	-0.02124	-0.00634	0.05775	-0.02064	0.00072	-0.01441
βp	1.00843***	0.49751***	0.49823***	0.50295***	1.15518***	0.97476***	0.56837***	0.30443***
β_{SMB}	-0.64814***	0.09565	0.09656	0.03134	-0.49405*	-0.2032**	0.30291**	0.02436
β_{HML}	1.86109**	-0.27626**	-0.27615**	-0.23365*	0.1936	-0.09485	-0.76973***	-0.13424
β_{RMW}	-0.35537	0.02404	0.0241	-0.03141	-0.18525	0.19699	0.10876	0.48522***
β_{CMA}	-2.50577***	-0.49512***	-0.49792***	-0.5354***	-0.05849	-0.18472	-0.0818	-0.09371
$\beta_{MKT*STR}$	-3.24104	0.10234	0.10391	0.12478	-13.50058**	-0.12369	-0.16412	0.09494
β_{MKT*DY}	-1.11741*	-0.00335	-0.00596	-0.09322	1.41044	0.26189*	-0.50596	-0.44836**
$\beta_{SMB*STR}$	-4.27878	-0.40591	-0.41078	-0.43301	29.06021	0.53053	-1.07723***	-0.37298
β_{SMB*DY}	-3.44723**	0.94567	0.9605	0.61634	-1.18895	0.99103*	2.0186**	-0.04216
$\beta_{HML*STR}$	-22.12389	0.44722	0.45066	0.39264	1.10488	-0.39361	2.34747***	-0.21957
β_{HML*DY}	12.28319**	1.42162**	1.42207**	1.95889**	-0.88108	-0.61955	0.49509	2.56196***
$\beta_{RMW*STR}$	1.45051	-0.2767	-0.28025	-0.35916	28.61324	-0.11444	0.49453	-0.38444
β_{RMW*DY}	1.61053	-0.675	-0.66615	-0.94825	5.58986	2.9145***	2.83132**	1.05374
$\beta_{CMA*STR}$	48.62413**	-1.42928***	-1.44048***	-1.39831***	61.71309*	0.02198	-4.17511**	-0.40841
β_{CMA*DY}	-10.06191**	-1.48558**	-1.49238**	-1.8298***	0.30363	-0.3744	-3.78155**	-1.10901
Adj. R^2	85.93	70.46	70.46	65.58	85.47	91.65	66.80	61.11

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2015) five-factor model black energy single fund performance – style index (continued)

Lipper RIC	*LP68379733*	*LP68387162*
Number	49	50
α_p	-0.00957***	0.00125
α_{STR}	0.02445	-0.0116
α_{DY}	0.00038	-0.01177
βp	0.95173***	1.1**
β_{SMB}	0.12906	-0.02036
β_{HML}	-0.42728***	-0.54026**
β_{RMW}	-0.02473	-1.33186**
β_{CMA}	0.04388	1.11152
$\beta_{MKT*STR}$	-0.71517***	-0.03686
β_{MKT*DY}	-0.01821	-0.05727
$\beta_{SMB*STR}$	-0.95891**	1.05094
β_{SMB*DY}	0.79826***	3.01048
$\beta_{HML*STR}$	0.2485	2.14108***
β_{HML*DY}	0.04975	-0.49941
$\beta_{RMW*STR}$	-1.32516	4.16666**
β_{RMW*DY}	0.08418	0.19482
$\beta_{CMA*STR}$	0.18678	-4.19757*
β_{CMA*DY}	-2.6509**	-4.43207
Adj. R^2	87.83	96.33

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

I. Conditional Fama and French (2018) six-factor model renewable energy single fund performance – S&P Global 1200

Lipper RIC	*LP60040112*	*LP60046885*	*LP60051799*	*LP60058385*	*LP60064451*	*LP65017554*	*LP65027053*	*LP65058312*
Number	1	2	3	4	5	6	7	8
α_p	-0.00985***	-0.00376	-0.00542	-0.01155***	-0.00389	-0.00761**	-0.01925***	-0.00186
α_{STR}	0.02892**	-0.00667	-0.01671	0.01306	-0.02223**	0.00815	0.06641**	-0.04146***
α_{DY}	0.02421**	-0.06752***	0.00703	0.01155	0.00643	0.00743	0.02065	0.0029
βp	1.18933***	1.30729***	1.18402***	1.13224***	1.03214***	1.07896***	1.30476***	1.17509***
β_{SMB}	0.3714***	0.40837***	0.19881	0.24027***	0.10019	0.05593	-0.12526	0.07656
β_{HML}	0.29752*	0.12901	-0.02334	-0.03556	-0.02683	0.05394	0.9201	0.07912
β_{RMW}	-0.014	-0.34046*	-0.56036***	-0.18225**	-0.15323	-0.27024*	0.37266**	-0.82173**
β_{CMA}	0.47641**	-0.32825	-0.33862	-0.48104***	-0.3203*	-0.43088***	-1.28647**	-0.58863*
β_{MOM}	-0.14135	-0.3133***	-0.11768	-0.05395	-0.06555	-0.0845	-0.19872	-0.07103
$\beta_{MKT*STR}$	0.09897	-0.29949	-0.09476	-0.10107	-0.07462	-0.06174	-1.02884	-0.07122
β_{MKT*DY}	-0.03934	0.89042**	-0.29165	0.08717	0.00935	-0.28781*	0.36661	-0.67388***
$\beta_{SMB*STR}$	0.1087	-0.27341	-0.55441	-0.58485***	-0.18087	-0.78938***	5.01678	-0.58148
β_{SMB*DY}	-0.33822	-1.19152	-0.61333**	-0.2588	-0.2399	0.02706	1.48483	0.00185
$\beta_{HML*STR}$	0.81371*	0.1791	0.43492	0.25522	-0.23824	0.32348	-5.25433	-0.04027
β_{HML*DY}	0.09656	-0.42815	0.3214	-0.26642	-0.81641	0.5092	-1.04228	0.2037
$\beta_{RMW*STR}$	-0.26248	-1.02918	0.01442	-0.03017	0.12888	0.26062	-6.23185***	0.08305
β_{RMW*DY}	-1.50291**	0.60614	0.24952	-0.47304**	0.52706	0.03756	0.36622	0.78869
$\beta_{CMA*STR}$	0.1761	-1.0597**	-0.61934	0.95695	-0.11401	0.89114	13.63369***	-0.32089
β_{CMA*DY}	0.74309	2.4193*	1.0557	1.23739**	2.41603***	0.03122	6.05241**	2.46222
$\beta_{MOM*STR}$	0.54826***	-0.68481**	-0.1193	0.3605*	-0.28712	0.13054	1.98359	-0.37092
β_{MOM*DY}	0.73426***	0.03088	-0.14095	0.33865**	-0.25098	0.32083*	-1.04013	-0.34776
Adj. R^2	78.88	80.40	79.12	87.35	75.60	74.33	78.29	53.45

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2018) six-factor model renewable energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP65059317*	*LP65064615*	*LP65070185*	*LP65076069*	*LP65076086*	*LP65077966*	*LP65080353*	*LP65086478*
Number	9	10	11	12	13	14	15	16
α_p	-0.00444**	-0.00277	-0.00533***	-0.0123***	-0.00344*	-0.01291***	-0.00057	-0.00367
α_{STR}	-0.01737**	-0.00542	0.00148	0.02618**	-0.01711***	0.03183*	-0.0126**	-0.01953*
α_{DY}	0.0067	0.00328	-0.01038	0.00835	0.00548	-0.00495	-0.00173	0.00574
βp	0.99932***	1.20688***	1.05935***	1.15474***	1.06869***	1.12975***	1.01542***	1.08738***
β_{SMB}	0.06569	0.0377	0.24595***	0.24812***	0.32419***	0.26544*	0.13617**	-0.04485
β_{HML}	-0.05546	-0.31111***	-0.06217	-0.0011	-0.06457	-0.11217	-0.05172	-0.00179
β_{RMW}	-0.23633*	-0.2505**	-0.1975**	-0.15542*	-0.2663**	-0.48567***	-0.18632*	-0.20051
β_{CMA}	-0.22156*	-0.00722	-0.02559	-0.59825***	-0.50512***	-0.36427*	-0.24377**	-0.32559**
β_{MOM}	-0.09058*	0.14648***	-0.08497***	-0.06591	0.00449	0.12123	-0.05108	-0.09343**
$\beta_{MKT*STR}$	-0.20654	0.13579	0.00588	-0.25913	-0.31704**	0.92468***	-0.09406	-0.31581*
β_{MKT*DY}	-0.07092	-0.02482	0.00677	-0.02287	-0.15114	-0.14703	0.13475	0.11411
$\beta_{SMB*STR}$	-0.14265	-0.1389	-0.27011**	-0.91863***	0.11179	-1.21499***	-0.18197	0.23208
β_{SMB*DY}	-0.19994	0.4789*	-0.07537	-0.21631	-0.11924	-0.43072***	-0.22987*	-0.71198**
$\beta_{HML*STR}$	-0.01401	-0.28604	0.10193	0.62692	0.17881	-0.08788	0.04664	-0.72584**
β_{HML*DY}	-0.74124	-0.2056	-0.30334	-0.0692	-0.46367	0.10679	-0.68379	0.25672
$\beta_{RMW*STR}$	0.4311	-0.03237	0.1503	0.07964	1.2057***	-0.21478	0.01409	0.00203
β_{RMW*DY}	0.3713	-0.14894	0.25701	-0.36522*	-0.19592	-0.75126**	-0.19517	0.64976
$\beta_{CMA*STR}$	-0.31442	0.46665	-0.07325	1.5167	-0.34442	0.80579	-0.51992	0.2512
β_{CMA*DY}	2.26539***	0.11936	0.7511**	0.90545	1.51844*	0.57162	1.18921	1.12771
$\beta_{MOM*STR}$	-0.32571	0.04698	-0.25455***	0.30276	0.04048	1.01691***	-0.23578	-0.45747**
β_{MOM*DY}	-0.2849	0.0836	-0.23153***	0.33585*	-0.03209	0.19452	-0.29132	-0.1386
Adj. R^2	76.70	84.06	91.27	87.99	84.21	88.98	91.80	80.30

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2018) six-factor model renewable energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP65087149*	*LP65106669*	*LP65107476*	*LP65114568*	*LP65118709*	*LP65124361*	*LP65132297*	*LP65134555*
Number	17	18	19	20	21	22	23	24
α_p	-0.00084	-0.01076*	-0.01501***	-0.01201***	-0.007**	-0.00538**	-0.01515***	-0.01189
α_{STR}	-0.0269*	-0.00123	0.10338***	0.02586	-0.00265	-0.00037	0.01964	-0.01792
α_{DY}	0.00189	-0.08773***	-0.01144	-0.01658	-0.02241	0.00078	-0.0191	-0.09399
βp	1.3043***	1.32964***	1.181***	1.22986***	1.20802***	1.09219***	1.27802***	1.6052***
β_{SMB}	0.33089**	0.10876	0.44865*	0.10639	0.00259	0.40569***	-0.04259	-0.05204
β_{HML}	0.22065	0.07146	0.08288	-0.1556	0.08057	-0.12173	-0.16948	0.24858
β_{RMW}	-0.4158**	-0.98299***	-0.7313**	-0.45002***	-0.66724***	-0.25316	-0.29251	-1.73562***
β_{CMA}	-0.59675***	-0.53954**	-0.73916	-0.38145**	-0.49604***	-0.49182**	-0.88435***	-1.61874***
β_{MOM}	-0.31152***	-0.15896	0.03837	-0.09295	-0.16353*	-0.07705*	-0.18101**	-0.06838
$\beta_{MKT*STR}$	-0.00166	-0.29617	-0.3575	0.86076**	-0.22329	0.01651	-0.34993	-0.39264
β_{MKT*DY}	0.13718	0.87134	-0.7769**	-0.20676	-0.01302	-0.23129	0.14299	0.66046
$\beta_{SMB*STR}$	0.01323	-1.07288**	-1.96145***	-1.8348***	0.31001	-0.46826***	-0.6328**	-0.82705*
β_{SMB*DY}	-0.48339*	-0.11364	-0.26944	-0.3119**	-0.93379***	-0.23057	-0.27223	-1.8231**
$\beta_{HML*STR}$	0.17252	0.26711	1.22446	-0.47561	0.00297	0.13302	0.26807	-0.14026
β_{HML*DY}	-0.48639	-2.4693	0.2207	-0.74546	-0.09022	0.0513	-0.71105	-1.62691
$\beta_{RMW*STR}$	-0.35447	-1.09259	-0.25874	3.71048***	0.32214	0.85927*	-0.65065	-1.81067*
β_{RMW*DY}	0.21864	0.85869	-0.12548	-0.24911	0.51838*	0.05669	0.17168	-0.10516
$\beta_{CMA*STR}$	-0.32129	-0.89491	5.64913***	2.96592***	0.21845	0.91797	1.93908	0.06714
β_{CMA*DY}	1.44765	3.38278*	0.55176	2.35488**	1.57369	1.07493	0.93456	5.764
$\beta_{MOM*STR}$	-0.32118	-1.30114***	0.29669	0.39179	-0.247	0.25192*	-0.34727	-1.19952**
β_{MOM*DY}	-0.14042	0.12833	0.10059	-0.04272	-0.38867	0.13875	-0.11237	-1.6685***
Adj. R^2	79.72	68.90	78.94	84.39	83.16	87.49	65.33	50.16

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2018) six-factor model renewable energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP65138181*	*LP65149328*	*LP68032885*	*LP68034366*	*LP68036387*	*LP68040134*	*LP68060740*	*LP68063580*
Number	25	26	27	28	29	30	31	32
α_p	0.00012	-0.01258*	-0.00146	-0.00881***	-0.00558**	-0.00432**	-0.02493***	-0.00331
α_{STR}	-0.01651***	-0.02842	-0.00658	-0.00226	-0.00313	-0.00273	0.27604***	0.05577
α_{DY}	0.00485	-0.18374***	0.00028	-0.02363	0.00182	-0.01753**	-0.07766*	-0.03767**
βp	1.05911***	1.62033***	0.95211***	1.20762***	0.95521***	0.9939***	1.49528***	0.76785***
β_{SMB}	0.22179***	-0.04857	0.37967***	0.20986	0.10115*	0.31428***	0.95667**	-0.16126
β_{HML}	-0.01373	-0.16002	-0.06425	-0.00842	-0.07764	-0.10449	0.62896	0.09952
β_{RMW}	-0.12836	-1.67995***	-0.08045	-0.54827**	-0.14358*	-0.23177*	0.49321	-0.56638***
β_{CMA}	-0.28112***	-0.14844	-0.21596*	0.19709	-0.09577	-0.44242***	-1.40418*	-0.17429
β_{MOM}	-0.00129	0.02985	-0.05471	-0.06301	0.10856**	-0.00601	0.1767	-0.15003
$\beta_{MKT*STR}$	-0.00202	-0.43064	-0.04062	-0.1829	0.04522	-0.122	-4.93795	-2.06632**
β_{MKT*DY}	-0.11767	2.11331**	0.44369***	0.28349	-0.03999	-0.1039	-0.14149	0.016
$\beta_{SMB*STR}$	0.04965	-1.17614	-0.60384***	0.10526	-0.33535*	-0.05049	-14.32436	-0.80557
β_{SMB*DY}	-0.01072	1.00922	-0.03423	-0.79141	-0.07638	-0.27106	3.11312	-3.75105***
$\beta_{HML*STR}$	-0.19755	-0.77154	-0.27507	-0.14252	-0.31539*	0.00405	-3.55035	-12.21051***
β_{HML*DY}	-0.13791	-7.02985	0.49558	-0.43566	1.17061*	-0.50966	-0.96029	4.67248***
$\beta_{RMW*STR}$	0.31963	1.59722	-0.02519	0.24874	-0.20093	0.16067	-5.86693	5.0258***
β_{RMW*DY}	-0.20471	0.00304	0.82244	-2.06675	0.82967*	0.20262	9.89307**	-2.46668**
$\beta_{CMA*STR}$	0.32743	-0.82424	-0.1204	0.70834	-0.01752	-0.03494	-2.57199	0.12092
β_{CMA*DY}	0.59564	9.21665**	1.15369	3.05318**	-0.39497	1.33861**	1.83185	-5.54112***
$\beta_{MOM*STR}$	-0.15596	-1.61586***	-0.78745***	-0.09238	-0.38076**	-0.10435	-11.85793	-6.87397***
β_{MOM*DY}	-0.08315	-1.74803	0.17729	-1.3083**	-0.041	-0.44467***	-3.36865**	-0.47886
Adj. R^2	91.46	50.91	86.71	78.99	81.86	84.10	69.58	85.80

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2018) six-factor model renewable energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP68082458*	*LP68115151*	*LP68121010*	*LP68138542*	*LP68191873*	*LP68352892*	*LP68356311*	*LP68398137*
Number	33	34	35	36	37	38	39	40
α_p	-0.01376***	-0.04159***	-0.00434	-0.0036*	-0.00124	0.0049	-0.00266	-0.00625***
α_{STR}	0.02585*	0.70704***	-0.01723	-0.00854	-0.009**	-0.02908***	-0.00748	-0.00744**
α_{DY}	-0.05426	0.00694	0.0069	0.02191	0.00741	0.02207	0.00761	-0.02572**
βp	0.77932***	2.16431***	1.26027***	0.97993***	1.05738***	1.03115***	1.02977***	1.04306***
β_{SMB}	-0.10469	0.6841*	0.14071	0.08427	0.31025***	0.26721	0.3009***	-0.00585
β_{HML}	-0.05113	-1.03565*	-0.02	0.04549	0.03533	0.31706***	-0.08764	0.01348
β_{RMW}	-0.10544	2.80065***	-0.4591*	-0.18796*	0.06855	0.16616	0.14108	-0.08859
β_{CMA}	-0.01513	-1.07705	-0.47343	-0.23705	-0.11814	-0.88518***	-0.0206	-0.45953***
β_{MOM}	-0.07234	-0.9842***	-0.16368	0.05013	0.09004	0.03218	0.11608	-0.0475
$\beta_{MKT*STR}$	-0.62023***	-20.3978***	-0.02801	-0.33763**	0.24115***	0.06233	-0.0564	-0.16314**
β_{MKT*DY}	-0.22142	4.28778***	0.09618	-0.8815***	-0.02711	0.22878	-0.00262	0.79936
$\beta_{SMB*STR}$	-1.22107**	4.16254	-0.41832	0.3667	-0.1311	-0.1924	-0.38681**	0.54194***
β_{SMB*DY}	0.42429	-2.52202	-0.59313	-0.37378	0.07035	-1.17095	-0.21061	-0.8441*
$\beta_{HML*STR}$	1.00351***	42.2942**	-0.1826	0.00116	-0.17726	-0.04203	-0.23884	-0.54995***
β_{HML*DY}	-1.85571	1.12312	-0.65689	-2.12249***	-1.53372***	0.5321	-0.32862	0.16823
$\beta_{RMW*STR}$	1.00316*	10.7254	-0.18041	1.04442**	-0.03765	-0.48065	0.13409	0.29183
β_{RMW*DY}	-0.12451	20.35197***	0.16911	-0.64207	1.38075***	1.13045	-0.12804	-0.82709
$\beta_{CMA*STR}$	-0.12524	2.30385	0.07266	-0.19247	0.10211	-0.85071	-0.01144	0.87454***
β_{CMA*DY}	-0.28575	0.77382	1.82855	1.95728***	2.33213***	-1.63269	1.6348*	-1.67019
$\beta_{MOM*STR}$	-0.63232**	-6.1096	-0.50498	-0.0297	-0.59875***	-0.58562**	-0.50274***	-0.2164**
β_{MOM*DY}	-0.2795	-1.936	-0.31315	-1.84334***	-0.50407	0.51163	-0.22048	0.47142
Adj. R^2	44.60	81.41	79.05	62.81	92.25	85.33	88.56	96.00

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2018) six-factor model renewable energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP68411514*	*LP68415654*	*LP68461739*
Number	41	42	43
α_p	5e-05	-0.00126	0.00178*
α_{STR}	-0.01709*	-0.00323	-0.02266***
α_{DY}	-0.12219**	-0.00601	0.03165
βp	0.50443***	0.54898***	0.98349***
β_{SMB}	0.0865	0.13144	0.30108**
β_{HML}	-0.09253	-0.09058	0.35353**
β_{RMW}	-0.32142	0.18797	-0.2574
β_{CMA}	-0.50908	-0.19616	-0.38308*
β_{MOM}	-0.15173	-0.06115	-0.04102
$\beta_{MKT*STR}$	-0.42098*	0.00897	0.08501
β_{MKT*DY}	-0.90133	-0.88073	-0.41655
$\beta_{SMB*STR}$	-1.32074***	-0.50962***	-0.07646
β_{SMB*DY}	-2.42406	1.71073***	0.66547
$\beta_{HML*STR}$	-0.77721*	-0.15351	-0.13933
β_{HML*DY}	-0.93	-0.58483	-0.19503
$\beta_{RMW*STR}$	-1.8464*	-0.49512*	-0.56196
β_{RMW*DY}	0.32475	2.65399**	2.63224
$\beta_{CMA*STR}$	-0.1538	-0.35694	-0.32522
β_{CMA*DY}	1.05087	0.11301	1.06917
$\beta_{MOM*STR}$	-1.35327***	-0.57032***	-0.54016**
β_{MOM*DY}	-0.37058	0.09518	0.57684
Adj. R^2	87.22	86.71	94.92

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

J. Conditional Fama and French (2018) six-factor model black energy single fund performance – S&P Global 1200

Lipper RIC	*LP40186670*	*LP40187223*	*LP40210457*	*LP40210693*	*LP40211656*	*LP40213027*	*LP40221966*	*LP60017507*
Number	1	2	3	4	5	6	7	8
α_p	-0.00324	-0.00321	0.00896	-0.01486***	0.01151*	-0.00405	-0.01222**	-0.00738***
α_{STR}	-0.00471	-0.00572	-0.02694	0.01069	-0.07877***	-0.01469	0.02284**	0.01245
α_{DY}	0.00541	0.00864	-0.0267	-0.07188	-0.13543***	-0.04588	-0.11911*	0.01722**
βp	0.80203***	0.86053***	1.22881***	1.0657***	0.80465***	0.31042	1.05975***	1.10727***
β_{SMB}	0.25627**	0.24411**	0.00158	0.22666*	-0.24214	-0.38338	-0.30832	0.27451***
β_{HML}	0.20255	0.23312	0.12833	-0.09353	-1.71123***	-0.20957	-0.28926	0.12128
β_{RMW}	0.02681	-0.0103	-1.23822*	-0.05898	-0.5451	-1.59383	-1.24589**	0.01408
β_{CMA}	0.02824	0.03968	0.70469**	0.93739***	2.72065***	0.38855	0.15009	0.13627
β_{MOM}	-0.11695	-0.12767	-0.56797***	-0.07303	-0.72401***	-1.70897***	-0.4577*	-0.15027**
$\beta_{MKT*STR}$	0.06047	-0.00118	-0.36231*	-0.11626	0.6692	1.97888	-0.63622**	0.06347
β_{MKT*DY}	0.40537	0.23985	0.95237	0.46539	-1.94102	-1.61764	4.48234***	-0.01944
$\beta_{SMB*STR}$	-0.11509	-0.02837	1.47832**	-0.29538	-1.59586*	1.9632	-0.32445	-0.17034
β_{SMB*DY}	1.52137	1.55329	2.8382*	3.6306**	1.54886	-3.29716	2.30918	-0.01482
$\beta_{HML*STR}$	-1.51564***	-1.623***	-2.77347***	-2.12179***	7.8897***	-0.91859	-1.56517***	0.27453
β_{HML*DY}	1.69665	1.63184	0.57171	-2.4147	-4.70787**	1.95629	1.6865	-0.24534
$\beta_{RMW*STR}$	-1.9146**	-1.64679*	0.28509	-1.38253	1.09556	2.75325	-1.6979*	-0.1932
β_{RMW*DY}	4.29607**	4.61606**	-2.87481	5.18064*	-5.04807***	-1.43613	-1.08936	-0.85483**
$\beta_{CMA*STR}$	2.26078***	2.53951***	4.03151***	2.0061***	-6.47766**	3.72066	1.01674	0.16223
β_{CMA*DY}	-2.20627	-2.13401	-7.08996***	-1.97992	-6.8111	-11.23679	-9.21438***	0.64747
$\beta_{MOM*STR}$	-0.04235	-0.04353	0.77895*	0.12507	0.6484	4.74594***	-0.31235	0.00776
β_{MOM*DY}	-0.45957	-0.47685	-2.12643	-2.18703*	-5.32765**	-5.52387**	3.64279**	0.33946**
Adj. R^2	69.82	73.02	75.90	86.26	37.57	52.73	88.41	85.86

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR} , α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2018) six-factor model black energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP60023233*	*LP60033339*	*LP60033655*	*LP60036138*	*LP60041740*	*LP60041945*	*LP60051702*	*LP60055236*
Number	9	10	11	12	13	14	15	16
α_p	-0.00716***	-0.00953***	-0.01126***	-0.00754*	-0.00989**	-0.00598*	-0.01419***	-0.00343
α_{STR}	0.00525	0.02222*	-0.0344	-0.0199	-0.03591	-0.00743	0.01392	-0.00847
α_{DY}	0.00875	0.026**	-0.01211	-0.00279	0.00622	0.00198	-0.02324***	0.02345*
βp	1.15077***	1.18109***	1.38757***	1.22265***	1.24484***	1.13147***	1.23289***	0.97638***
β_{SMB}	0.0349	0.36222***	-0.05685	0.29673*	0.07563	0.23494***	-0.0428	0.12595
β_{HML}	0.36676**	0.24599	0.45132*	0.7285**	0.65647*	0.68625**	0.31457	0.12431
β_{RMW}	-0.13016	0.03042	0.04941	0.34247	0.0238	0.39146**	-0.43888*	-0.08021
β_{CMA}	-0.11975	0.28353	-0.09327	-0.44181	-0.59342	-0.15846	0.10152	-0.54445*
β_{MOM}	-0.19179**	-0.20926**	-0.36702***	-0.21992	-0.17036	-0.19556*	-0.25971**	-0.16895***
$\beta_{MKT*STR}$	0.46647*	0.05105	0.73035	0.25921	0.39025	0.33306	0.91193**	-0.0305
β_{MKT*DY}	0.1064	-0.09374	1.0603***	0.61471***	0.38864	0.51854***	0.54288	-0.3304***
$\beta_{SMB*STR}$	0.7966***	-0.20918	2.09473***	1.60296***	2.23621***	1.43187***	0.86603***	-0.5315
β_{SMB*DY}	-0.02336	-0.3415	-0.4027	0.07513	-0.57778**	-0.01796	-0.60683***	0.47404*
$\beta_{HML*STR}$	-0.93881*	0.52377	0.02304	0.1182	0.19849	0.77513	-0.40022	0.49397
β_{HML*DY}	-1.23158	-0.36099	-0.31579	-1.04355*	-0.29637	-0.03431	-1.92488	0.60558
$\beta_{RMW*STR}$	-0.71225	0.17041	-5.75095***	-1.95886	-2.33935	-0.35	-0.21092	-0.12364
β_{RMW*DY}	-0.72276	-2.1833***	-0.36301	-1.04395**	-1.12628**	-0.55157*	-2.68598***	0.08823
$\beta_{CMA*STR}$	3.62211***	0.03311	3.04761**	2.43032***	-1.47051	1.51488**	2.97207***	-0.70939
β_{CMA*DY}	3.00249***	1.2414	1.79607	3.05282***	2.04438	2.19695**	4.06805***	-0.0549
$\beta_{MOM*STR}$	0.00766	0.29818*	-0.48672	-0.26657	0.04209	0.01774	0.75727***	-0.54096***
β_{MOM*DY}	0.18773	0.5679***	0.24914	0.26382*	0.07535	0.48553***	0.1955	0.21073
Adj. R^2	78.42	77.06	71.74	78.23	72.87	81.27	72.01	77.23

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR} , α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2018) six-factor model black energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP60066371*	*LP60067867*	*LP60081158*	*LP60096787*	*LP60098478*	*LP65011647*	*LP65037244*	*LP65054553*
Number	17	18	19	20	21	22	23	24
α_p	-0.00953***	-0.01373***	-0.01907***	-0.02094***	-0.01124***	-0.0102***	-0.00606**	-0.00988***
α_{STR}	0.02574*	0.02372**	0.0451	0.03024	0.02018*	-0.00132	-0.01187	0.01612*
α_{DY}	0.02088**	0.01001	-0.00781	-0.0104	0.00878	0.02173	0.023**	0.02099**
βp	1.14505***	1.40197***	1.72905***	1.50332***	1.21916***	1.30676***	1.09847***	1.37324***
β_{SMB}	0.35411***	0.19081	0.25478	-0.43915	0.18815	0.45546***	0.12138	0.11875
β_{HML}	0.20673	0.18468	-0.09834	0.54562	0.14349	0.25386	0.12719	0.13662
β_{RMW}	-0.07444	-0.1562	1.10519	-0.05808	-0.11439	-0.44984**	-0.20666	-0.11282
β_{CMA}	0.47292*	0.22852	0.04806	-0.84925	0.40842	0.31548	0.15744	0.09609
β_{MOM}	-0.17794**	-0.24477**	-0.32367	-0.50346***	-0.3241***	-0.21067*	-0.14207	-0.1241*
$\beta_{MKT*STR}$	-0.03191	-0.10196	-0.23421	-0.31996	0.06616	0.13338	0.27701	-0.01322
β_{MKT*DY}	0.08836	0.47165	0.48269	1.02616*	0.63967	-0.62432*	0.39994	-0.18952
$\beta_{SMB*STR}$	0.08098	-0.43097	-0.23659	0.46888	0.00707	-0.15708	0.37312	-0.71163***
β_{SMB*DY}	-0.30947	-0.87412***	0.20397	-1.29708**	-0.53354	-0.41717	-0.03845	0.25151
$\beta_{HML*STR}$	0.6385	0.61762	0.07469	0.27573	0.87794	0.8175*	-0.79488*	0.27065
β_{HML*DY}	-0.32029	-1.82786**	-2.22222**	-2.38056	-1.26749	1.62787**	-1.72902**	0.42636
$\beta_{RMW*STR}$	-0.22864	-0.05078	2.31353	-3.80932**	-0.14522	-0.89456*	-1.08299*	0.30821
β_{RMW*DY}	-1.82471	-2.09209***	0.02156	-2.83456**	-1.96465	-0.09329	-3.4682***	-0.12477
$\beta_{CMA*STR}$	0.26937	-0.12037	1.8056	3.23773	-0.27562	-0.06673	1.70782**	0.09489
β_{CMA*DY}	1.10215	2.79459*	3.07085*	1.01844	1.98073	0.40451	2.72337**	0.01003
$\beta_{MOM*STR}$	0.34356***	0.06139	-0.65664	-0.51804	0.21874	-0.02969	0.1061	-0.08971
β_{MOM*DY}	0.60602***	0.25589	-0.25353	-0.24657	0.33223	0.21922	0.26795*	0.47918***
Adj. R^2	77.08	71.49	86.73	60.94	68.67	72.77	74.70	80.24

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR} , α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2018) six-factor model black energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP65095384*	*LP65101258*	*LP65104187*	*LP65107744*	*LP65114606*	*LP65118711*	*LP65165343*	*LP68014086*
Number	25	26	27	28	29	30	31	32
α_p	-0.0098*	-0.01692***	-0.01245**	-0.01871***	-0.01273***	-0.00928**	-0.01177***	-0.00293
α_{STR}	-0.01398	0.00824	-0.14142***	0.0331	-0.03419	0.02712*	0.04811***	0.00543
α_{DY}	0.00529	-0.00651	-0.00219	0.01555	-0.01686	-0.00831	-0.01004	0.01145
βp	1.10464***	1.09656***	1.51388***	1.32062***	1.19834***	1.02022***	1.08037***	1.09164***
β_{SMB}	1.13696**	-0.10394	-0.09248	0.28147	0.36749	0.39732**	0.18578	0.18893
β_{HML}	-0.68748**	0.03373	0.15882	0.43876	-0.46996*	-0.12186	-0.09822	0.68534***
β_{RMW}	-1.58615***	-0.20298	-0.34311	-0.10663	-0.25165	0.03442	-0.40561***	0.11675
β_{CMA}	-0.91031	0.10125	0.0682	-0.12915	0.20149	0.76594***	-0.12528	-1.04797**
β_{MOM}	0.74533***	-0.14956	0.12392	-0.41357***	-0.00424	-0.25903*	0.08953	-0.27462
$\beta_{MKT*STR}$	0.75468	-0.22405	2.56813***	0.0089	-2.11186***	-0.82346***	0.19962	2.4106***
β_{MKT*DY}	-0.44322	-0.52709	1.25517***	0.32876	-0.01508	0.76242*	-0.35177*	-0.29334
$\beta_{SMB*STR}$	3.12963***	-0.54888	2.66313***	0.16126	3.55778***	0.16117	-1.24266***	0.89067
β_{SMB*DY}	0.45445	0.46979	-1.45805***	0.31337	0.72765	-0.17111	0.04296	0.00904
$\beta_{HML*STR}$	-0.7947	0.48488	-1.18121	0.52122	0.41211	-0.67961	0.59943*	-1.24786
β_{HML*DY}	0.50283	-0.49629	-0.03046	-1.33375*	-0.90184	-0.20806	0.46582	0.78591
$\beta_{RMW*STR}$	-3.67894	0.67837	3.30373	-1.45942	-7.41328***	-1.4282	2.87645***	-0.62694
β_{RMW*DY}	-1.74914*	-1.00164	-2.16889*	-2.67272***	-1.41702**	-0.76628	-0.04548	-1.85517*
$\beta_{CMA*STR}$	-1.9458	-0.25075	-3.00428*	0.17703	0.64014	1.17506	3.54905***	4.36697**
β_{CMA*DY}	-1.51564	-0.01215	3.49222*	0.83086	-1.90095	0.78461	0.69012	0.05114
$\beta_{MOM*STR}$	2.56136***	-0.21976	1.33203**	0.19694	-0.88121	-0.42778*	0.55943***	1.04751**
β_{MOM*DY}	0.95605***	-0.06659	0.6399***	0.44172	-0.44378	0.53272	0.20449	0.71377**
Adj. R^2	73.42	54.46	78.33	67.83	76.96	65.42	78.56	48.94

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR} , α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2018) six-factor model black energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP68016919*	*LP68035092*	*LP68042639*	*LP68056995*	*LP68057587*	*LP68068172*	*LP68089605*	*LP68106200*
Number	33	34	35	36	37	38	39	40
α_p	-0.01148***	-0.00662	-0.00744	-0.00131	-0.01119***	-0.01392***	-0.01442***	-0.00544***
α_{STR}	0.02451	0.10314	-0.08403	-0.01266	0.00268	0.02169	0.02881*	-0.00889*
α_{DY}	0.03122***	0.05431*	0.06032	-0.0776	-0.00658	0.01535	0.02496	-0.00325
βp	1.20434***	1.52369***	1.24828***	1.46517***	1.15667***	0.9513***	1.3375***	1.02573***
β_{SMB}	0.27783**	0.03653	-0.10669	0.15827	0.18307	0.31792	-0.10931	0.01454
β_{HML}	0.08427	0.33156	1.13701*	-0.46457	0.75457**	0.14149	0.41525*	-0.13804*
β_{RMW}	-0.01275	0.13706	-0.10816	-1.07373**	0.20096	0.10793	-0.17559	-0.11078
β_{CMA}	0.32921	-1.14703***	-0.93493*	0.273	-0.24291	-0.0358	-0.01552	-0.02326
β_{MOM}	-0.1999**	0.06041	-0.51286***	-0.60717*	-0.09143	-0.44986***	-0.44763***	-0.04837
$\beta_{MKT*STR}$	-0.13327	3.86812	0.43612	0.00502	0.49673	-0.01566	-0.72847**	0.01425
β_{MKT*DY}	-0.1702	1.72275***	-0.37299	0.38877	0.69991**	0.09437	-0.08468	-0.17342
$\beta_{SMB*STR}$	-0.15355	-0.10591	4.69618	-2.08925**	0.94532	1.22968**	1.41848***	-0.19217
β_{SMB*DY}	-0.39671	-1.52569	-5.75431***	0.11004	-0.08538	-0.34666	-0.66821	-0.36146
$\beta_{HML*STR}$	0.43761	4.30821	-12.27016	-0.44634	-2.20726*	-1.07018	-0.37338	-0.20332
β_{HML*DY}	-0.07669	5.44704**	8.40029**	1.9224	0.15365	-2.18102**	-0.01572	0.47175
$\beta_{RMW*STR}$	-0.28753	18.05188	2.53845	-2.72229*	-1.176	-1.23646	0.93359	-0.16972
β_{RMW*DY}	-1.53652*	2.83733	-4.30685	0.69171	-0.99767	-3.015**	0.59868	-0.36154
$\beta_{CMA*STR}$	-0.17132	4.20224	15.06094	0.20144	6.33735***	2.89711**	0.81661	-0.01498
β_{CMA*DY}	0.13124	-10.42623***	-1.78933	-3.2732	2.73719	2.14304	-3.41554*	0.11626
$\beta_{MOM*STR}$	0.50091**	-16.45881**	0.14173	-1.72475*	1.18026	-0.37297	1.04684***	-0.20775
β_{MOM*DY}	0.64175***	0.1582	-0.31969	2.17624	-0.48583	-0.02475	-0.00092	-0.69504
Adj. R^2	79.29	86.41	72.47	53.74	73.08	48.83	70.18	83.46

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR} , α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2018) six-factor model black energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP68112671*	*LP68112696*	*LP68112697*	*LP68112711*	*LP68174624*	*LP68175789*	*LP68208421*	*LP68329972*
Number	41	42	43	44	45	46	47	48
α_p	-0.02563***	-0.00534***	-0.00408***	-0.00506***	-0.02828***	-0.01292***	-0.00551***	-0.00443**
α_{STR}	0.03646	-0.00271	-0.0027	-0.00556	-0.56293**	0.02315*	-0.00059	-0.00718
α_{DY}	0.01042	-0.01362	-0.01375	-9e-04	-0.30117***	-0.01088	0.00475	0.00902
βp	2.15434***	0.98429***	0.9857***	1.01615***	1.6226***	1.31453***	0.90643***	0.56767***
β_{SMB}	-0.86381	0.14442***	0.14549***	0.0539	0.08912	-0.19257	0.1427*	0.14767
β_{HML}	0.79081	-0.19067***	-0.19099***	-0.15711**	4.88727***	0.23564*	-0.28001*	-0.08578
β_{RMW}	1.64939***	-0.03168	-0.03203	-0.09839	0.06958	-0.27442	-0.08804	0.17062
β_{CMA}	-1.75091	-0.10984	-0.11177	-0.12222	-4.62861***	0.31871	-0.08332	0.19074
β_{MOM}	-0.55879**	0.0015	0.00095	-0.01797	2.42388**	-0.32358**	-0.11907	0.01972
$\beta_{MKT*STR}$	-14.73091***	-0.05708	-0.05545	-0.0455	-28.13081***	-0.59596**	0.16417	-0.08372
β_{MKT*DY}	4.17371***	-0.14205	-0.14748	-0.30725*	6.21458***	0.14411	-0.95692**	-1.44407***
$\beta_{SMB*STR}$	17.21103	-0.2774**	-0.2831**	-0.18064	69.19927***	1.47459**	-0.14881	-0.55207**
β_{SMB*DY}	-6.82936***	0.33914	0.353	-0.22229	3.62692	0.17429	0.15027	-0.08305
$\beta_{HML*STR}$	23.86738*	0.00014	0.00275	-0.02827	-76.92671***	-0.81914**	0.36558	-0.59947**
β_{HML*DY}	6.65114	-0.08997	-0.09414	0.29837	57.88349***	-0.7817	0.35061	1.15668
$\beta_{RMW*STR}$	37.75474***	-0.00832	-0.01282	0.03318	86.0189***	0.84925	0.20271	-0.15611
β_{RMW*DY}	16.29135***	0.06668	0.0744	-0.46392	13.92779	1.84455	0.89648	0.92574
$\beta_{CMA*STR}$	23.89602	-0.22856	-0.23805	-0.10556	89.26258***	1.62728***	-1.01061	0.30556
β_{CMA*DY}	3.00784	0.36579	0.36327	0.26014	-57.70893***	-1.34607	0.34604	0.13494
$\beta_{MOM*STR}$	-5.58024	-0.22144**	-0.2238**	-0.12183	-7.14672	0.93344**	-0.00241	-0.27074**
β_{MOM*DY}	-3.65847*	-0.20642	-0.20839	-0.47944	56.42652***	-0.61658	-0.36156	-0.65339
Adj. R^2	80.14	89.85	89.86	85.85	88.75	81.88	88.43	70.42

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR} , α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2018) six-factor model black energy single fund performance – S&P Global 1200 (continued)

Lipper RIC	*LP68379733*	*LP68387162*
Number	49	50
α_p	-0.01463***	0.01151
α_{STR}	0.04624*	-0.03144
α_{DY}	0.00536	-0.11691
βp	1.10683***	-0.22887
β_{SMB}	0.31273*	3.85335***
β_{HML}	-0.12627	1.5117**
β_{RMW}	0.31251	-0.96279
β_{CMA}	0.23331	-4.17016**
β_{MOM}	-0.35989***	3.69679***
$\beta_{MKT*STR}$	-1.91938***	3.94746*
β_{MKT*DY}	0.29833	8.48036**
$\beta_{SMB*STR}$	1.32198**	-4.49283***
β_{SMB*DY}	0.81306***	20.67471***
$\beta_{HML*STR}$	1.88537**	-2.59502
β_{HML*DY}	-0.29774	6.5065*
$\beta_{RMW*STR}$	-3.99827**	3.08226*
β_{RMW*DY}	-0.58254	0.61764
$\beta_{CMA*STR}$	2.08598**	14.41264**
β_{CMA*DY}	-1.04559	-15.58355**
$\beta_{MOM*STR}$	-0.65283**	-6.21903**
β_{MOM*DY}	0.26314**	7.84276**
Adj. R^2	80.23	75.76

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR} , α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

K. Conditional Fama and French (2018) six-factor model renewable energy single fund performance – style index

Lipper RIC	*LP60040112*	*LP60046885*	*LP60051799*	*LP60058385*	*LP60064451*	*LP65017554*	*LP65027053*	*LP65058312*
Number	1	2	3	4	5	6	7	8
α_p	-0.0025	0.00342	-0.00118	4e-04	0.00114	-0.00044	-0.00356	0.00139
α_{STR}	0.03715*	-0.00723	0.00105	-0.01593	-0.0139*	0.00148	-0.06673	-0.02227
α_{DY}	0.02887*	0.02118	0.00961*	0.02656***	0.01416**	0.01189*	0.10876***	-0.00083
βp	0.57631***	0.86346***	0.83016***	0.70264***	0.69608***	0.68789***	0.64415***	0.88615***
β_{SMB}	0.3527*	0.28044**	-0.00261	-0.03326	-0.05467	-0.17556	-0.6976***	-0.17538
β_{HML}	0.34824*	0.22322*	-0.03849	-0.10992	-0.02581	-0.05729	0.60554	0.03781
β_{RMW}	0.20974	0.08808	-0.04253	0.01443	0.2602*	0.04594	0.11335	-0.20582
β_{CMA}	0.6166**	-0.08524	0.05706	0.2559	-0.00505	0.1483	-0.70943*	-0.10778
β_{MOM}	-0.22724**	-0.22799***	-0.07532	-0.10007	-0.04636	-0.10198	-0.24001**	0.0013
$\beta_{MKT*STR}$	0.08	0.15043	0.05366	-0.06752	0.13478	-0.08092	-0.80529	0.11234
β_{MKT*DY}	-0.07553	0.19899	-0.08207	0.12267	0.18315*	0.0636	0.24702	-0.26842**
$\beta_{SMB*STR}$	0.20906	-0.33688	-0.24801	-0.01221	0.00545	-0.43589	11.96532**	-0.24384
β_{SMB*DY}	0.56119	0.1472	0.30092	-0.04634	0.1884	0.26592	0.22332	1.10726**
$\beta_{HML*STR}$	0.66371	0.09631	0.26104	-0.19385	-0.43214*	0.05348	-0.94883	-0.17577
β_{HML*DY}	0.39919	1.7425*	0.3038	0.03074	-0.58499	0.3831	1.41623	-0.01092
$\beta_{RMW*STR}$	-0.50975	-0.77756	0.16942	-0.17838	0.00944	-0.19643	-0.37704	0.29587
β_{RMW*DY}	-2.3404***	-0.72363	-0.38959	-1.39263**	-0.01848	-0.74793**	-6.18705***	0.23629
$\beta_{CMA*STR}$	-0.24509	-1.0199*	-0.59697*	-1.39382*	-0.12751	-0.65051	9.39473***	-0.21306
β_{CMA*DY}	-1.4001	-1.61066	-1.15117**	-0.28175	0.6351	-1.83585**	3.35285	0.19233
$\beta_{MOM*STR}$	0.57146**	-0.28194	0.02457	0.12985	-0.16595	-0.06798	-0.72321	-0.16253
β_{MOM*DY}	1.07276***	0.23322	0.25987**	0.5503***	0.17144	0.51553***	0.34603	0.05474
Adj. R^2	61.79	85.37	89.42	83.33	78.79	73.00	66.16	66.63

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the Renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR} , α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2018) six-factor model renewable energy single fund performance – style index (continued)

Lipper RIC	*LP65059317*	*LP65064615*	*LP65070185*	*LP65076069*	*LP65076086*	*LP65077966*	*LP65080353*	*LP65086478*
Number	9	10	11	12	13	14	15	16
α_p	3e-04	0.0046	0.00058	0.001	0.00195	-0.00034	0.00526**	0.00354**
α_{STR}	-0.00841	-0.001	0.00797	-0.00645	-0.00906	-0.04142**	-0.00575	-0.02068**
α_{DY}	0.01278**	0.01126	-0.00299	0.02912***	0.0103	0.02044***	0.00741	0.03275***
βp	0.65946***	0.68745***	0.63843***	0.72426***	0.66916***	0.69433***	0.58991***	0.71021***
β_{SMB}	-0.08154	-0.057	0.13906	-0.0194	0.18511*	-0.01163	0.04944	-0.1821**
β_{HML}	-0.04709	-0.28682**	-0.04479	-0.06731	-0.04364	-0.33853	-0.02227	0.03135
β_{RMW}	0.16023	0.096	0.1427	0.08945	0.13494	-0.2025	0.10618	0.22222**
β_{CMA}	0.08105	0.24237	0.22461*	0.14306	-0.2004	0.58493*	-0.03277	-0.05339
β_{MOM}	-0.07722	0.10509	-0.10263*	-0.09835	0.00146	0.05242	-0.07735	-0.04252
$\beta_{MKT*STR}$	0.058	0.23182**	0.14337*	-0.05851	0.03428	0.11743	0.06183	0.11499
β_{MKT*DY}	0.12282	0.18365	0.15547*	0.14819	0.06805	0.2651**	0.19972***	0.19288
$\beta_{SMB*STR}$	0.04246	-0.03096	-0.13222	-0.01027	0.27745	0.60389	-0.04773	0.32021
β_{SMB*DY}	0.2719	0.97336**	0.3934*	-0.05763	0.44413	-0.43249	0.17368	-0.161
$\beta_{HML*STR}$	-0.19208	-0.48408	-0.08052	0.00948	0.00283	-0.73663	-0.14143	-0.93335***
β_{HML*DY}	-0.46578	0.01869	-0.06463	0.25519	-0.03969	-0.34252	-0.34838	0.73458
$\beta_{RMW*STR}$	0.27399	-0.33623	-0.05093	-0.69863	0.89955	-2.19486	-0.19648	-0.03002
β_{RMW*DY}	-0.15233	-0.91281	-0.37808	-1.39829**	-0.73944	-1.66182***	-0.82852*	-0.60162
$\beta_{CMA*STR}$	-0.33896	0.19227	-0.23252	-1.45709**	-0.415	-3.26394**	-0.69096*	0.4614**
β_{CMA*DY}	0.38547	-1.72931*	-1.00735	-0.88961	-0.67392	0.04802	-0.56408	-2.20759***
$\beta_{MOM*STR}$	-0.18667	0.11761	-0.171	0.13406	0.21496	0.28527	-0.16839	-0.21322
β_{MOM*DY}	0.14466	0.52746***	0.17066	0.59093***	0.45232***	0.14246	0.10353	0.34484**
Adj. R^2	78.12	67.64	82.83	84.62	80.10	84.37	80.45	82.47

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the Renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR} , α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2018) six-factor model renewable energy single fund performance – style index (continued)

Lipper RIC	*LP65087149*	*LP65106669*	*LP65107476*	*LP65114568*	*LP65118709*	*LP65124361*	*LP65132297*	*LP65134555*
Number	17	18	19	20	21	22	23	24
α_p	0.00563**	-0.00221	-0.00295	0.00227	-0.00014	0.00367**	-0.00128	-0.00415
α_{STR}	-0.01748	-0.00753	-0.04356	-0.05416**	0.00011	-0.01652	-0.00674	-0.0153
α_{DY}	0.01316*	-0.00338	0.00592	0.01027*	-0.00496	0.00293	0.00437	-0.05133***
βp	0.90467***	1.01681***	0.91475***	0.80999***	0.79917***	0.69676***	0.93991***	1.44881***
β_{SMB}	0.12836	-0.06657	-0.13655	-0.1687*	-0.11641	0.16899**	-0.45791***	-0.46727**
β_{HML}	0.21493	0.08254	-0.30239*	-0.29559**	0.07592	-0.27735***	-0.23591*	0.19029
β_{RMW}	0.12252	-0.35342*	-0.10909	0.01247	-0.15513	-0.01671	0.15315	-0.70133*
β_{CMA}	-0.18528	-0.03477	0.48014*	0.5625**	-0.14001	0.14909	-0.00819	-0.84658**
β_{MOM}	-0.2774***	-0.01029	0.01815	-0.12353	-0.11891*	-0.10781*	-0.20572***	0.18753
$\beta_{MKT*STR}$	0.24565***	0.3969***	-0.2925	-0.03107	0.18703**	-0.04999	0.23042	0.48918*
β_{MKT*DY}	0.26507**	0.3016	0.14122	0.28665***	0.12496	-0.04047	0.41586***	0.57744
$\beta_{SMB*STR}$	0.24365	-1.07253**	0.97551	0.74624	0.32174	0.00585	-0.12431	-0.57483
β_{SMB*DY}	0.05085	0.77327	-0.47574**	-0.25893	-0.07059	0.21401	-0.45355*	-1.12907*
$\beta_{HML*STR}$	-0.08463	0.1098	-0.45644	-0.70298*	-0.10025	-0.00986	-0.65188	-0.47256
β_{HML*DY}	-0.11875	-0.38302	0.00966	-0.45637	-0.18676	0.29356	-0.41225	-0.88456
$\beta_{RMW*STR}$	-0.49897	-1.05034	-2.8382*	0.18969	0.15245	0.86505	-1.47314*	-1.6304
β_{RMW*DY}	-0.42665	-0.86171	-0.50868	-0.69635	-0.42519	-0.45453	-0.87025	-1.27657
$\beta_{CMA*STR}$	-0.28357	-0.42027	-0.57631	-2.01552***	0.23298	-0.93475	0.26655	1.03786
β_{CMA*DY}	-0.80316	-0.66495	-0.55125	0.341	-0.79821	-0.95663	-0.7614	1.2685
$\beta_{MOM*STR}$	-0.16804	-0.70219***	-0.58548**	-0.42451*	-0.0086	0.03695	-0.4981*	-0.67111**
β_{MOM*DY}	0.38175***	0.29856	0.05472	0.00287	0.08766	0.31746	0.23546	-0.8798**
Adj. R^2	84.02	83.94	93.31	86.61	85.48	86.46	78.87	73.30

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the Renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR} , α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2018) six-factor model renewable energy single fund performance – style index (continued)

Lipper RIC	*LP65138181*	*LP65149328*	*LP68032885*	*LP68034366*	*LP68036387*	*LP68040134*	*LP68060740*	*LP68063580*
Number	25	26	27	28	29	30	31	32
α_p	0.00656***	-0.00128	0.00576***	-0.00032	0.00119	0.00101	-0.01089***	0.00706**
α_{STR}	-0.01416	-0.04023	-0.01109	-0.00209	-0.00357	0.00091	0.18893	-0.0852*
α_{DY}	0.01038	-0.05967	0.03357***	0.0293	0.02298	-0.01133	0.00473	0.01084
βp	0.61814***	1.31288***	0.57634***	0.64656***	0.52223***	0.66327***	0.95367***	0.37744***
β_{SMB}	0.12117	-0.29473	0.30412***	0.24157	0.06503	0.16051*	0.46095*	-0.50244*
β_{HML}	0.00706	-0.12197	-0.03105	0.02501	-0.05004	-0.10141	0.12389	-0.15108
β_{RMW}	0.21339	-0.94495**	0.20558	-0.23028	0.1303	0.18412	0.62489**	-0.74201***
β_{CMA}	-0.02776	0.45648	-0.00816	0.46318	0.10635	-0.12086	-0.093	0.31416
β_{MOM}	-0.03095	0.25861*	-0.04584	-0.05747	0.10067	0.00678	0.26612	-0.13925
$\beta_{MKT*STR}$	0.20902***	0.44448	0.20859***	0.116	0.19159*	0.19197***	2.98251	-1.88599***
β_{MKT*DY}	0.13299	1.00853*	0.46747***	-0.22777	0.0408	0.19271*	0.37642	0.59167**
$\beta_{SMB*STR}$	0.13272	-1.08105	-0.60691	-0.1052	-0.36266	0.0787	-19.25254***	2.21399
β_{SMB*DY}	0.42749*	1.28181	-0.00364	1.36389	1.3013	0.05082	1.828	-4.92385***
$\beta_{HML*STR}$	-0.36756	-1.1683	-0.43649*	-0.15711	-0.40266	-0.17858	-1.24761	-8.8288*
β_{HML*DY}	0.18461	-4.26013	1.29336**	0.98765	1.47148	-0.18209	1.32525	4.65945**
$\beta_{RMW*STR}$	-0.07284	1.97241	-0.10245	0.24459	-0.21279	-0.16252	-12.1672	7.9408***
β_{RMW*DY}	-0.79992*	-2.51553	-0.52018	-3.46582***	0.18204	-0.26759	3.05945*	-4.71665***
$\beta_{CMA*STR}$	0.13419	0.04622	-0.09809	0.42682	-0.1932	-0.05533	-7.5729	-3.58707
β_{CMA*DY}	-1.21461*	4.44204*	-1.07172	-0.82527	-2.97762***	-0.42948	-2.46427	-6.72651***
$\beta_{MOM*STR}$	-0.03571	-0.87129	-0.56401**	0.19819	-0.21247	0.06095	-8.92418**	-9.30513***
β_{MOM*DY}	0.36164**	-1.67661*	0.35433*	-1.23918**	0.23259	0.02737	-1.78232	0.19387
Adj. R^2	78.24	66.24	80.75	67.37	67.20	83.88	83.87	81.58

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the Renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR} , α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2018) six-factor model renewable energy single fund performance – style index (continued)

Lipper RIC	*LP68082458*	*LP68115151*	*LP68121010*	*LP68138542*	*LP68191873*	*LP68352892*	*LP68356311*	*LP68398137*
Number	33	34	35	36	37	38	39	40
α_p	-0.01069***	0.01072*	0.00191	0.00022	0.00176	0.00566	-0.00214	-0.00829
α_{STR}	0.03473***	0.18781	-0.0098	0.00527	-0.00132	-0.01641	0.0088	0.00783
α_{DY}	-0.00323	0.24405***	0.01756***	0.04243	-0.00229	0.00225	-0.02821	-0.05749**
βp	0.53599***	0.37016	0.90067***	0.53452***	0.59817***	0.62974***	0.55013***	0.53232***
β_{SMB}	-0.26124*	-0.44157	-0.0758	0.06696	0.32803**	0.42904*	0.47278***	0.53087**
β_{HML}	-0.00467	-0.49192	-0.03172	0.02231	-0.09123	0.2404***	-0.2015*	-0.18913
β_{RMW}	0.1972	-0.06598	0.10074	0.067	0.42585*	0.45198*	0.40746**	0.97995**
β_{CMA}	0.23389	-2.00239**	-0.04022	0.04051	0.11225	-0.5744**	0.20244	-0.07041
β_{MOM}	-0.03205	-0.76659	-0.11925**	0.02387	0.00829	0.06446	0.05223	0.03933
$\beta_{MKT*STR}$	-0.14623*	-22.66437*	0.28339***	-0.10592	0.2278*	0.25374***	0.10607	0.21797*
β_{MKT*DY}	0.27291	-1.35547	0.27903**	0.55728	0.87278*	0.29331	0.57488	-0.32702
$\beta_{SMB*STR}$	-1.05185**	16.14008	-0.20358	0.14292	-0.33231	-0.79978*	-0.9961**	-0.27796
β_{SMB*DY}	0.38762	-3.3898	-0.13017	0.02351	0.45167	1.92262	2.61876*	5.57926***
$\beta_{HML*STR}$	1.1273***	2.24516	-0.43606*	0.38845	0.00208	0.26533	0.15677	-0.34866*
β_{HML*DY}	-0.25296	9.39462**	-0.2468	0.59455	0.36768	1.10635	0.74092	-1.07463
$\beta_{RMW*STR}$	1.08046**	-9.49577	-0.39084	1.10517	0.08131	-0.74724	-0.26865	-0.2506
β_{RMW*DY}	-0.45938	-4.75052	-0.39595	-2.04806	-0.42935	1.66385	0.61424	5.32177**
$\beta_{CMA*STR}$	-0.18952	8.46659	0.16221	-1.12755**	-0.56204	-1.57551***	-1.11663*	0.11167
β_{CMA*DY}	-2.55249*	-15.25879***	-0.3857	-1.77722	-1.29728	-4.27137***	-1.72987	-2.93201*
$\beta_{MOM*STR}$	-0.29944	-33.62476	-0.32085	0.02812	-0.58968**	-0.69116***	-0.73863***	-0.55158**
β_{MOM*DY}	0.45891	3.09632**	0.22958**	0.10753	0.80605	1.65091**	1.59917***	1.4817***
Adj. R^2	52.13	78.40	86.86	50.06	75.86	83.89	76.60	84.92

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the Renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR} , α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2018) six-factor model renewable energy single fund performance – style index (continued)

Lipper RIC	*LP68411514*	*LP68415654*	*LP68461739*
Number	41	42	43
α_p	-0.00855***	-0.00333	-0.00355
α_{STR}	0.00789*	0.00849	-0.00588
α_{DY}	-0.10266***	-0.06253***	-0.0583
βp	0.37499***	0.29894***	0.53815***
β_{SMB}	0.23965	0.18134	0.53048*
β_{HML}	-0.21566***	-0.32443***	-0.18794
β_{RMW}	0.03429	0.50467**	0.43136
β_{CMA}	-0.07273	-0.00424	0.07813
β_{MOM}	0.02318	-0.11965	-0.13073
$\beta_{MKT*STR}$	-0.21457***	0.14025**	0.37922***
β_{MKT*DY}	-0.48867	0.19751	-0.57045
$\beta_{SMB*STR}$	-1.51293***	-0.98972***	-1.33632***
β_{SMB*DY}	-0.47147	4.03956***	7.93976***
$\beta_{HML*STR}$	-0.41994*	0.06839	-0.24952
β_{HML*DY}	-0.89651**	0.19904	-0.99707
$\beta_{RMW*STR}$	-1.27582***	-1.14083***	-1.92674***
β_{RMW*DY}	1.00232	4.17504**	8.54206***
$\beta_{CMA*STR}$	-0.41061	-1.22408***	-1.32059***
β_{CMA*DY}	0.77759	-2.77697*	-1.88059
$\beta_{MOM*STR}$	-1.20175***	-0.8318***	-1.18327***
β_{MOM*DY}	1e-04	2.29636***	2.69108***
Adj. R^2	91.02	76.27	88.15

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the Renewable energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR} , α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

L. Conditional Fama and French (2018) six-factor model black energy single fund performance – style index

Lipper RIC	*LP40186670*	*LP40187223*	*LP40210457*	*LP40210693*	*LP40211656*	*LP40213027*	*LP40221966*	*LP60017507*
Number	1	2	3	4	5	6	7	8
α_p	0.00105	0.00173	0.01646	-0.00751**	0.016*	-0.00068	0.00234	-2e-05
α_{STR}	-0.01586*	-0.01893***	-0.04629**	-0.00217	-0.06137**	-0.01544	-0.01023	-0.01259***
α_{DY}	-0.01534	-0.01404	-0.03434	-0.09727*	-0.22616**	-0.08538	-0.01236	-0.00301
βp	0.61392***	0.64256***	0.88618***	0.7279***	0.81336***	0.91045**	0.82336***	0.82175***
β_{SMB}	0.08739	0.10757	-0.09377	0.13149	-0.22192	-0.37526*	-0.34811	-0.01787
β_{HML}	0.02869	0.03378	-0.11226	-0.38048***	-2.23878***	-0.36945	-0.20065	-0.06693
β_{RMW}	-0.05116	-0.04922	-0.94364	0.01021	-0.23755	-1.20522	-0.98427**	-0.02946
β_{CMA}	-0.31895	-0.31551	-0.04564	0.33303*	2.71895***	0.34359	-0.20304	-0.30973***
β_{MOM}	0.0066	0.00899	-0.35712*	-0.00547	-0.40315	-1.09618***	-0.11173	-0.07009
$\beta_{MKT*STR}$	-0.12212	-0.15347**	-0.28966**	-0.40712**	-0.80331	-0.69424	-0.50267***	0.11142**
β_{MKT*DY}	0.33674	0.2142	0.97601	-0.12437	-1.5895	-1.11394	2.64695***	0.09024
$\beta_{SMB*STR}$	-0.3306	-0.31373*	0.9338	-0.54808*	-3.79181***	1.00728	-0.10308	-0.20367
β_{SMB*DY}	1.27302	1.37401*	2.30057	2.58658**	0.81136	0.35408	-0.38025	0.19869
$\beta_{HML*STR}$	-1.30971***	-1.41809***	-2.28768***	-1.43938**	8.76146***	-0.41387	-0.94294**	-0.19033
β_{HML*DY}	0.75842	0.80102	0.01337	-1.26477	-6.52192**	4.11823	0.8349	0.01713
$\beta_{RMW*STR}$	-1.76861**	-1.57019**	-0.16234	-0.94817	0.681	1.5152	-0.95889	-0.26533
β_{RMW*DY}	3.28055**	3.50892***	-3.01385	7.32937***	-1.51354	2.85364	-3.60204	0.28855
$\beta_{CMA*STR}$	1.50699**	1.73783***	2.56923***	0.06262	-11.63074**	-0.25919	0.55038	-0.41762
β_{CMA*DY}	-0.31879	-0.1294	-5.61734**	-5.38143*	-11.75833***	-12.98149***	-7.52103***	-0.50847*
$\beta_{MOM*STR}$	-0.58444***	-0.64852***	-0.20641	-0.73864	-4.04015	2.30115**	-0.68024***	-0.2378**
β_{MOM*DY}	-1.14601**	-1.21552***	-1.92065	-2.82475*	-5.33826*	-3.72466**	2.52967*	-0.11158
Adj. R^2	74.97	78.13	79.41	85.58	57.30	60.01	89.13	92.78

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2018) six-factor model black energy single fund performance – style index (continued)

Lipper RIC	*LP60023233*	*LP60033339*	*LP60033655*	*LP60036138*	*LP60041740*	*LP60041945*	*LP60051702*	*LP60055236*
Number	9	10	11	12	13	14	15	16
α_p	-0.00128	-0.00217*	-0.00496**	-0.00277**	-0.00554*	-0.00147***	-0.00734**	0.00326
α_{STR}	-0.00192	-0.00707*	-0.03054*	-0.00576	-0.03286*	0.00372	0.00571	-0.03065***
α_{DY}	0.00329	-0.00027	-0.01106	-0.00666*	-0.00067	-0.00224**	-0.02802***	0.00469
βp	0.97686***	0.97818***	1.18256***	1.07828***	1.08512***	0.99412***	1.10659***	0.6986***
β_{SMB}	-0.0178	-0.02548	-0.23724	0.03746	-0.10719	0.01351	-0.08578	-0.12762
β_{HML}	-0.01702	-0.01023	-0.10057	0.03505	-0.09074	-0.02637	-0.17982	0.00481
β_{RMW}	-0.24664*	-0.01128	-0.25474	-0.08902	-0.34404***	-0.01287	-0.4119*	-0.08283
β_{CMA}	-0.26146	-0.21533***	-0.46443*	-0.22407**	-0.22438	0.04521	-0.11023	-0.95565***
β_{MOM}	-0.13507***	-0.06843*	-0.16016**	-0.00527	-0.04421	-0.00954	-0.17041*	-0.11348*
$\beta_{MKT*STR}$	0.08645	-0.00534	1.26423***	0.17465	-0.13137	0.45562***	-0.12043	0.24809**
β_{MKT*DY}	-0.3071**	0.00587	0.43653***	0.14251*	0.04435	0.12433***	0.00481	-0.13033
$\beta_{SMB*STR}$	-0.26631	-0.11251	1.59563**	0.02727	0.74121**	0.47054**	-0.37726**	-0.63146***
β_{SMB*DY}	0.0462	-0.05982	-0.53238**	-0.12125	-0.66208***	-0.18785***	-0.33071	0.52314**
$\beta_{HML*STR}$	-0.10557	-0.09577	-0.51308	0.00728	0.23275	0.30522*	0.912*	0.16685
β_{HML*DY}	0.28188	-0.35294*	0.54451	0.10116	0.74333**	0.68589***	0.01152	1.03718***
$\beta_{RMW*STR}$	0.64099	0.38227*	-2.91261**	-1.88552***	-3.18453***	0.23645	0.30622	-0.57531
β_{RMW*DY}	1.02401**	-0.59979***	0.23283	-0.14533	0.05785	0.16504*	-0.33002	1.12168***
$\beta_{CMA*STR}$	-0.15	-0.38378*	-0.5701	0.43855	-3.5542***	-0.32206*	-1.37089**	-1.29176***
β_{CMA*DY}	-0.24585	0.32579	-0.39149	-0.28862	-1.47508***	-0.37505	-0.31944	-1.28679**
$\beta_{MOM*STR}$	-0.07639	-0.11379	0.34623	0.18921**	0.02692	0.50507***	0.38935	-0.60107***
β_{MOM*DY}	0.04873	-0.14067	0.15942	0.17427***	-0.16474	0.3495***	-0.05686	-0.004
Adj. R^2	91.11	96.08	87.24	97.78	91.05	99.41	83.70	75.99

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2018) six-factor model black energy single fund performance – style index (continued)

Lipper RIC	*LP60066371*	*LP60067867*	*LP60081158*	*LP60096787*	*LP60098478*	*LP65011647*	*LP65037244*	*LP65054553*
Number	17	18	19	20	21	22	23	24
α_p	-0.00254***	-0.00448*	-0.01413***	-0.01088*	-0.00399**	-0.0025	-0.00011	-0.00055
α_{STR}	-0.00371	-0.01275	0.06927**	0.01653	-0.00824	-0.02784*	-0.02134***	-0.0162*
α_{DY}	-0.00333**	-0.01474**	-0.01376	-0.02098	-0.01079	-0.00616	0.00638	-0.00523
βp	0.98212***	1.13384***	1.38784***	1.22562***	1.04545***	1.03802***	0.92287***	1.01705***
β_{SMB}	-0.04255	-0.23045*	0.26277	-0.46574**	-0.20834**	0.03587	-0.03179	-0.24943**
β_{HML}	-0.0443	-0.10148	-0.47342*	-0.21921	-0.12029	0.06882	-0.29096**	-0.07498
β_{RMW}	-0.07595	-0.19382	1.0488**	-0.48997	-0.11225	-0.38481**	-0.33335***	-0.15263
β_{CMA}	-0.00347	-0.32139*	0.55928	-0.65358	-0.09828	-0.28414	-0.01585	-0.47416**
β_{MOM}	-0.02732	-0.0972	-0.67873***	-0.46578***	-0.16847**	-0.08517	-0.06399	-0.0262
$\beta_{MKT*STR}$	0.10649***	0.07972	-0.56276	-0.72719***	0.26621***	0.56596***	0.15076	0.18009*
β_{MKT*DY}	0.10199**	0.30407	-0.28377	-0.16742	0.37136**	-0.24861	0.04732	-0.05407
$\beta_{SMB*STR}$	0.0928	-0.4698	-3.58088***	-0.38182	-0.10155	-0.32411	-0.20116	-0.76244***
β_{SMB*DY}	-0.09032	-0.4965*	0.53034	-0.49423	-0.27368	-0.53689	0.1121	0.4749
$\beta_{HML*STR}$	0.07289	-0.06589	0.35519	1.72099	0.35137	0.44687	-0.15148	-0.29407
β_{HML*DY}	0.09398	-0.97287***	-1.23501	1.6597	-0.35682	2.05026***	0.0783	0.89775***
$\beta_{RMW*STR}$	-0.19407	-0.10174	5.6607***	-0.80953	-0.13227	-1.42592***	0.29228	0.00988
β_{RMW*DY}	-0.18657	-0.28873	1.39854	0.79876	-0.35889	1.47511**	-1.27757*	1.40518***
$\beta_{CMA*STR}$	-0.14322	-0.64951*	1.12512	-1.49224	-0.82334**	-0.92506**	-0.61612	-0.59547*
β_{CMA*DY}	-0.20422	0.83735*	0.30813	-5.60121**	0.1106	-1.09087	-0.81691	-1.55823*
$\beta_{MOM*STR}$	0.08049	-0.24493	-1.55743***	-0.74873	0.06997	0.00363	0.03941	-0.33959*
β_{MOM*DY}	0.01493	-0.40465**	-0.7083***	-0.58012	-0.20495	-0.05477	0.01886	-0.02053
Adj. R^2	98.27	87.32	87.55	69.45	87.36	79.78	86.04	85.19

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2018) six-factor model black energy single fund performance – style index (continued)

Lipper RIC	*LP65095384*	*LP65101258*	*LP65104187*	*LP65107744*	*LP65114606*	*LP65118711*	*LP65165343*	*LP68014086*
Number	25	26	27	28	29	30	31	32
α_p	-0.00988*	-0.00922***	-0.00746	-0.00979***	-0.00806*	-0.00235	-0.00394	0.002
α_{STR}	-0.01194	-0.02259	-0.07787***	-0.00327	-0.04022*	-0.00711	0.04208***	0.01414
α_{DY}	-0.01089	-0.03278***	-0.00913	-0.01844**	-0.02109	-0.01806	-0.00877	0.00573
βp	1.07202***	0.82723***	1.24839***	1.25152***	1.04393***	0.86221***	0.69727***	1.00648***
β_{SMB}	0.92349**	-0.43368***	-0.0925	-0.03664	0.45504	0.05311	0.25823	-0.01071
β_{HML}	-1.04978***	-0.14908	-0.13938	-0.15078	-0.71376***	-0.37835***	-0.50279***	-0.02296
β_{RMW}	-1.06141**	-0.21589	-0.2934	-0.24852**	-0.00637	0.08004	-0.70038***	0.11585
β_{CMA}	-0.24629	-0.32207	0.30676	-0.38196**	0.51758	0.44257**	-0.05254	-1.1097***
β_{MOM}	0.34638	-0.06087	-0.20114	-0.27086***	-0.2669	-0.16736	0.07784	-0.20346
$\beta_{MKT*STR}$	-0.61412*	0.00194	1.51273***	-0.11414	-2.40401***	-0.19759	-0.51144	0.35334
β_{MKT*DY}	-0.38838	-0.15196	0.53451***	0.03324	-0.55135***	0.66728**	-0.58269***	-0.27728
$\beta_{SMB*STR}$	1.13012	-0.51939	2.16965***	-0.40873**	-1.2874**	0.24764**	-2.00475***	0.05225
β_{SMB*DY}	0.46009	0.60788*	-1.23983***	0.20856	1.2292***	-0.17582	0.30802	-0.04914
$\beta_{HML*STR}$	0.44584	-0.04086	-0.03514	0.63081***	0.63985	-0.34092	0.72685	0.37401
β_{HML*DY}	1.15964	-0.31064	0.58374	0.34019	0.45299	-0.79896	0.82702	0.84203
$\beta_{RMW*STR}$	-4.5836**	0.3668	4.63354*	-0.15692	-4.93455**	-1.60733**	3.12508***	-1.40225
β_{RMW*DY}	0.43398	0.39974	-1.14732	0.33478	0.56671	-0.43431	0.69099	-0.30303
$\beta_{CMA*STR}$	-3.05014	-0.67909	-2.73728**	-1.74076***	-0.29067	0.40298	0.32712	-0.66055
β_{CMA*DY}	-4.74331**	-1.08594	1.47612	-2.36831***	-5.4058***	-0.24694	-1.68024	-2.89882
$\beta_{MOM*STR}$	0.90556	-0.48201	0.73262	-0.1956	-2.14993***	-0.3535	0.20882	0.35473
β_{MOM*DY}	0.3132	-0.50145***	0.15572	-0.20262	-0.79255**	-0.25194	-0.06759	0.23894
Adj. R^2	82.33	59.46	82.25	90.20	83.01	79.50	63.77	55.65

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2018) six-factor model black energy single fund performance – style index (continued)

Lipper RIC	*LP68016919*	*LP68035092*	*LP68042639*	*LP68056995*	*LP68057587*	*LP68068172*	*LP68089605*	*LP68106200*
Number	33	34	35	36	37	38	39	40
α_p	-0.00354***	0.00054	-0.00056	0.00967	-0.00523***	-0.00927**	-0.00538*	0.00357
α_{STR}	-0.00852**	0.08711	-0.13304*	-0.03884	0.00707**	0.01455	-0.0095	-0.02666***
α_{DY}	0.00373	0.00018	0.04452*	-0.09447	-0.00932	-0.00225	-0.01609	-0.01717
βp	0.98616***	1.20578***	0.94243***	0.89905***	1.0428***	0.95459***	1.19672***	0.50569***
β_{SMB}	-0.1172*	0.19018	-0.45477	0.12894	0.10125	0.22818	-0.31518*	-0.02282
β_{HML}	-0.16101**	0.2446	0.60764	-0.72908*	-0.02325	-0.26374	0.06218	-0.2701**
β_{RMW}	-0.04135	0.222	-0.65783**	-1.16231***	0.00896	0.10968	-0.09029	-0.2475
β_{CMA}	-0.16478	-0.71902**	-0.64017**	-0.24043	-0.11774	-0.25918	-0.42561*	-0.42414**
β_{MOM}	-0.06277*	-0.34176	-0.18032**	-0.52093*	0.05337	-0.32651***	-0.01282	-0.08726
$\beta_{MKT*STR}$	-0.02055	3.76664	2.21465	0.21609	-0.26354***	-0.16018	-0.18503*	-0.03273
β_{MKT*DY}	-0.05533	-0.0537	-0.54981*	-0.05015	0.02038	-0.31606	-0.40512	-0.15768
$\beta_{SMB*STR}$	-0.0751	-7.20755**	4.24988	-3.27117***	-0.28252	0.38114	0.52512*	-0.85686***
β_{SMB*DY}	-0.12709	0.75587	-4.10767**	1.89023	0.52386	-0.18534	-0.68976	0.66342
$\beta_{HML*STR}$	-0.20237*	-1.63798	-14.71229	-0.18903	0.20328	-0.12887	-0.04632	-0.0754
β_{HML*DY}	0.18587	3.90369**	7.36347**	1.99473	0.32999	0.02349	-1.273	1.1371
$\beta_{RMW*STR}$	-0.31482	5.77769	6.22686**	-3.37819**	-0.13272	-0.11464	0.41518	-0.6845*
β_{RMW*DY}	0.17485	-1.89351	-4.45368**	0.14977	0.34987	-0.10721	-1.16426	-0.96453
$\beta_{CMA*STR}$	-0.54154**	1.87955	11.2302	-1.64765	0.15175	0.53545	-0.08411	-1.30769**
β_{CMA*DY}	-1.06076***	-7.28763***	-2.17148	-2.91618	-0.74779	-1.85461	1.22361	-0.24009
$\beta_{MOM*STR}$	0.13433**	-7.40925	1.12719	-2.3675**	-0.27366	-0.41922	0.26904	-0.80259***
β_{MOM*DY}	-0.00747	0.32159	-1.32425***	1.5507	-0.21344*	-0.16096	-2.1081***	-0.84591
Adj. R^2	95.65	92.14	81.65	50.39	96.53	65.07	87.25	63.50

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2018) six-factor model black energy single fund performance – style index (continued)

Lipper RIC	*LP68112671*	*LP68112696*	*LP68112697*	*LP68112711*	*LP68174624*	*LP68175789*	*LP68208421*	*LP68329972*
Number	41	42	43	44	45	46	47	48
α_p	-0.00868	0.00352**	0.00479***	0.00426**	-0.01005	-0.00295*	0.00208	-0.00056
α_{STR}	-0.05731	-0.02099***	-0.02098***	-0.02471***	-0.85019**	-0.01003	-0.01099	-0.01518**
α_{DY}	0.03053	-0.02919**	-0.02938**	-0.01667	-0.1538	-0.02252	-0.02277	-0.02014
βp	1.26106***	0.51435***	0.51497***	0.51748***	0.90868	0.96869***	0.52307***	0.30518***
β_{SMB}	-0.55745**	0.14816	0.14914	0.06794	-0.12862	-0.23893**	0.22656**	0.12297
β_{HML}	1.0739	-0.34305***	-0.34348***	-0.30661***	2.07072***	-0.05854	-0.92129***	-0.17897
β_{RMW}	0.7764	-0.05465	-0.05491	-0.11716	0.7608	0.15665	0.09368	0.37271**
β_{CMA}	-1.48686**	-0.50547***	-0.50817***	-0.53317***	-3.31865	-0.28808	0.0946	-0.18302
β_{MOM}	-0.43853*	0.01228	0.01164	-0.014	2.7543	-0.01946	-0.16541	0.01181
$\beta_{MKT*STR}$	-9.384***	-0.10233	-0.10152	-0.07463	-23.16172	-0.13708	-0.11869	-0.06674
β_{MKT*DY}	0.46114	-0.14688	-0.14979	-0.27489	0.62261	-0.25373	-1.15557*	-0.7179***
$\beta_{SMB*STR}$	-6.94928	-0.87594***	-0.88227***	-0.83463***	64.70637	0.58257*	-1.20859***	-0.86091***
β_{SMB*DY}	-6.72728***	0.94129	0.95568	0.50627	0.51201	0.70821	0.24977	0.09061
$\beta_{HML*STR}$	-10.18786	0.13791	0.14028	0.09278	-18.36076	-0.64049**	2.26666***	-0.51482**
β_{HML*DY}	8.90929	0.4948	0.49282	1.03806	40.60601	-1.04154	0.21712	1.67929**
$\beta_{RMW*STR}$	8.26873*	-0.42563*	-0.43018*	-0.44396*	48.12566***	-0.06121	-0.11357	-0.74489**
β_{RMW*DY}	7.1493	-1.05019	-1.04286	-1.53632	23.88768	2.45848***	2.73823**	1.5825
$\beta_{CMA*STR}$	37.79652**	-1.36741**	-1.37876**	-1.29433**	76.56125***	0.44939	-5.30188***	-0.36986
β_{CMA*DY}	-0.08231	0.46343	0.46227	0.26099	-62.09159	0.93487	-3.82954	1.23776
$\beta_{MOM*STR}$	-11.14908**	-0.82477***	-0.82769***	-0.73022***	-29.6363*	0.03225	-0.56453	-0.78877***
β_{MOM*DY}	-5.99333***	-0.58157	-0.58365	-0.84678	53.6368	-1.40718*	-0.93755	-0.51784
Adj. R^2	89.06	72.87	72.89	67.65	90.31	91.64	68.73	66.43

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Conditional Fama and French (2018) six-factor model black energy single fund performance – style index (continued)

Lipper RIC	*LP68379733*	*LP68387162*
Number	49	50
α_p	-0.0084***	0.01638***
α_{STR}	0.02451	-0.05139***
α_{DY}	0.00492	-0.00299
βp	0.93658***	0.09077
β_{SMB}	0.28453**	0.46584
β_{HML}	-0.63935***	-0.68637*
β_{RMW}	0.1459	-1.31401***
β_{CMA}	0.23752	1.5244
β_{MOM}	-0.27685***	0.0489
$\beta_{MKT*STR}$	-1.89972***	2.13719**
β_{MKT*DY}	-0.12354	-2.39039*
$\beta_{SMB*STR}$	-2.33695***	0.81529*
β_{SMB*DY}	1.10836***	3.32206
$\beta_{HML*STR}$	1.32991**	2.43147***
β_{HML*DY}	1.00009*	-1.77179
$\beta_{RMW*STR}$	-3.25153**	5.85224***
β_{RMW*DY}	0.84032**	3.21691***
$\beta_{CMA*STR}$	-0.22023	-3.41531
β_{CMA*DY}	-4.84407***	0.29029
$\beta_{MOM*STR}$	-1.0503***	1.02389*
β_{MOM*DY}	0.0633	-1.53411**
Adj. R^2	90.10	97.01

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and January 2021, regarding the black energy single fund performance. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). To identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*).

Appendix 5 – First and Second Subperiods Unconditional Models

A. Unconditional Carhart (1997) four-factor model – S&P Global 1200 – first subperiod

Portfolios	α_p	β_p	β_{SMB}	β_{HML}	β_{MOM}	Adj. R^2 (%)
Renewable energy						
Eq. Weighted	-0.01166***	1.22374***	0.31245**	-0.32484**	-0.10406**	86.69
Val. Weighted	-0.00911***	1.15381***	0.17038	-0.25963**	-0.04518	83.87
N+	0[0]	37[37]	34[21]	6[0]	5[0]	
N-	37[30]	0[0]	3[0]	31[13]	32[17]	
Black Energy						
Eq. Weighted	-0.01139***	1.21192***	-0.01075	-0.37708*	-0.04902	78.12
Val. Weighted	-0.01217***	1.17353***	-0.12399	-0.43943**	-0.06555	70.04
N+	2[0]	42[42]	25[5]	7[0]	12[0]	
N-	40[31]	0[0]	17[0]	35[10]	30[11]	
Difference Portfolio						
Eq. Weighted	-0.00027	0.01181	0.32319**	0.05224	-0.05504*	4.41
Val. Weighted	0.00306	-0.01972	0.29437**	0.17979	0.02038	3.69

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and December 2014 regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). In order to identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets one can find the number of funds whose estimates were statistically significant at a 5% significance level.

B. Unconditional Carhart (1997) four-factor model – S&P Global 1200 – second subperiod

Portfolios	α_p	β_p	β_{SMB}	β_{HML}	β_{MOM}	Adj. R^2 (%)
Renewable energy						
Eq. Weighted	0.00080	1.04592***	0.27466***	-0.01510	-0.03031	89.88
Val. Weighted	0.00208	1.02029***	0.15944*	-0.04099	-0.00640	86.36
N+	19[0]	37[37]	32[18]	10[1]	14[2]	
N-	18[6]	0[0]	5[1]	27[8]	23[4]	
Black Energy						
Eq. Weighted	-0.00650***	1.13731***	0.28768***	0.16112**	-0.22539**	86.7
Val. Weighted	-0.00809**	1.16271***	0.38936***	0.21942**	-0.26852***	82.56
N+	2[0]	38[38]	34[13]	30[25]	2[0]	
N-	36[23]	0[0]	4[0]	8[4]	36[14]	
Difference Portfolio						
Eq. Weighted	0.00729**	-0.09139	-0.01302	-0.17622**	0.19508***	19.28
Val. Weighted	0.01018**	-0.14242	-0.22992*	-0.2604***	0.26212**	29.96

This table shows the regression estimates, using the S&P Global 1200, for the period between January 2015 and January 2021 regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). In order to identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets one can find the number of funds whose estimates were statistically significant at a 5% significance level.

C. Unconditional Carhart (1997) four-factor model – style indexes – first subperiod

Portfolios	α_p	β_p	β_{SMB}	β_{HML}	β_{MOM}	Adj. R^2 (%)
Renewable energy						
Eq. Weighted	0.00322	0.74830***	-0.15307	0.02261	-0.01090	86.81
Val. Weighted	0.00466	0.61428***	-0.14627	0.13326	0.00217	69.65
N+	25[4]	37[37]	11[1]	16[0]	11[1]	
N-	12[1]	0[0]	26[6]	21[1]	26[6]	
Black Energy						
Eq. Weighted	-0.00450***	0.99350***	0.10662	-0.20248***	-0.15692***	93.7
Val. Weighted	-0.00576***	1.00574***	-0.02858	-0.30115***	-0.16438***	91.38
N+	6[2]	42[42]	31[9]	6[0]	4[2]	
N-	36[16]	0[0]	11[0]	36[15]	38[25]	

This table shows the regression estimates, using the renewable and black energy style indexes, the Ardour Global Alternative Energy, and the S&P Global 1200 Energy, respectively. This corresponds to the period December 2008 and December 2014 regarding the equally and value weighted portfolios of renewable and black energy funds. The table details abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). In order to identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets one can find the number of funds whose estimates were statistically significant at a 5% significance level.

D. Unconditional Carhart (1997) four-factor model – style indexes – second subperiod

Portfolios	α_p	β_p	β_{SMB}	β_{HML}	β_{MOM}	Adj. R^2 (%)
Renewable energy						
Eq. Weighted	-0.00250	0.62950***	0.02091	0.04264	-0.06935	86.20
Val. Weighted	-0.00047	0.57885***	-0.06237	0.00271	-0.07362	75.95
N+	2[0]	37[37]	16[0]	22[2]	7[0]	
N-	35[2]	0[0]	21[2]	15[2]	30[5]	
Black Energy						
Eq. Weighted	0.00093	0.79691***	0.07529	-0.30422***	-0.04408	89.67
Val. Weighted	-0.00045	0.79312***	0.18405*	-0.24866**	-0.10456	82.92
N+	16[2]	38[38]	21[1]	6[0]	13[0]	
N-	22[7]	0[0]	17[3]	32[13]	25[4]	

This table shows the regression estimates, using the renewable and black energy style indexes, the Ardour Global Alternative Energy, and the S&P Global 1200 Energy, respectively. This corresponds to the period between January 2015 and January 2021 regarding the equally and value weighted portfolios of renewable and black energy funds. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML) and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). In order to identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets one can find the number of funds whose estimates were statistically significant at a 5% significance level.

E. Unconditional Fama and French (2015) five-factor model – S&P Global 1200 – first subperiod

Portfolios	α_p	β_p	β_{SMB}	β_{HML}	β_{RMW}	β_{CMA}	Adj. R^2 (%)
Renewable energy							
Eq. Weighted	-0.00876***	1.18794***	0.24997***	-0.12833	-0.34968**	-0.70274***	88.39
Val. Weighted	-0.00780***	1.12974***	0.08214	-0.26869	-0.43179**	-0.08787	84.75
N+	0[0]	37[37]	33[14]	11[3]	3[0]	5[0]	
N-	37[28]	0[0]	4[0]	26[3]	34[13]	32[14]	
Black Energy							
Eq. Weighted	-0.01003***	1.19846***	-0.05746	-0.26965	-0.18460	-0.30373	78.25
Val. Weighted	-0.01103**	1.17527***	-0.14883	-0.30190	-0.07066	-0.29480	69.73
N+	2[0]	42[42]	19[4]	9[3]	11[0]	11[0]	
N-	40[30]	0[0]	23[1]	33[6]	31[4]	31[8]	
Difference Portfolio							
Eq. Weighted	0.00127	-0.01051	0.30744**	0.14132	-0.16508	-0.39901	6.16
Val. Weighted	0.00323	-0.04553	0.23097*	0.03321	-0.36113*	0.20693	6.56

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and December 2014 regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), and investment (CMA). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). In order to identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets one can find the number of funds whose estimates were statistically significant at a 5% significance level.

F. Unconditional Fama and French (2015) five-factor model – S&P Global 1200 – second subperiod

Portfolios	α_p	β_p	β_{SMB}	β_{HML}	β_{RMW}	β_{CMA}	Adj. R^2 (%)
Renewable energy							
Eq. Weighted	0.00107	1.0591***	0.20819**	0.00253	-0.20716**	-0.06285	89.81
Val. Weighted	0.00229	1.00815***	0.13566	-0.01457	-0.03990	-0.12845	86.18
N+	19[0]	37[37]	31[16]	13[1]	9[1]	9[1]	
N-	18[6]	0[0]	6[0]	24[1]	28[3]	28[3]	
Black Energy							
Eq. Weighted	-0.00705***	1.27763***	0.27974**	0.11254*	-0.16598	0.46046**	86.41
Val. Weighted	-0.00847**	1.30799***	0.35569**	0.23796**	-0.31029	0.30377	81.57
N+	2[0]	38[38]	34[10]	29[12]	12[0]	30[19]	
N-	36[20]	0[0]	4[0]	9[3]	26[5]	8[4]	
Difference Portfolio							
Eq. Weighted	0.00812***	-0.21853**	-0.07155	-0.11001	-0.04118	-0.52332**	20.38
Val. Weighted	0.01077**	-0.29983***	-0.22003	-0.25252**	0.27039	-0.43223*	28.33

This table shows the regression estimates, using the S&P Global 1200, for the period between January 2015 and January 2021 regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), and investment (CMA). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). In order to identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets one can find the number of funds whose estimates were statistically significant at a 5% significance level.

G. Unconditional Fama and French (2015) five-factor model – style indexes – first subperiod

Portfolios	α_p	β_p	β_{SMB}	β_{HML}	β_{RMW}	β_{CMA}	Adj. R^2 (%)
Renewable energy							
Eq. Weighted	0.00366	0.73923***	-0.17869*	0.05646	-0.16117	-0.05966	86.8
Val. Weighted	0.00441	0.61706***	-0.22524	0.00668	-0.33984	0.36978	70.45
N+	25[3]	37[37]	8[1]	14[1]	14[2]	26[4]	
N-	12[1]	0[0]	29[6]	23[2]	23[0]	11[4]	
Black Energy							
Eq. Weighted	-0.00240	0.98767***	0.09276	-0.01851	-0.18418	-0.42049***	92.85
Val. Weighted	-0.00389*	1.00884***	-0.01323	-0.08823	-0.04708	-0.38605***	89.9
N+	10[2]	42[42]	24[4]	15[0]	4[0]	10[0]	
N-	32[10]	0[0]	18[1]	27[5]	38[12]	32[10]	

This table shows the regression estimates, using the renewable and black energy style indexes, the Ardour Global Alternative Energy, and the S&P Global 1200 Energy, respectively. This corresponds to the period between December 2008 and December 2014 regarding the equally and value weighted portfolios of renewable and black energy funds. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), and investment (CMA). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). In order to identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets one can find the number of funds whose estimates were statistically significant at a 5% significance level.

H. Unconditional Fama and French (2015) five-factor model – style indexes – second subperiod

Portfolios	α_p	β_p	β_{SMB}	β_{HML}	β_{RMW}	β_{CMA}	Adj. R^2 (%)
Renewable energy							
Eq. Weighted	-0.00248	0.62829***	0.04841	0.14639*	0.01413	-0.24793**	86.36
Val. Weighted	-0.00053	0.56894***	0.01616	0.12917	0.18443	-0.3348**	76.75
N+	1[0]	37[37]	20[1]	27[5]	25[1]	6[0]	
N-	36[3]	0[0]	17[1]	10[0]	12[0]	31[10]	
Black Energy							
Eq. Weighted	0.00077	0.79952***	0.09615	-0.19568**	0.11419	-0.36921***	90.4
Val. Weighted	-0.00045	0.81099***	0.17564	-0.07138	-0.02024	-0.5473***	83.98
N+	15[1]	38[38]	25[1]	15[2]	26[3]	5[1]	
N-	23[7]	0[0]	13[2]	23[8]	12[3]	33[14]	

This table shows the regression estimates, using the renewable and black energy style indexes, the Ardour Global Alternative Energy, and the S&P Global 1200 Energy, respectively. This corresponds to the period between January 2015 and January 2021 regarding the equally and value weighted portfolios of renewable and black energy funds. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), and investment (CMA). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). In order to identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets one can find the number of funds whose estimates were statistically significant at a 5% significance level.

I. Unconditional Fama and French (2018) six-factor model – S&P Global 1200 – first subperiod

Portfolios	α_p	β_p	β_{SMB}	β_{HML}	β_{RMW}	β_{CMA}	β_{MOM}	Adj. R^2 (%)
Renewable energy								
Eq. Weighted	-0.00912***	1.17465***	0.24358**	-0.18198	-0.36797**	-0.61542**	-0.05504	88.38
Val. Weighted	-0.00812***	1.11757***	0.07628	-0.31779	-0.44853**	-0.00795	-0.05037	84.68
N+	0[0]	37[37]	33[14]	10[1]	3[0]	8[0]	10[1]	
N-	37[28]	0[0]	4[0]	27[7]	34[12]	29[9]	27[12]	
Black Energy								
Eq. Weighted	-0.01024***	1.19064***	-0.06123	-0.30122	-0.19536	-0.25235	-0.03238	77.98
Val. Weighted	-0.01136***	1.16267***	-0.15489	-0.35272	-0.08799	-0.21207	-0.05214	69.44
N+	2[0]	42[42]	18[3]	11[0]	8[0]	11[0]	15[1]	
N-	40[31]	0[0]	24[1]	31[4]	34[4]	31[7]	27[4]	
Difference Portfolio								
Eq. Weighted	0.00112	-0.01598	0.30480**	0.11923	-0.17261	-0.36306	-0.02266	4.87
Val. Weighted	0.00324	-0.04510	0.23117*	0.03493	-0.36054**	0.20413	0.00177	5.15

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and December 2014 regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). In order to identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets one can find the number of funds whose estimates were statistically significant at a 5% significance level.

J. Unconditional Fama and French (2018) six-factor model – S&P Global 1200 – second subperiod

Portfolios	α_p	β_p	β_{SMB}	β_{HML}	β_{RMW}	β_{CMA}	β_{MOM}	Adj. R^2 (%)
Renewable energy								
Eq. Weighted	0.00116	1.04299***	0.19894**	-0.01524	-0.21225**	-0.07366	-0.04056	89.72
Val. Weighted	0.00233	1.00194***	0.13210	-0.02142	-0.04186	-0.13262	-0.01563	85.99
N+	19[0]	37[37]	30[16]	11[1]	8[1]	8[1]	13[2]	
N-	18[6]	0[0]	7[1]	26[1]	29[4]	29[6]	24[6]	
Black Energy								
Eq. Weighted	-0.00658***	1.19516***	0.23234*	0.02158	-0.19203	0.40514**	-0.20765**	87.31
Val. Weighted	-0.00788**	1.20356***	0.29568**	0.12279	-0.34328	0.23373	-0.26291**	82.76
N+	2[1]	38[38]	29[6]	26[7]	12[0]	30[14]	2[0]	
N-	36[20]	0[0]	9[0]	12[4]	26[6]	8[4]	36[9]	
Difference Portfolio								
Eq. Weighted	0.00774***	-0.15217	-0.03340	-0.03682	-0.02022	-0.4788**	0.16709*	22.39
Val. Weighted	0.01021**	-0.20162*	-0.16358	-0.1442	0.30142	-0.36635	0.24728**	31.06

This table shows the regression estimates, using the S&P Global 1200, for the period between January 2014 and January 2021 regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). In order to identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets one can find the number of funds whose estimates were statistically significant at a 5% significance level.

K. Unconditional Fama and French (2018) six-factor model – style indexes – first subperiod

Portfolios	α_p	β_p	β_{SMB}	β_{HML}	β_{RMW}	β_{CMA}	β_{MOM}	Adj. R^2 (%)
Renewable energy								
Eq. Weighted	0.00352	0.73621***	-0.17851	0.04056	-0.16781	-0.03687	-0.01635	86.62
Val. Weighted	0.00404	0.60928***	-0.22477	-0.03425	-0.35692	0.42846	-0.04209	70.12
N+	24[3]	37[37]	11[2]	12[0]	14[2]	29[6]	8[2]	
N-	13[0]	0[0]	26[6]	25[5]	23[1]	8[1]	29[6]	
Black Energy								
Eq. Weighted	-0.00368**	0.97773***	0.06671	-0.17849**	-0.22077**	-0.18195	-0.14161***	93.98
Val. Weighted	-0.00529***	0.99795***	-0.04176	-0.26339***	-0.08715	-0.12489	-0.15504***	91.24
N+	7[2]	42[42]	24[5]	7[0]	3[0]	19[2]	5[1]	
N-	35[11]	0[0]	18[1]	35[11]	39[13]	23[3]	37[21]	

This table shows the regression estimates, using the renewable and black energy style indexes, the Ardour Global Alternative Energy, and the S&P Global 1200 Energy, respectively. This corresponds to the period between December 2008 and December 2014 regarding the equally and value weighted portfolios of renewable and black energy funds. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). In order to identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets one can find the number of funds whose estimates were statistically significant at a 5% significance level.

L. Unconditional Fama and French (2018) six-factor model – style indexes – second subperiod

Portfolios	α_p	β_p	β_{SMB}	β_{HML}	β_{RMW}	β_{CMA}	β_{MOM}	Adj. R^2 (%)
Renewable energy								
Eq. Weighted	-0.00221	0.61002***	0.03501	0.10781	-0.00228	-0.26317**	-0.07833	86.41
Val. Weighted	-0.00025	0.55043***	0.00259	0.09007	0.16779	-0.35024**	-0.07937	76.67
N+	3[0]	37[37]	20[0]	25[3]	24[1]	4[1]	7[1]	
N-	34[3]	0[0]	17[1]	12[2]	13[0]	33[14]	30[6]	
Black Energy								
Eq. Weighted	0.00077	0.78855***	0.09109	-0.20762***	0.10666	-0.36986***	-0.03835	90.29
Val. Weighted	-0.00046	0.78097***	0.16180	-0.10405	-0.04086	-0.54907***	-0.10495	83.95
N+	15[1]	38[38]	21[2]	13[1]	24[3]	5[1]	14[0]	
N-	23[7]	0[0]	17[2]	25[10]	14[5]	33[14]	24[7]	

This table shows the regression estimates, using the renewable and black energy style indexes, the Ardour Global Alternative Energy, and the S&P Global 1200 Energy, respectively. This corresponds to the period between January 2015 and January 2021 regarding the equally and value weighted portfolios of renewable and black energy funds. The table details the abnormal return (α_p), the systematic risk (β_p), the adjusted coefficient of determination (Adj. R^2) and the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), and momentum (MOM). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). In order to identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets one can find the number of funds whose estimates were statistically significant at a 5% significance level.

Appendix 6 – First and Second Subperiods Conditional Models

A. Conditional Carhart (1997) four-factor model – S&P Global 1200 – first subperiod

	Renewable energy				*Black Energy*				*Difference Portfolio*	
Parameters	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**
α_p	-0.01233**	-0.00868***	0[0]	37[28]	-0.01138***	-0.01266***	2[1]	40[30]	-0.00095	0.00398
α_{STR}	-0.02182	-0.00899	23[11]	14[2]	-0.02048	-0.02537	10[3]	32[8]	-0.00134	0.01638
α_{DY}	0.00019	-0.00191	17[0]	20[7]	-0.00289	-0.00854	19[3]	23[8]	0.00308	0.00663
β_p	1.24296***	1.16359***	37[37]	0[0]	1.24964***	1.22524***	42[42]	0[0]	-0.00668	-0.06165
β_{SMB}	0.29593*	0.32748***	30[14]	7[0]	0.09141	-0.03049	25[2]	17[2]	0.20452	0.35797**
β_{HML}	-0.00856	0.08817**	16[1]	21[4]	0.01224	-0.00588	30[3]	12[4]	-0.02079	0.09405
β_{MOM}	-0.10775	-0.08708**	8[2]	29[6]	-0.09151	-0.07989	11[2]	31[9]	-0.01624	-0.00719
$\beta_{MKT*STR}$	0.06810	0.49058***	10[4]	27[8]	0.66219	1.10498*	24[9]	18[7]	-0.59409	-0.61440
β_{MKT*DY}	0.06172	0.02573	18[2]	19[4]	0.39326**	0.57618**	31[12]	11[2]	-0.33154	-0.55044**
$\beta_{SMB*STR}$	0.29629	0.92326	10[4]	27[8]	1.27371***	1.34979**	30[20]	12[3]	-0.97742**	-0.42653
β_{SMB*DY}	-0.20822	0.37513***	10[2]	27[7]	-0.07826	0.18723	15[3]	27[10]	-0.12995	0.18790
$\beta_{HML*STR}$	0.70811**	0.46855*	30[18]	7[2]	0.62558	0.31970	29[12]	13[2]	0.08253	0.14885
β_{HML*DY}	0.58429*	0.55501***	28[13]	9[2]	0.56640	0.41011	34[16]	8[0]	0.01789	0.14490
$\beta_{MOM*STR}$	-0.00560	0.17642	18[6]	19[5]	0.32184	0.37466	31[5]	11[2]	-0.32744	-0.19824
β_{MOM*DY}	0.10221	0.19196**	26[12]	11[5]	0.38882**	0.34290*	29[12]	13[1]	-0.28661*	-0.15094
W_1	0.61600	0.9183			0.7304	0.637			0.9615	0.7712
W_2	0.56860	0.05862			0.00819	0.01057			0.3455	0.6123
W_3	0.48260	0.11530			0.02047	0.02613			0.427	0.7783
Adj. R^2 (%)	86.63	85.27			81.76	74.73			25.74	-1.78

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and December 2014, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional beta coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). In order to identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets one can find the number of funds whose estimates were statistically significant at a 5% significance level. W_1, W_2 and W_3 are the p-values of the Wald tests for the significance of time-varying α, β, and α and β, respectively.

B. Conditional Carhart (1997) four-factor model – S&P Global 1200 – second subperiod

	Renewable energy				*Black Energy*				*Difference Portfolio*	
Param.	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**
α_p	0.00086	0.00282	19[1]	18[3]	-0.00855***	-0.01047**	4[0]	34[23]	0.00941***	0.01330**
α_{STR}	-0.01334***	-0.01611**	4[1]	33[15]	0.00935	0.00855	26[5]	12[0]	-0.02269***	-0.02466
α_{DY}	-0.02241	-0.02869	12[0]	25[4]	-0.03858	-0.04655	16[0]	22[1]	0.01617	0.01786
β_p	1.02076***	0.98015***	37[36]	0[0]	1.10035***	1.06916***	37[36]	1[1]	-0.07960	-0.08901
β_{SMB}	0.18247**	0.10280	31[15]	6[2]	0.25131	0.32305***	28[7]	10[1]	-0.06884	-0.22025
β_{HML}	-0.05445	-0.05996	7[1]	30[9]	0.12129	0.16676	26[11]	12[5]	-0.17574*	-0.22672
β_{MOM}	-0.09678	-0.05479	9[2]	28[10]	-0.26735**	-0.32872***	1[1]	37[21]	0.17057**	0.27393**
$\beta_{MKT*STR}$	-0.05784	-0.01610	16[2]	21[4]	-0.39526***	-0.40270**	10[3]	28[12]	0.33742***	0.38661**
β_{MKT*DY}	0.36613	0.61890*	20[3]	17[2]	-0.75065	0.19182	13[2]	25[7]	1.11678***	0.42708
$\beta_{SMB*STR}$	-0.07086	-0.18689	12[2]	25[7]	0.02898	0.05557	21[9]	17[2]	-0.09984	-0.24246
β_{SMB*DY}	-0.51947*	0.04665	11[0]	26[5]	0.89944*	0.57662	23[6]	15[2]	-1.41892**	-0.52997
$\beta_{HML*STR}$	-0.25998	-0.29973	8[1]	29[9]	0.02956	0.10206	19[4]	19[2]	-0.28954	-0.40179
β_{HML*DY}	0.31577	0.17307	20[2]	17[0]	-1.57605**	-0.36276	11[2]	27[3]	1.89182***	0.53583
$\beta_{MOM*STR}$	-0.36948**	-0.41497***	5[3]	32[12]	-0.01332	0.10309	25[13]	13[5]	-0.35616***	-0.51806**
β_{MOM*DY}	0.10712	0.29513	15[2]	22[0]	-0.54776	-0.67971	13[1]	25[2]	0.65487*	0.97483
W_1	0.01058	0.00453			0.34110	0.42330			0.10300	0.23830
W_2	0.12590	0.14220			0.11700	0.35260			0.01230	0.26260
W_3	0.00284	0.00478			0.19730	0.46060			0.01360	0.28270
Adj. R^2 (%)	92.31	89.38			87.47	82.54			34.03	32.4

This table shows the regression estimates, using the S&P Global 1200, for the period between January 2015 and January 2021, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional beta coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). In order to identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets one can find the number of funds whose estimates were statistically significant at a 5% significance level. W_1, W_2 and W_3 are the p-values of the Wald tests for the significance of time-varying α, β, and α and β, respectively.

C. Conditional Carhart (1997) four-factor model – style indexes – first subperiod

	Renewable energy				*Black Energy*			
Parameters	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**
α_p	0.00300	0.00551	26[5]	10[1]	-0.00593**	-0.00775***	6[2]	36[23]
α_{STR}	-0.04953***	-0.02505*	14[3]	23[15]	-0.01633**	-0.01394	13[3]	29[12]
α_{DY}	0.00595	0.00084	27[8]	10[2]	-0.00602	-0.01166**	11[0]	31[11]
β_p	0.77491***	0.59495***	37[37]	0[0]	1.03579***	1.05570***	42[42]	0[0]
β_{SMB}	-0.06413	0.23633	16[3]	21[3]	-0.02556	-0.18531*	21[2]	21[1]
β_{HML}	0.03108	0.22151	16[2]	21[4]	-0.37690***	-0.43954***	9[0]	33[15]
β_{MOM}	-0.08119	-0.15010	12[2]	25[6]	-0.21213**	-0.20069***	6[1]	36[17]
$\beta_{MKT*STR}$	0.20660*	0.02315	23[3]	14[3]	0.07792	0.42628*	20[8]	21[13]
β_{MKT*DY}	0.17594	-0.02171	33[7]	4[0]	0.14132*	0.28377***	23[8]	19[3]
$\beta_{SMB*STR}$	1.15071***	1.99518***	21[8]	16[3]	-0.33218	0.01771	20[4]	22[8]
β_{SMB*DY}	0.08760	1.10258***	20[3]	17[0]	-0.21849	0.00649	13[4]	29[9]
$\beta_{HML*STR}$	-0.47833*	-0.15462	13[2]	24[6]	-0.54862**	-0.60309*	9[3]	33[14]
β_{HML*DY}	-0.00991	-0.04738	15[2]	22[2]	-0.41115*	-0.54046**	18[3]	24[11]
$\beta_{MOM*STR}$	-0.30515	-0.36434	13[1]	24[6]	-0.31837	-0.21633	13[1]	29[8]
β_{MOM*DY}	0.04404	-0.00574	24[8]	13[2]	-0.19645	-0.24582***	9[3]	33[15]
W_1	0.01137	0.5928			0.37950	0.239		
W_2	0.08465	0.12980			0.33280	0.10410		
W_3	0.10640	0.23890			0.48090	0.18590		
Adj. R^2 (%)	88.01	71.03			93.67	91.91		

This table shows the regression estimates, using the renewable and black energy style Indexes, the Ardour Global Alternative Energy, and the S&P Global 1200 Energy, respectively. This corresponds to the period between December 2008 and December 2014, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional beta coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). In order to identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets one can find the number of funds whose estimates were statistically significant at a 5% significance level. W_1, W_2 and W_3 are the p-values of the Wald tests for the significance of time-varying α, β, and α and β, respectively.

D. Conditional Carhart (1997) four-factor model – style indexes – second subperiod

	Renewable energy				*Black Energy*			
Parameters	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**
α_p	-0.00219	0.00097	8[0]	29[7]	0.00174	-0.00096	19[8]	19[6]
α_{STR}	0.00460	-0.00251	21[1]	16[1]	-0.01934***	-0.01735***	6[0]	32[11]
α_{DY}	-0.00849	-0.01752	17[0]	20[6]	-0.06561***	-0.06562	2[0]	36[8]
β_p	0.69858***	0.62119***	37[37]	0[0]	0.81878***	0.82133***	38[36]	0[0]
β_{SMB}	0.10448	0.05094	27[2]	10[2]	0.05469	0.13155	18[1]	20[7]
β_{HML}	0.00226	-0.02724	15[2]	22[4]	-0.28464***	-0.24335***	2[0]	36[16]
β_{MOM}	-0.03017	-0.03658	16[1]	21[2]	-0.02637	-0.08286	9[0]	29[5]
$\beta_{MKT*STR}$	0.07420	0.06980	27[9]	10[3]	-0.12682	-0.16607*	12[3]	26[4]
β_{MKT*DY}	0.66291**	0.70293**	27[10]	10[1]	0.04038	0.63897*	22[4]	16[4]
$\beta_{SMB*STR}$	-0.21746	-0.33039	7[2]	30[5]	-0.27711*	-0.21767	17[7]	21[4]
β_{SMB*DY}	-0.19629	0.34430	23[0]	14[2]	1.73254***	1.20371	28[6]	10[2]
$\beta_{HML*STR}$	-0.23760	-0.36189	9[1]	28[5]	-0.22968**	-0.10225	11[4]	27[11]
β_{HML*DY}	0.45035	0.32660	17[2]	20[0]	-0.86435**	-0.21145	14[3]	24[6]
$\beta_{MOM*STR}$	-0.36554**	-0.42491**	3[1]	34[13]	-0.61264**	-0.51420**	15[1]	23[12]
β_{MOM*DY}	0.42375	0.42038	22[1]	15[2]	-0.12528	-0.16672	12[0]	26[6]
W_1	0.82750	0.76930			0.00000	0.00330		
W_2	0.04058	0.08878			0.00293	0.00185		
W_3	0.01542	0.10430			0.00000	0.00006		
Adj. R^2 (%)	88.66	78.17			94.15	88.99		

This table shows the regression estimates, using the renewable and black energy style indexes, the Ardour Global Alternative Energy, and the S&P Global 1200 Energy, respectively. This corresponds to the period between January 2015 and January 2021, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), and momentum (MOM), the conditional beta coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). In order to identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets one can find the number of funds whose estimates were statistically significant at a 5% significance level. W_1, W_2 and W_3 are the p-values of the Wald tests for the significance of time-varying α, β, and α and β, respectively.

E. Conditional Fama and French (2015) five-factor model – S&P Global 1200 – first subperiod

	Renewable energy				*Black Energy*				*Difference Portfolio*	
Parameters	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**
α_p	-0.01162***	-0.01032***	0[0]	37[28]	-0.01103***	-0.01270***	3[2]	39[28]	-0.00059	0.00238
α_{STR}	0.01478	0.01130	28[9]	9[2]	-0.04352**	-0.05975**	13[1]	29[12]	0.05831**	0.07105***
α_{DY}	-0.00988	-0.01847*	5[0]	32[8]	-0.00301	-0.00559	18[5]	24[2]	-0.00687	-0.01288**
β_p	1.23340***	1.17825***	37[37]	0[0]	1.25090***	1.22197***	42[42]	0[0]	-0.01750	-0.04372
β_{SMB}	0.16540	0.12938	25[10]	12[0]	-0.04244	-0.19831	22[2]	20[4]	0.20783	0.32769
β_{HML}	0.18237	0.06118	26[0]	11[2]	0.27776	0.27562	35[6]	7[1]	-0.09539	-0.21444
β_{RMW}	-0.34170**	-0.37155*	5[1]	32[8]	0.01372	0.06872	18[0]	24[4]	-0.35542**	-0.44027**
β_{CMA}	-0.74437***	-0.16521	4[0]	33[14]	-0.54295	-0.46670	2[0]	40[10]	-0.20142	0.30149
$\beta_{MKT*STR}$	-0.11934	0.12593	10[3]	27[14]	0.39950*	0.65678*	21[8]	21[6]	-0.51884	-0.53085*
β_{MKT*DY}	0.00637	0.20520	20[3]	17[5]	0.76615***	1.16618***	34[20]	8[3]	-0.75978***	-0.96098***
$\beta_{SMB*STR}$	-0.13306	0.95758**	11[4]	26[12]	1.40395***	1.71360***	31[20]	11[4]	-1.53701***	-0.75603**
β_{SMB*DY}	-0.26754	0.16870	9[0]	28[10]	-0.39229*	-0.37218**	13[2]	29[9]	0.12474	0.54088*
$\beta_{HML*STR}$	0.51679	-0.10631	22[9]	15[3]	-0.61179*	-1.10125**	17[2]	25[9]	1.12858**	0.99494*
β_{HML*DY}	0.06637	-0.18899	15[2]	22[8]	-1.42934***	-1.97904***	18[8]	24[12]	1.49571**	1.79005***
$\beta_{RMW*STR}$	-2.07720*	-3.70696***	10[0]	27[9]	-1.65098**	-3.45145*	15[6]	27[14]	-0.42622	-0.25552
β_{RMW*DY}	-0.10998	0.11544	21[1]	16[0]	-1.12265**	-1.74551***	16[5]	26[8]	1.01267**	1.86095***
$\beta_{CMA*STR}$	2.60552***	3.57258***	29[20]	8[0]	0.35481	0.16720	30[13]	12[3]	2.25071***	3.40538***
β_{CMA*DY}	-0.13091	0.06038	26[8]	11[1]	2.51592***	2.77647***	22[13]	20[6]	-2.64684**	-2.71609**
W_1	0.5277	0.1656			0.45160	0.2972			0.2709	0.06479
W_2	0.14320	0.00462			0.00307	0.00039			0.08702	0.00629
W_3	0.08696	0.00912			0.00706	0.00103			0.1214	0.01482
Adj. R^2 (%)	89.72	88.08			83.22	78.73			15.15	25.1

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and December 2014, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). In order to identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets one can find the number of funds whose estimates were statistically significant at a 5% significance level. W_1, W_2 and W_3 are the p-values of the Wald tests for the significance of time-varying α, β, and α and β, respectively.

F. Conditional Fama and French (2015) five-factor model – S&P Global 1200 – second subperiod

	Renewable energy				*Black Energy*				*Difference Portfolio*	
Parameters	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**
α_p	0.00103	0.00262	20[0]	17[3]	-0.00731***	-0.00853*	5[0]	33[18]	0.00834***	0.01115*
α_{STR}	-0.01501**	-0.01766***	4[0]	33[13]	0.00546	0.00285	23[2]	15[2]	-0.02047***	-0.02051*
α_{DY}	-0.01187	-0.02129	14[1]	23[2]	-0.02968	-0.02927	13[0]	25[1]	0.01781	0.00798
β_p	1.06567***	1.03029***	37[37]	0[0]	1.24928***	1.2663***	37[36]	1[0]	-0.18361***	-0.23601***
β_{SMB}	0.09357	0.03136	27[8]	10[1]	0.24107	0.26332**	30[9]	8[1]	-0.14750	-0.23196**
β_{HML}	0.07757	0.02198	25[5]	12[3]	0.11492	0.16775**	27[9]	11[2]	-0.03735	-0.14577
β_{RMW}	-0.17609	-0.06505	10[0]	27[4]	-0.30685*	-0.67331***	10[0]	28[10]	0.13076	0.60826*
β_{CMA}	-0.12947	-0.06144	9[2]	28[7]	0.41430**	0.47726**	31[14]	7[1]	-0.54377***	-0.53870***
$\beta_{MKT*STR}$	-0.00473	0.04079	20[3]	17[3]	-0.25344*	-0.34493***	13[1]	25[1]	0.24871*	0.38572**
β_{MKT*DY}	0.36000	0.66346**	24[6]	13[2]	-0.78403**	0.32867	17[5]	21[5]	1.14403**	0.33480
$\beta_{SMB*STR}$	0.24271	0.11820	27[4]	10[0]	0.05361	0.05375	17[3]	21[0]	0.18909	0.06445
β_{SMB*DY}	-0.89288	-0.88353	9[1]	28[3]	2.16309***	1.71159	34[12]	4[1]	-3.05597***	-2.59512**
$\beta_{HML*STR}$	-0.09146	-0.12869	20[2]	17[1]	-0.36180	-0.60627*	9[3]	29[10]	0.27034	0.47758
β_{HML*DY}	0.32418	0.09098	23[3]	14[1]	-1.79501***	-0.67300	15[1]	23[8]	2.11919**	0.76398
$\beta_{RMW*STR}$	0.05098	0.00569	22[4]	15[2]	0.15152	0.24810	13[0]	25[2]	-0.10054	-0.24241
β_{RMW*DY}	0.14306	-0.89020	23[1]	14[2]	1.54027	0.82149	24[3]	14[2]	-1.39721	-1.71168
$\beta_{CMA*STR}$	0.08959	0.18806	16[2]	21[2]	0.96828***	1.48145***	28[16]	10[1]	-0.87869***	-1.29339***
β_{CMA*DY}	0.44199	0.84534	24[2]	13[5]	-0.18932	0.14294	20[10]	18[3]	0.63131	0.70239
W_1	0.02763	0.00868			0.54930	0.69190			0.14120	0.32990
W_2	0.88580	0.73630			0.07123	0.06847			0.00887	0.12040
W_3	0.10580	0.06410			0.12310	0.07353			0.00646	0.08675
Adj. R^2 (%)	90.87	87.99			87.7	83.84			38.84	36.54

This table shows the regression estimates, using the S&P Global 1200, for the period between January 2015 and January 2021, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). In order to identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets one can find the number of funds whose estimates were statistically significant at a 5% significance level. W_1, W_2 and W_3 are the p-values of the Wald tests for the significance of time-varying α, β, and α and β, respectively.

G. Conditional Fama and French (2015) five-factor model – style indexes – first subperiod

	Renewable energy				*Black Energy*			
Parameters	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**
α_p	0.00162	0.00296	23[3]	14[2]	-0.00505*	-0.00734***	8[6]	34[16]
α_{STR}	-0.04089**	-0.02702	10[2]	27[11]	-0.01599	-0.02920**	8[1]	34[13]
α_{DY}	0.01347*	0.00645	29[13]	8[1]	-0.00105	-0.00390	16[3]	26[2]
β_p	0.76195***	0.58557***	37[37]	0[0]	1.02243***	1.01530***	42[42]	0[0]
β_{SMB}	-0.16949	0.01341	11[1]	26[8]	-0.13299	-0.30642***	13[1]	29[8]
β_{HML}	-0.07847	-0.07365	10[2]	27[5]	-0.29802**	-0.27306	12[1]	30[9]
β_{RMW}	-0.14485	-0.42091	10[2]	27[2]	-0.31298**	-0.20827	8[1]	34[18]
β_{CMA}	0.20753	0.58831	29[6]	8[3]	-0.22811	-0.17555	12[0]	30[7]
$\beta_{MKT*STR}$	0.30855***	0.09843	24[12]	13[3]	-0.17750	0.05731	16[4]	26[12]
β_{MKT*DY}	0.18211*	0.05675	29[10]	8[3]	0.07503	0.46250***	21[8]	21[11]
$\beta_{SMB*STR}$	0.58070	1.67453**	17[6]	20[8]	-0.67896**	-0.26172	18[2]	24[11]
β_{SMB*DY}	-0.19109	0.58446	17[0]	20[7]	-0.27257	-0.25111	13[2]	29[9]
$\beta_{HML*STR}$	-1.26315***	-1.3269***	11[3]	26[21]	0.01625	-0.53291	22[4]	20[6]
β_{HML*DY}	-0.92337	-0.95096	11[5]	26[16]	0.17121	-0.36522	36[8]	6[0]
$\beta_{RMW*STR}$	-0.00212	-1.73334	20[1]	17[2]	-1.40880*	-3.67194***	11[2]	31[15]
β_{RMW*DY}	-1.69889**	-1.63661*	2[0]	35[17]	-0.14689	-0.87779*	20[3]	22[5]
$\beta_{CMA*STR}$	-0.19133	0.67000	13[8]	24[7]	-1.33997***	-0.71737	11[5]	31[8]
β_{CMA*DY}	0.70345	0.59160	25[6]	12[4]	-1.26912	-0.91661	2[0]	40[20]
W_1	0.1357	0.7121			0.728	0.3907		
W_2	0.03291	0.19150			0.22470	0.02385		
W_3	0.04672	0.30950			0.15050	0.01858		
Adj. R^2 (%)	88.73	71.45			93.44	91.81		

This table shows the regression estimates, using the renewable and black energy style indexes, the Ardour Global Alternative Energy, and the S&P Global 1200 Energy, respectively. This corresponds to the period between December 2008 and December 2014, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR}, α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). In order to identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets one can find the number of funds whose estimates were statistically significant at a 5% significance level. W_1, W_2 and W_3 are the p-values of the Wald tests for the significance of time-varying α, β, and α and β, respectively.

H. Conditional Fama and French (2015) five-factor model – style indexes – second subperiod

	Renewable energy				*Black Energy*			
Parameters	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**
α_p	-0.00162	0.00159	10[0]	27[4]	0.00098	0.00029	18[5]	20[8]
α_{STR}	0.00276	-0.00529	23[0]	14[0]	-0.01732**	-0.02068*	9[1]	29[9]
α_{DY}	0.00034	-0.00862	19[1]	18[3]	-0.05253	-0.04390	7[1]	31[5]
β_p	0.70396***	0.63896***	37[35]	0[0]	0.80966***	0.83007***	38[38]	0[0]
β_{SMB}	0.06326	0.03115	22[3]	15[1]	-0.00365	0.00420	18[0]	20[5]
β_{HML}	0.04563	0.01435	19[4]	18[1]	-0.09258	-0.05351	12[1]	26[7]
β_{RMW}	-0.03004	0.08395	20[2]	17[0]	0.18335*	-0.23230	20[8]	18[4]
β_{CMA}	-0.00858	-0.01109	18[0]	19[1]	-0.36655***	-0.28750*	12[3]	26[9]
$\beta_{MKT*STR}$	0.07038	0.10023	25[6]	12[2]	0.13599*	-0.02584	20[8]	18[5]
β_{MKT*DY}	0.54791	0.65929	27[7]	10[1]	-0.17467	0.59344***	18[8]	20[7]
$\beta_{SMB*STR}$	-0.00035	-0.12415	15[0]	22[2]	-0.06499	0.10049	18[1]	20[4]
β_{SMB*DY}	-0.34317	-0.41380	21[4]	16[2]	1.70184*	0.96242	27[10]	11[2]
$\beta_{HML*STR}$	0.03825	-0.05683	22[1]	15[0]	0.17118	0.02507	22[8]	16[2]
β_{HML*DY}	0.86051	0.76396	25[6]	12[0]	-0.59799	0.10441	23[5]	15[4]
$\beta_{RMW*STR}$	0.36702	0.21619	28[1]	9[0]	-0.46618**	-0.09987	12[2]	26[4]
β_{RMW*DY}	-1.12160	-1.91704	12[2]	25[2]	1.71376*	0.25163	27[7]	11[1]
$\beta_{CMA*STR}$	-0.18908	-0.09904	9[1]	28[3]	-0.38926	0.12905	10[4]	28[11]
β_{CMA*DY}	-0.91521	-0.67394	10[1]	27[6]	-0.64603	-0.85339	14[4]	24[7]
W_1	0.94570	0.81480			0.00012	0.00982		
W_2	0.28820	0.50610			0.25480	0.11700		
W_3	0.12140	0.50700			0.00037	0.00313		
Adj. R^2 (%)	87.67	76.53			93.57	88.13		

This table shows the regression estimates, using the renewable and black energy style Indexes, the Ardour Global Alternative Energy, and the S&P Global 1200 Energy, respectively. This corresponds to the period between January 2015 and January 2021, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR} , α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA), the conditional β coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). In order to identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets one can find the number of funds whose estimates were statistically significant at a 5% significance level. W_1, W_2 and W_3 are the p-values of the Wald tests for the significance of time-varying α, β, and α and β, respectively.

I. Conditional Fama and French (2018) six-factor model – S&P Global 1200 – first subperiod

	Renewable energy				*Black Energy*				*Difference Portfolio*	
Parameters	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**
α_p	-0.01131***	-0.01027***	0[0]	37[30]	-0.01039***	-0.01249***	3[2]	39[29]	-0.00093	0.00221
α_{STR}	0.03087*	0.02908	31[19]	6[0]	-0.03126	-0.05643**	14[3]	28[7]	0.06213**	0.08551***
α_{DY}	-0.00832	-0.01954*	8[0]	29[8]	0.00035	-0.00438	23[6]	19[3]	-0.00867	-0.01516**
β_p	1.21558***	1.15840***	37[37]	0[0]	1.24200***	1.21979***	41[41]	1[0]	-0.02642	-0.06139
β_{SMB}	0.17818	0.16757	27[7]	10[1]	0.00020	-0.18697	27[5]	15[2]	0.17799	0.35454*
β_{HML}	0.16548	-0.00950	19[0]	18[4]	0.29034	0.28396	33[8]	9[1]	-0.12485	-0.29345*
β_{RMW}	-0.40990**	-0.39769**	7[3]	30[7]	0.00829	0.06587	27[5]	15[3]	-0.41819**	-0.46355*
β_{CMA}	-0.76266***	-0.10037	5[1]	32[10]	-0.57662*	-0.48286	3[0]	39[8]	-0.18604	0.38248
β_{MOM}	-0.00576	-0.10590	17[2]	20[5]	-0.01677	0.00205	16[2]	26[5]	0.01101	-0.10795
$\beta_{MKT*STR}$	0.54435**	0.61725	20[6]	17[8]	0.76436**	0.76657	26[13]	16[9]	-0.22001	-0.14932
β_{MKT*DY}	-0.18934	0.01400	13[5]	24[5]	0.62784***	1.12739***	34[17]	8[3]	-0.81718***	-1.11339***
$\beta_{SMB*STR}$	-0.70357*	0.43806	12[2]	25[18]	1.02922**	1.60684**	30[16]	12[3]	-1.73279***	-1.16877**
β_{SMB*DY}	-0.29044	0.20847	9[1]	28[8]	-0.39363*	-0.37649	15[1]	27[8]	0.10319	0.58496**
$\beta_{HML*STR}$	0.09806	-0.58493	19[4]	18[4]	-0.55820	-1.06832	21[5]	21[7]	0.65626	0.48339
β_{HML*DY}	0.08764	-0.44759	15[2]	22[4]	-1.02214**	-1.83024***	23[10]	19[6]	1.10978	1.38266*
$\beta_{RMW*STR}$	-0.07855	-1.64906	23[4]	14[0]	-0.63389	-3.18839	21[6]	21[7]	0.55534	1.53932
β_{RMW*DY}	-0.45193	-0.14303	24[3]	13[4]	-1.23288**	-1.77701***	17[7]	25[9]	0.78095	1.63399***
$\beta_{CMA*STR}$	3.29018***	4.72326***	37[22]	0[0]	0.50392	0.16197	30[8]	12[0]	2.78626**	4.56129***
β_{CMA*DY}	0.28518	0.77036	29[11]	8[1]	2.30227**	2.67596**	20[7]	22[8]	-2.01709	-1.90559
$\beta_{MOM*STR}$	0.42010	0.09966	21[4]	16[5]	0.31392	0.11104	25[5]	17[3]	0.10618	-0.01138
β_{MOM*DY}	0.14071	-0.03177	24[8]	13[6]	0.24116*	0.08505	29[12]	13[0]	-0.10045	-0.11682
W_1	0.4398	0.1164			0.7245	0.4357			0.28020	0.03772
W_2	0.16930	0.00821			0.00913	0.00208			0.17480	0.01321
W_3	0.13230	0.01579			0.01863	0.00480			0.22130	0.02711
Adj. R^2 (%)	89.56	87.97			82.54	77.53			11.13	23.11

This table shows the regression estimates, using the S&P Global 1200, for the period between December 2008 and December 2014, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR} , α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA) and momentum (MOM), the conditional beta coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). In order to identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets one can find the number of funds whose estimates were statistically significant at a 5% significance level. W_1, W_2 and W_3 are the p-values of the Wald tests for the significance of time-varying α, β, and α and β, respectively.

J. Conditional Fama and French (2018) six-factor model – S&P Global 1200 – second subperiod

	Renewable energy				*Black Energy*				*Difference Portfolio*	
Parameters	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**
α_p	0.00028	0.00169	19[1]	18[2]	-0.0069***	-0.00819*	7[1]	31[20]	0.00718**	0.00988**
α_{STR}	-0.01320***	-0.01623***	4[0]	33[16]	0.00500	-0.00198	22[3]	16[2]	-0.01820**	-0.01425
α_{DY}	-0.01355	-0.01811	14[0]	23[4]	-0.04321*	-0.03811	10[1]	28[2]	0.02965	0.02000
β_p	0.9888***	0.98686***	37[36]	0[0]	1.13351***	1.15839***	36[34]	2[1]	-0.14471**	-0.17154**
β_{SMB}	0.12852*	0.09348	28[12]	9[3]	0.13018	0.08229	21[3]	17[4]	-0.00166	0.01119
β_{HML}	0.01509	-0.01200	16[3]	21[4]	0.03020	0.11932	25[6]	13[6]	-0.01511	-0.13133
β_{RMW}	-0.20926**	-0.11340	10[1]	27[5]	-0.28414	-0.69280***	8[0]	30[10]	0.07488	0.57939**
β_{CMA}	-0.28618**	-0.19347	7[2]	30[14]	0.26654	0.23773	30[10]	8[5]	-0.55272**	-0.4312*
β_{MOM}	-0.11319	-0.04614	8[1]	29[11]	-0.24971**	-0.28934**	2[1]	36[13]	0.13652	0.24319**
$\beta_{MKT*STR}$	-0.09279	-0.04153	17[3]	20[3]	-0.29875**	-0.41501***	17[3]	21[7]	0.20596**	0.37347***
β_{MKT*DY}	0.02025	0.24370	13[2]	24[4]	-0.87830	-0.39498	15[7]	23[6]	0.89855*	0.63868
$\beta_{SMB*STR}$	-0.16171	-0.32506	10[3]	27[9]	0.23068	0.51509*	22[9]	16[5]	-0.39240	-0.84015**
β_{SMB*DY}	-0.68528	-0.69445**	11[3]	26[1]	2.06419**	1.18098	31[7]	7[2]	-2.74947***	-1.87543*
$\beta_{HML*STR}$	-0.31314	-0.36083	10[3]	27[5]	-0.41758	-0.76900***	8[3]	30[8]	0.10444	0.40817
β_{HML*DY}	-0.15175	-0.51490	15[1]	22[5]	-1.64847**	-0.91606	17[1]	21[4]	1.49672	0.40116
$\beta_{RMW*STR}$	-0.36175	-0.33477	12[1]	25[5]	-0.01292	0.39000	21[2]	17[4]	-0.34883	-0.72477
β_{RMW*DY}	0.86258	-0.25674	30[11]	7[0]	1.57923	0.05651	23[4]	15[2]	-0.71665	-0.31325
$\beta_{CMA*STR}$	-0.08270	0.08242	9[2]	28[4]	0.90126**	1.80023***	28[12]	10[2]	-0.98396***	-1.71781***
β_{CMA*DY}	1.06422	1.82226***	24[7]	13[1]	-1.08671	-0.51885	15[3]	23[6]	2.15093***	2.34112**
$\beta_{MOM*STR}$	-0.52041***	-0.51557***	5[3]	32[21]	0.01417	0.28919	25[10]	13[8]	-0.53458***	-0.80476***
β_{MOM*DY}	-0.24622	-0.36293	13[1]	24[2]	-0.18462	-1.30748	15[3]	23[3]	-0.06161	0.94454
W_1	0.03160	0.01626			0.30530	0.44520			0.22260	0.61600
W_2	0.09879	0.15530			0.10500	0.07095			0.00675	0.06713
W_3	0.00335	0.00730			0.16460	0.09093			0.00615	0.06613
Adj. R^2 (%)	92.59	89.46			88.41	84.91			42.17	40.92

This table shows the regression estimates, using the S&P Global 1200, for the period between January 2015 and January 2021, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR} , α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA) and momentum (MOM), the conditional beta coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). In order to identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets one can find the number of funds whose estimates were statistically significant at a 5% significance level. W_1, W_2 and W_3 are the p-values of the Wald tests for the significance of time-varying α, β, and α and β, respectively.

K. Conditional Fama and French (2018) six-factor model – style indexes – first subperiod

	Renewable energy				*Black Energy*			
Parameters	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**
α_p	0.00237	0.00297	26[4]	11[2]	-0.00539**	-0.00817***	8[6]	34[19]
α_{STR}	-0.04699**	-0.01773	10[1]	27[11]	-0.00384	-0.02060*	13[2]	29[9]
α_{DY}	0.01689**	0.00422	31[17]	6[1]	-0.00454	-0.00981	14[2]	28[5]
β_p	0.77019***	0.58251***	37[35]	0[0]	1.02339***	1.01783***	42[41]	0[0]
β_{SMB}	-0.12228	0.09023	14[1]	23[5]	-0.12385	-0.33320***	15[1]	27[4]
β_{HML}	-0.06362	-0.14090	8[1]	29[4]	-0.37780**	-0.37009**	8[1]	34[13]
β_{RMW}	-0.06454	-0.33478	17[1]	20[0]	-0.31119***	-0.23288**	11[3]	31[16]
β_{CMA}	0.21774	0.69619	29[6]	8[3]	-0.14001	-0.06820	17[0]	25[5]
β_{MOM}	-0.04972	-0.17503	12[1]	25[5]	-0.12804	-0.11508	10[0]	32[8]
$\beta_{MKT*STR}$	0.18375	0.09524	16[3]	21[4]	0.22321	0.48872	20[7]	22[11]
β_{MKT*DY}	0.19698**	0.01943	29[9]	8[3]	0.05874	0.47636***	18[7]	24[9]
$\beta_{SMB*STR}$	0.87430	1.48385	23[3]	14[3]	-0.46891	0.01747	18[5]	24[15]
β_{SMB*DY}	-0.19391	0.68979	14[0]	23[6]	-0.34513	-0.33900**	16[3]	26[10]
$\beta_{HML*STR}$	-0.87498**	-1.23171**	9[1]	28[9]	-0.36333	-1.20990**	15[4]	27[4]
β_{HML*DY}	-0.33937	-0.90533	16[4]	21[2]	-0.23199	-1.14037*	33[9]	9[0]
$\beta_{RMW*STR}$	-0.75432	-1.10597	13[1]	24[3]	0.04664	-2.12184*	18[7]	24[14]
β_{RMW*DY}	-1.46119*	-1.51666*	3[1]	34[9]	-0.34833	-1.16485***	26[6]	16[4]
$\beta_{CMA*STR}$	-0.87732	1.29900	13[0]	24[3]	-0.45480	0.45036	24[7]	18[3]
β_{CMA*DY}	-0.07055	0.64562	15[0]	22[4]	-0.33999	0.46331	8[0]	34[19]
$\beta_{MOM*STR}$	-0.09891	-0.23896	11[0]	26[7]	0.05011	-0.01796	17[1]	25[10]
β_{MOM*DY}	0.16944	-0.00765	28[7]	9[1]	-0.06015	-0.21054	20[1]	22[5]
W_1	0.1954	0.9273			0.8319	0.3686		
W_2	0.06461	0.31260			0.65280	0.10050		
W_3	0.08298	0.44000			0.74260	0.15990		
Adj. R^2 (%)	88.36	70.3			93.6	92.02		

This table shows the regression estimates, using the renewable and black energy style indexes, the Ardour Global Alternative Energy, and the S&P Global 1200 Energy, respectively. This corresponds to the period between December 2008 and December 2014, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR} , α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA) and momentum (MOM), the conditional beta coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). In order to identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets one can find the number of funds whose estimates were statistically significant at a 5% significance level. W_1, W_2 and W_3 are the p-values of the Wald tests for the significance of time-varying α, β, and α and β, respectively.

L. Conditional Fama and French (2018) six-factor model – style indexes – second subperiod

	Renewable energy				*Black Energy*			
Parameters	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**	**Eq. Weighted**	**Val. Weighted**	**N+**	**N-**
α_p	-0.00131	0.00167	11[1]	26[3]	-0.00020	-0.00083	16[5]	22[8]
α_{STR}	0.00401	-0.00384	24[0]	13[2]	-0.01406***	-0.02047*	7[0]	31[13]
α_{DY}	-0.00925	-0.01538	15[0]	22[6]	-0.06166***	-0.05433	4[1]	34[10]
β_p	0.66394***	0.59236***	37[37]	0[0]	0.79042***	0.79657***	38[36]	0[0]
β_{SMB}	0.11405	0.09607	26[5]	11[2]	0.06440	0.02723	20[1]	18[6]
β_{HML}	-0.01902	-0.05058	10[1]	27[7]	-0.17125***	-0.11474	9[1]	29[12]
β_{RMW}	-0.01738	0.08614	22[3]	15[1]	0.09600	-0.32316	21[8]	17[4]
β_{CMA}	-0.05648	-0.08073	16[1]	21[1]	-0.43383***	-0.40863***	11[3]	27[10]
β_{MOM}	-0.06749	-0.06864	17[1]	20[3]	-0.06103	-0.11123	8[0]	30[7]
$\beta_{MKT*STR}$	0.06282	0.08654	27[6]	10[2]	-0.01935	-0.15341**	17[4]	21[7]
β_{MKT*DY}	0.75573*	0.78034	25[7]	12[1]	-0.27266	0.26758	13[5]	25[7]
$\beta_{SMB*STR}$	-0.34797	-0.55115	6[1]	31[7]	-0.53707***	-0.22488	12[1]	26[14]
β_{SMB*DY}	-0.22054	-0.20547	21[4]	16[2]	1.96531**	1.03910	29[8]	9[3]
$\beta_{HML*STR}$	-0.03399	-0.16002	21[2]	16[2]	-0.07453	-0.30033	19[7]	19[7]
β_{HML*DY}	1.00773*	0.77358	26[8]	11[2]	-1.29964**	-0.59893	17[3]	21[8]
$\beta_{RMW*STR}$	-0.13423	-0.32804	12[1]	25[4]	-0.93298***	-0.50868	8[2]	30[12]
β_{RMW*DY}	-0.07280	-0.81342	22[3]	15[1]	2.52199***	0.76805	29[15]	9[0]
$\beta_{CMA*STR}$	-0.52166	-0.44236	2[0]	35[11]	-0.49348*	0.24229	10[3]	28[15]
β_{CMA*DY}	-0.92049	-0.45562	10[2]	27[9]	0.85734	0.77289	17[6]	21[7]
$\beta_{MOM*STR}$	-0.44482**	-0.51253*	6[1]	31[17]	-0.80864***	-0.62527**	9[2]	29[15]
β_{MOM*DY}	0.71866	0.56598	27[9]	10[1]	-0.00763	-0.65177	11[1]	27[8]
W_1	0.86730	0.79890			0.00002	0.00681		
W_2	0.18970	0.43090			0.00066	0.03233		
W_3	0.10620	0.47820			0.00000	0.00103		
Adj. R^2 (%)	87.98	76.62			95.41	89.11		

This table shows the regression estimates, using the renewable and black energy style indexes, the Ardour Global Alternative Energy, and the S&P Global 1200 Energy, respectively. This corresponds to the period between January 2015 and January 2021, regarding the equally and value weighted portfolios of renewable and black energy funds, and for the difference portfolios between these. The table reports the abnormal returns (αp), the conditional α coefficients (α_{STR} , α_{DY}), the systematic risk (βp), the additional regression coefficients regarding size (SMB), book-to-market (HML), profitability (RMW), investment (CMA) and momentum (MOM), the conditional beta coefficients (β_{p*STR}, β_{p*DY}, $\beta_{SMB*STR}$, β_{SMB*DY}, $\beta_{HML*STR}$, β_{HML*DY}, $\beta_{RMW*STR}$, β_{RMW*DY}, $\beta_{CMA*STR}$, β_{CMA*DY}, $\beta_{MOM*STR}$, β_{MOM*DY}) and the adjusted coefficient of determination (Adj. R^2). Standard errors were corrected for heteroscedasticity and autocorrelation by following Newey and West (1987). In order to identify the statistical significance of the coefficients, asterisks were used to represent the level of significance of 1% (***), 5% (**) and 10% (*). N+ and N- indicate the number of singular funds that have positive and negative estimates, respectively. Within brackets one can find the number of funds whose estimates were statistically significant at a 5% significance level. W_1, W_2 and W_3 are the p-values of the Wald tests for the significance of time-varying α, β, and α and β, respectively.