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Abstract

Since global warming has become a worldwide issue, the growth of the renewable energy business has never been more rapid. According to existing research, energy prices, technology stocks, and policy uncertainty are all factors to consider, and aggregate shocks may have an impact on the growth of the renewable energy sector. These variables can cause severe volatility in the renewable energy market, increasing the likelihood of drastic changes in return. Considering that renewable energy stocks are a relatively new investment class, obtaining precise estimates of the probability associated with significant changes in renewable energy stock returns is especially important for risk management of a renewable energy investment portfolio.

Key words: ECO, SPGCE, renewable Energy and Clean Technology Index, European Renewable Energy Index, OLS, SPG, MAC Global Solar Energy Index, WilderHill New Energy.

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Introduction

1.1. Justification of the topic of the dissertation and its relevance

As public awareness of the effects of climate change and the need for alternative fuels in the near future grows, the renewable energy business has seen a substantial increase in interest over the last decade. According to the IEA (2021b), worldwide investment in renewable energy has increased from less than \$50 billion per year in 2004 to more than \$350 billion per year in 2021, far exceeding expenditures in new fossil fuel generation. With growing investment in the renewable energy sector, the size and value of renewable energy enterprises have grown dramatically over the years. Stock market developments are regarded as one of the most prominent means of funding renewable energy projects among renewable energy investments (Paramati et al., 2017; Abdullah et al., 2015). Sadorsky (2010), Sadorsky (2012), and Paramati et al. (2016) have repeatedly demonstrated that the formation of a renewable energy stock market provides investors with access to additional sources of capital, resulting in increased levels of investment in clean energy projects. In this process, renewable energy stock market development may boost both diversity and liquidity for attaining greater risk-adjusted returns on energy investments, in addition to increasing the amount of cash available for supporting green energy initiatives (Paramati et al., 2016). According to Bolatoff and Boyere (2009), who evaluated the performance of 310 "green" enterprises across several sectors, solar and biofuels are among the most developed areas within the renewable energy industry, while geothermal is the least developed. Furthermore, their findings suggest that cost of capital, profits per share, and capital expenditures have a strong positive influence on the performance of "green" stocks, but dividend yield, short-term liquidity, and development have a negative impact on stock performance.

1.2. The purpose and objectives of the research

- accurate assessment of the probabilities associated with significant changes in the income of renewable energy reserves