كلية الإدارة والاقتصاد
College of Business and Economics
QATAR UNIVERSITY جامعة قطر

AACSB ACCREDITED

Analysis of Climate Change News Sentiment's Impact on GCC Stock Markets

01 Overview and Study Objectives

- The Vulnerability of GCC region to Climate Change Threats
- Possibilities for Hedging Climate Change Risks in GCC Stock Markets

Analyzing the Impact
Analyzing the impact of climate change news on Qatar and UAE stock markets returns and volatility.

Investor's Behavior
Determining whether climate change news impact investors behavior in Qatar and UAE.

ESG investment opportunity
Explore whether increasing/ decreasing the weights of ESG equities can enhance the return on a given portfolio.

02 News Data Methodology

1. News Data Collection
   Crawling from Reuters
2. News Data Cleaning
   Natural Language Processing (NLP)
3. Climate Change News Sentiment Score
   Textual Analysis by Hutto and Gilbert (2014) & Loughran and McDonald (2011)
4. The Climate Change News Cumulative Sentiment
   (Andreassen, 1990; McQueen et al., 1996; Klibanoff et al., 1998; Li et al., 2021)

03 Empirical Model

Vector Autoregressive model (VAR) with Restrictions
Sims (1980)

$$Ay_{it} = A\alpha_i + \sum_{n=1}^{p} T\beta_i y_{it-n} + \varepsilon_{it}$$

Impulse Response Function (IRF)
(Sims, 1980; Koop et al., 1996)

$$y_{it} = \sum_{j=0}^{\infty} \forall_{ij}\epsilon_{it-j}$$

04 Data Sample

Sample Starting June 2016- June 2023

Stock Market Data
From DataStream

- General Abu-Dhabi (ADX), Dubai (DFM), and Doha (QSI) Stock Market Index
- MSCI 20 ESG Qatar Index (QA-ESG) and S&P/HawKamah ESG UAE Index (UAE- ESG)
- The Log Realized Volatility is the Square of Daily Return (Andersen & Bollerslev, 1998; Barndorff-Nielsen & Shephard, 2002)
- Global Parameter Used, Brent Crude Oil Prices(BRENT), Dow Jones Global index (DJW), and CBOE Volatility Index (VIX)

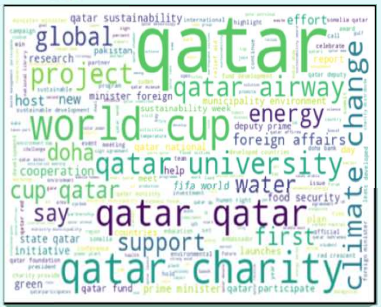
News Headlines Data
From Thomson Reuters

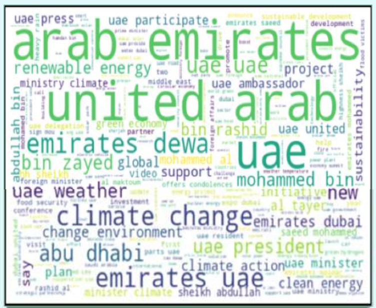
Environment
ten subtopics are included

Climate Change
seven subtopics are included

Natural Disaster
ten subtopics are included

Word Cloud Visualization of News Corpus representing Climate Change news about Qatar and UAE





05 Empirical Results and Policy Implications

- The results of this study show that ESG equities response better during climate uncertainty than the general stock market index in GCC countries.
- Investors in Qatar and UAE perceive the climate change news differently and change their investment strategies accordingly
- A greater bilateral co-movement of stock market returns between Qatar and UAE is associated with greater dependence in responding to the climate change risks
- Investors highly concerned about climate change would hold a portfolio that weighs a higher allocation to
- A robust framework to guide the development of both green and non-green investments.
- the implication of this study may pave the way toward studying the impact of climate change news on stock market industries, energy prices, and others.

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