The article, *Good Day Sunshine Stock Returns and the Weather* by David Hirshleifer and Tyler Shunmway in 2001, examines the relationship between shunshines and daily stock returns across 26 international stock exchanges from 1982 to 1992 based on the phsychological evidence that sunny weather is associated with upbeat mood and with the aim to explore wehther it can subsequently affect stock returns.

The authors hypothesized that sunny weather enhances investors optimism, boosting stock price, whereas depressing days result in mood-driven pessimism and lower returns. To test this hypothesis, the autors use daily index returns from Datastream and weather data from the International Surface Weather Observations (ISWO) dataset, focusing on total sky cover rated from 0 to 8. All cloud data are deseaonalized to ensure that results are only driven by cloundiness. The authors firstly employ OLS regression and logit models to analyze the relationship between cloud cover and returns. Then they apply similar models by controlling for adverse weather such as rain and snow. Finally, Panel data methods with fixed effects and panel-corrected standard errors (PCSE) are used to ensure robust results, accounting for heteroskedasticity, autocorrelation, and cross-sectional dependence.

The city-to-city results strongly suggests a correlation between daily stock returns and cloudiness. Joint tests across cities confirm this negative relationship, with sunshie remaining a strong predictor of returns even after controlling for other weather variables. Rain and snow, on the other hand, show no consistent relationship with returns. This article also demonstrates the weather-based trading strategies, further implying that the sunsine effect is very significant.

The article, *Weather-Induced Mood, Institutional Investors, and Stock Returns*, explores how weather-induced mood impact institutional investors’ perceptions of mispricing and trading behavior and stock returns. Specifically, it firstly investigates whether cloud cover as investor mood proxy affects the decision-making processes of institutional investors. Then, the authors examine a relation between investor’s mood and pricing of individual stocks, after generating a stock-level measure of investor mood from linking investor locations to weather conditions.

The analysis replies on data from several sources: institutional investors data from the Investor Behavior Project at Yale University, weather data matched to investor’s ZIP codes from Integrated Surface Database (ISD), and institutional daily trading data from ANcerno Ltd. Deseasonalized cloud cover is employed as a primary proxy for investor mood. Institutional sentiment is measure using surveys capturing perception of stock, such as “Too low, too high, just right, and do not know”. Trading behavior is analyzed via buy-sell imbalances (BSI). To examine the stock price effects, the study constructs a stock-level mood proxy (StockDSKC). For above three hypothesized relations, different regression models are applied.

The results show that 1) weather-based indicators of mood significantly influence institutional investors’s perceptions and 2) trading decisions. On cloudier days, investors are more likely to overprice stocks (A one-standard-deviation increase in cloud cover raises the likelihood of perceived overpricing by 3%), and exhibit a greater propensity to sell (Trade imbalances between optimistic and pessimistic investors account for 9% of total variation). Also, the findings reveal that 3) the stock-level mood proxy has a strong effect on the daily returns of stocks, especially for stocks with high arbitrage costs. Finally, this study finds that the patterns that return comovement attributable to the investor mood proxy are short lived.

This paper, *Sunshine Trading: Flashes of Trading Intent at the NASDAQ*, investigates the impact of voluntary disclosure of trading intent on market quality by analyzing the introduction and subsequent removal of the flash order facility at NASDAQ. Flash orders, a type of actionable indication of interest (IOI), allow marketable orders to be briefly exposed (up to 500 milliseconds) to NASDAQ participants before being routed to other exchanges. The study aims to determine whether flash orders improve market liquidity, reduce trading costs, and enhance overall market quality.

The authors use a natural experiment design, leveraging the introduction of flash orders in June 2009 and their withdrawal in September 2009. They employ two primary identification strategies: (1) a ten-day event study around the introduction and removal of flash orders and (2) a difference-in-difference analysis comparing the U.S. equity market to control groups, including Canadian and UK stocks. The study examines the characteristics of flash order users (agency vs. proprietary algorithms), measures trading costs, and evaluates liquidity using metrics such as quoted spreads, relative spreads, volatility, and the Amihud illiquidity ratio.

Flash orders were predominantly used by agency algorithms, suggesting that they were primarily submitted by uninformed institutional investors. The study finds that flash orders significantly improved market liquidity, reduced trading costs, and enhanced price efficiency. Specifically, the introduction of flash orders decreased quoted spreads and volatility, while their removal reversed these improvements. Flash orders also acted as a coordination mechanism for liquidity providers by signaling uninformed trading needs. The findings highlight the benefits of voluntary pre-trade transparency and suggest that flash orders can improve overall market quality when used effectively.

**Articles that cites above three papers:**

Good Day Sunshine Stock Returns and the Weather cited by

Chen, Z., Zhang, L., & Weng, C. (2023). Does climate policy uncertainty affect Chinese stock market volatility?. *International Review of Economics & Finance,* 84, 369-381.

Han, L., Cheng, X., Chan, K. C., & Gao, S. (2022). Does air pollution affect seasoned equity offering pricing? Evidence from investor bids. *Journal of Financial Markets, 59*, 100657.

Weather-Induced Mood, Institutional Investors, and Stock Returns cited by

Edmans, A., Fernandez-Perez, A., Garel, A., & Indriawan, I. (2022). Music sentiment and stock returns around the world. *Journal of Financial Economics, 145*(2), 234-254.

Wang, W., Su, C., & Duxbury, D. (2022). The conditional impact of investor sentiment in global stock markets: A two-channel examination. *Journal of Banking & Finance, 138*, 106458.

**Does Climate Policy Uncertainty Affect Chinese Stock Market Volatility?**

This study investigates the impact of **climate policy uncertainty (CPU)** on the **volatility of the Chinese stock market**, with a focus on whether CPU provides additional predictive information for stock price fluctuation. The authors aim to address a gap in the literature by examining this relationship using high-frequency data and an **RGARCH-MIDAS (Realized GARCH-Mixed Data Sampling)** framework. Unlike traditional studies that focus on weather conditions, this study uses CPU as a comprehensive metric that captures the effects of climate policies on financial markets.

The researchers employ the **Shanghai Composite Index (SSEC)** as a representative of the Chinese stock market and integrate **5-minute high-frequency data** with monthly CPU data. They use a rolling window approach with **70% of the dataset for in-sample analysis** and the remainder for out-of-sample prediction. The RGARCH-MIDAS model is extended to include CPU and evaluate its predictive power. Various robustness tests are conducted, including different volatility states, forecasting window sizes, and alternative stock markets (e.g., the Hang Seng Index).

The findings reveal that **CPU significantly affects Chinese stock market volatility**, with in-sample results demonstrating that CPU exacerbates volatility. Out-of-sample tests confirm that models incorporating both **CPU and high-frequency data** outperform traditional models in forecasting accuracy. The results also highlight that CPU has a greater impact during periods of high market volatility and recession. Overall, the study provides strong evidence that incorporating CPU and high-frequency data improves volatility forecasting, offering practical insights for investors and policymakers during the climate crisis.

**Does Air Pollution Affect Seasoned Equity Offering Pricing? Evidence from Investor Bids**

This study examines the impact of **air pollution** on investor behavior and **seasoned equity offering (SEO)** pricing, focusing on how air pollution influences investor sentiment, bid prices, and SEO discounts. The authors argue that **poor air quality negatively affects investors' emotions and cognitive abilities**, leading to pessimism that results in lower bid prices and larger SEO discounts. The study further differentiates the behavior of **individual and institutional investors**, hypothesizing that individual investors are more prone to emotional and cognitive biases caused by air pollution compared to institutional investors.

To investigate this, the authors used a unique dataset of **14,314 SEO bids** from **674 Chinese SEOs** between 2013 and 2019. They combined air pollution data from the **Air Quality Index (AQI)** with the geographic locations of investors and firms issuing SEOs. Regression models were used to analyze the relationship between air pollution levels, bid price discounts, and SEO discounts, controlling for factors such as firm size, stock return volatility, and institutional ownership.

The findings show that **higher air pollution levels lead to lower investor bid prices**, resulting in larger bid price discounts and SEO discounts. This effect is more pronounced in SEOs with both individual and institutional investor bids, but it is minimal for SEOs with only institutional investors. The study concludes that **individual investors are more affected by air pollution-induced cognitive biases**, while institutional investors remain relatively rational. Additionally, SEOs discounted more heavily during periods of high air pollution delivered **better long-term abnormal returns** for firms, suggesting investors underestimated firm value due to pessimism. The results highlight the significant role of investor sentiment and environmental conditions in financial decision-making and SEO pricing.

**Music Sentiment and Stock Returns Around the World**

This study investigates whether **music sentiment**—measured as the positivity of songs streamed on Spotify—affects **stock market returns**. The authors use a novel, real-time, and globally comparable sentiment measure based on the valence (positivity) of the top-200 streamed songs in 40 countries. Unlike traditional sentiment measures that rely on specific events (e.g., sporting results or weather), this music-based measure reflects actual mood without pre-specifying mood-affecting events. The study validates this proxy by correlating it with seasonal mood swings, weather conditions, and COVID-19 restrictions, demonstrating its robustness as a sentiment indicator.

The analysis examines the relationship between **weekly music sentiment changes** and **stock market returns**, controlling for global factors, weather, and macroeconomic variables. The authors find that **higher music sentiment is positively correlated with same-week stock returns** (an 8.1 basis point increase per standard deviation) but negatively correlated with next-week returns (a 7.1 basis point decrease). This pattern suggests temporary mispricing caused by sentiment, which subsequently reverses. The study also extends the analysis to mutual fund flows and government bond returns. Results show that music sentiment **predicts net mutual fund inflows** and correlates negatively with government bond returns, consistent with a "flight to safety" during low sentiment periods. Additionally, absolute changes in music sentiment are associated with increased stock market volatility.

The findings are robust across alternative specifications, controls, and trading conditions, such as short-sale bans during the COVID-19 pandemic. Overall, the study highlights music sentiment as a valuable, high-frequency proxy for investor mood that significantly impacts asset prices, mutual fund flows, and market volatility.

**The Conditional Impact of Investor Sentiment in Global Stock Markets: A Two-Channel Examination**

This study examines how **investor sentiment** affects **stock returns** globally through two channels: a **direct channel**, where the direction of sentiment affects stock returns, and an **indirect channel**, where sentiment impacts conditional volatility, which then influences returns. The study also explores how these effects vary across different **market conditions** (bull and bear regimes). Using **turnover ratio** as a proxy for investor sentiment and **GARCH-family models**, the authors analyze data from **40 international stock markets**.

The results indicate that investor sentiment significantly impacts stock returns through both channels. In **bull regimes**, optimistic sentiment leads to higher stock returns through both a direct positive effect and a rise in conditional volatility, while pessimistic sentiment decreases returns. In **bear regimes**, the effects reverse: optimistic sentiment decreases returns, while pessimistic sentiment increases them. The **direct channel** has a broader and stronger impact, but in some markets, the indirect channel (via volatility) is the only route through which sentiment affects returns. The findings are remarkably consistent across markets, with only a few exceptions.

The study highlights the importance of distinguishing between the two channels and accounting for market conditions, as sentiment-driven effects vary significantly in bull and bear markets. These results challenge the assumption of a constant sentiment-return relationship and emphasize the need for conditional analyses in financial research. The authors suggest future research could explore alternative sentiment proxies or experimental approaches to further validate their findings.