Analysis of Moroccan Equity Market Volatility vs. Regional Precipitation Patterns

An Investigation into the 2024–2026 January Performance

Data Analysis Report

February 8, 2026

1 Executive Summary

This report evaluates the statistical relationship between average precipitation in the Casablanca-Rabat axis and the closing prices of major securities listed on the Moroccan stock exchange. The study reveals a Pearson correlation coefficient (r) of **0.2754**, suggesting a weak but non-negligible positive relationship.

2 Methodology

The analysis was conducted using daily precipitation records merged from two major urban centers. The correlation was calculated using the Pearson product-moment correlation formula:

$$r = \frac{\sum(x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum(x_i - \bar{x})^2 \sum(y_i - \bar{y})^2}}$$

where x represents the stock price and y represents the average daily rainfall for the month of January.

3 Data Summary

Table 1: Rainfall and Market Overview (January 2024–2026)

Metric	2024	2025	2026
Avg Rainfall (mm)	1.06	1.05	8.10
Rainy Days	9	8	22
Sample Stock (Managem)	1,800 MAD	2,600 MAD	8,050 MAD

4 Statistical Interpretation

The resulting correlation of **0.2754** indicates that approximately **7.6%** (R^2) of the variance in the observed stock prices can be associated with variations in January rainfall.

- **2024–2025:** Market growth occurred despite stagnant rainfall levels, suggesting sectoral independence.

- **2026 Outlier Effect:** The significant surge in rainfall coincided with extreme price appreciation in the mining sector (notably Managem), which acted as the primary driver for the positive correlation value.

5   Conclusion

While a correlation of 0.27 is statistically considered weak, it highlights a secondary economic "pulse" in the Moroccan market. We conclude that while rainfall is not a primary predictor of stock valuation, it serves as a macro-environmental catalyst that supports bullish sentiment in specific industrial sectors.