Accepted Manuscript

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PII: S0378-4371(18)30225-5
DOI: https://doi.org/10.1016/j.physa.2018.02.154
Reference: PHYSA 19274

To appear in: *Physica A*

Received date : 11 July 2017
Revised date : 22 December 2017

Please cite this article as: A. García-Medina, L. Sandoval, E.U. Bañuelos, A.M. Martínez-Argüello, Correlations and flow of information between the New York Times and stock markets, *Physica A* (2018), https://doi.org/10.1016/j.physa.2018.02.154

Correlations and Flow of Information between The New York Times and Stock Markets.

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Abstract

We use Random Matrix Theory (RMT) and information theory to analyze the correlations and flow of information between 64,939 news from *The New York Times* and 40 world financial indices during 10 months along the period 2015-2016. The set of news is quantified and transformed into daily polarity time series using tools from sentiment analysis. The results show that a common factor influences the world indices and news, which even share the same dynamics. Furthermore, the global correlation structure is found to be preserved when adding white noise, what indicates that correlations are not due to sample size effects. Likewise, we find a considerable amount of information flowing from news to world indices for some specific delay. This is of practical interest for trading purposes. Our results suggest a deep relationship between news and world indices, and show a situation where news drive world market movements, giving a new evidence to support behavioral finance as the current economic paradigm.

Keywords: Random Matrix Theory, Transfer Entropy, Sentiment Analysis, Behavioral Finance.
PACS: 05.90.+m, 89.65.Gh, 07.05.Kf

1. Introduction

The purpose of this work is to understand, in the context of Econophysics [1, 2, 3], the validity of the relatively new school of thought named behavioral finance and contrast it with the most accepted paradigm of the efficient market

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