

## Accepted Manuscript

Stock Market Volatility: Identifying Major Drivers and the Nature of Their Impact

Stefan Mittnik, Nikolay Robinzonov, Martin Spindler

PII: S0378-4266(15)00079-5

DOI: <http://dx.doi.org/10.1016/j.jbankfin.2015.04.003>

Reference: JBF 4687

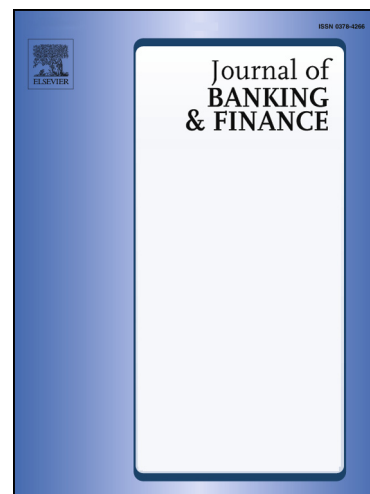
To appear in: *Journal of Banking & Finance*

Received Date: 19 February 2014

Accepted Date: 3 April 2015

Please cite this article as: Mittnik, S., Robinzonov, N., Spindler, M., Stock Market Volatility: Identifying Major Drivers and the Nature of Their Impact, *Journal of Banking & Finance* (2015), doi: <http://dx.doi.org/10.1016/j.jbankfin.2015.04.003>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



# Stock Market Volatility: Identifying Major Drivers and the Nature of Their Impact

Stefan Mittnik<sup>§,\*</sup>    Nikolay Robinzonov<sup>§</sup>    Martin Spindler<sup>§,‡</sup>

This version: March 13, 2015

<sup>§</sup> Department of Statistics and Center for Quantitative Risk Analysis  
Ludwig Maximilians University Munich  
Akademiestr. 1/I, 80799 Munich, Germany

<sup>‡</sup>Max Planck Society, Munich, Germany

## Abstract

Financial–market risk, commonly measured in terms of asset–return volatility, plays a fundamental role in investment decisions, risk management and regulation. In this paper, we investigate a new modeling strategy that helps to better understand the forces that drive market risk. We use componentwise gradient boosting techniques to identify financial and macroeconomic factors influencing volatility and to assess the specific nature of their influence. Componentwise boosting is capable of producing parsimonious models from a, possibly, large number of predictors and—in contrast to other related techniques—allows a straightforward interpretation of the parameter estimates.

Considering a wide range of potential risk drivers, we apply boosting to derive monthly volatility predictions for the equity market represented by S&P 500 index. Comparisons with commonly–used GARCH and EGARCH benchmark models show that our approach substantially improves out–of–sample volatility forecasts for short– and longer–run horizons. The results indicate that risk drivers affect future volatility in a nonlinear fashion.

**Keywords:** componentwise boosting, financial market risk, forecasting, GARCH, Exponential GARCH, variable selection.

**JEL classification:** C55, C58, G17, E00

---

\*Corresponding author. *Email:* finmetrics@stat.uni-muenchen.de, *Tel.:* +49 89 2180 3224, *Fax:* +49 89 2180 5044, *Address:* Ludwig Maximilians University, Department of Statistics, Chair of Financial Econometrics, Akademiestr. 1/I, 80799 Munich, Germany. A previous version of the working paper was circulated under the title “Boosting the Anatomy of Volatility.” Part of the research was conducted while Martin Spindler was visiting the Department of Economics at MIT, Cambridge, USA, with financial support from the German Research Foundation (DFG). He thanks for the hospitality and fruitful research environment.

Download English Version:

<https://daneshyari.com/en/article/5088673>

Download Persian Version:

<https://daneshyari.com/article/5088673>

[Daneshyari.com](https://daneshyari.com)