

Also available at <http://amc-journal.eu>  
ISSN 1855-3966 (printed edn.), ISSN 1855-3974 (electronic edn.)  
ARS MATHEMATICA CONTEMPORANEA 9 (2015) 311-330

## What can Wikipedia and Google tell us about stock prices under different market regimes?

*Boris Cergol, Matjaž Omladič*

**Abstract:** In less than five years a surprisingly high level of attention has built up in the possible connection between internet search data and stock prices. It is the main aim of this paper to point out how this connection may depend heavily on different regimes of the market, i.e. the bear market vs. the bull market. We consider three types of internet search data (relative Google search frequencies of company tickers, relative Google search frequencies of company names and page visits of Wikipedia articles about individual companies) and a substantial sample of companies which are members of the S&P 500 index. We discover two inverse patterns in stock prices: in the bear market what we propose to term a "merry frown" and in bull market a "sour smile", both clearly seen especially for the Wikipedia data. We propose market neutral strategies that exploit these new patterns and yield up to 17% in average annual return during our sample period from 2008 to 2013.

**Keywords:** Stock returns, internet search data, market regimes, trading strategies.

Math. Subj. Class.: 91G70, 97K80

## **Kaj nam Wikipedia in Google povesta o cenah delnic pri različnih tržnih trendih?**

**Povzetek:** V manj kot petih letih je presenetljivo naraslo zanimanje za možne povezave med internetnim iskanjem podatkov in cenami delnic. Glavni namen članka je pokazati, kako je ta povezava lahko močno odvisna od različnih tržnih trendov, t.j. od t.i. medvedjega trga proti t.i. bikovemu trgu. Obravnavamo tri vrste internetnih iskalnih podatkov (relativne Googlove iskalne frekvence delnic podjetij, relativne Googlove iskalne frekvence imen podjetij in obiske strani člankov na Wikipedii o posameznih podjetjih) in znaten vzorec podjetij, ki so člani t.i. S&P 500 indeksa. Odkrili smo dva nasprotna vzorca v cenah delnic, za katera v primeru medvedjega trga predlagamo izraz "veselo mrščenje", v primeru bikovega trga pa "kisel smehljaj", oba pa jasno razkrivajo predvsem podatki z Wikipedie. Predlagamo nevtralne tržne strategije, ki izkoriščajo te nove vzorce in prinašajo do 17% povprečnega letnega donosa med našim vzorčnim obdobjem od 2008 do 2013.

**Ključne besede:** Donosi delnic, internetno iskanje podatkov, tržni trendi, strategije trgovanja.