Finance Research Letters 13 (2015) 1–9

Contents lists available at ScienceDirect

Finance Research Letters

journal homepage: www.elsevier.com/locate/frl

Rational speculative bubbles in the US stock market and political cycles ☆

Miao Wang [a,1], M. C. Sunny Wong [b,*]

[a] Marquette University, Milwaukee, WI 53233, USA
[b] University of San Francisco, San Francisco CA 94117, USA

ARTICLE INFO

Article history:
Received 26 March 2015
Accepted 28 March 2015
Available online 3 April 2015

JEL classification:
G14
P16
E32
C52

Keywords:
Rational speculative bubbles
Duration dependence
Abnormal returns
Presidential terms

ABSTRACT

This paper tests the existence of rational speculative bubbles during Democratic and Republican presidential terms, which has not been systematically researched in existing studies. With monthly real returns on equally-weighted and value-weighted portfolios in the U.S. from January 1927 to December 2012, we find that there are rational speculative bubbles under Republican Presidents but not under Democratic Presidents. Our results are robust to different specifications.

1. Introduction

The term rational speculative bubbles is used to describe a persistent stock market overvaluation. Investors understand assets are sold at prices in excess of their fundamentals, which is the present value of all the asset's future cash flows (Lucas, 1978). However, they believe the bubble will continue

☆ We would like to thank Jeremy Gilmore for collecting the data used in this study. This research is supported by the Miles Research Grant from the College of Business Administration, Marquette University, and the Marquette University Regular Research Grant.

* Corresponding author at: Department of Economics, University of San Francisco, 2130 Fulton St., San Francisco, CA 94117, USA. Tel.: +1 415 422 6194.
E-mail addresses: grace.wang@mu.edu (M. Wang), mwong11@usfca.edu (M. C. S. Wong).
[1] Department of Economics, Marquette University, 606 N. 13th St., Milwaukee, WI 53233, USA. Tel.: +1 414 288 7310.

http://dx.doi.org/10.1016/j.frl.2015.03.009
1544-6123/

to expand and yield a high return, compensating them for the probability of a crash. There are a large number of studies testing rational speculative bubbles internationally. Among them are Brooks and Katsaris (2003) on London stock exchange, Gan et al. (2012) on Hong Kong stock market, Kizys and Pierdzioch (2012) on stock markets in a cross section of countries, Watanapalachaikul and Islam (2007) on Thai stock market, and Zhang (2008) on Chinese stock market.

Research on asset prices in the U.S. stock market is also extensive. Some studies focus on rational speculative bubbles in general. For example, with monthly returns between 1929 and 1991, McQueen and Thorley (1994) find evidence supporting rational speculative bubbles in the U.S. stock market. Lunde and Timmermann (2004) argue that the longer an expansion, the lower is its probability to arrive at a termination and the longer a contraction, the higher is its probability to come to a termination. Other papers explore the relationship between stock market returns and political parties in power. Johnson et al. (1999) find that the return differential between Democratic and Republican presidencies is significant for small-cap stocks, but insignificant for large-cap stocks. In a seminal study, Santa-Clara and Valkanov (2003) demonstrate that the stock market returns in the U.S. are 9% higher based on value-weighted and 16% higher based on equally-weighted portfolios under Democratic than Republican presidencies over the period of 1927–1998, and they name this result the "presidential puzzle".

In this paper we apply the duration dependence test, proposed by McQueen and Thorley (1994), for the existence of rational speculative bubbles in the U.S. stock market under different Presidents by political affiliation, which has not been systematically researched in existing studies. With monthly returns on equally-weighted and value-weighted portfolios in the U.S. from January 1927 to December 2012, we find that rational speculative bubbles exist in the stock market in the U.S. in general, echoing previous research. In addition, our empirical results show that rational bubbles exist in the U.S. stock market under Republican Presidents but not Democratic Presidents. Various specifications are used and our results remain robust.

The remainder of the paper is organized as follows: Section 2 describes the duration dependence test and Section 3 presents our empirical results. Section 4 concludes and discusses potential extension to this paper.

2. Duration dependence test

Previous research has adopted a number of methods to test for speculative bubbles in asset prices such as tests for autocorrelation and kurtosis (Blanchard and Watson, 1982) and tests for skewness (Evans, 1986). McQueen and Thorley (1994) propose a duration dependence test for rational speculative bubbles, implying an inverse relationship between a run of positive abnormal returns and the length of the run. The authors point out that this test is more unique to bubbles than attributes including skewness, kurtosis, and autocorrelation which can result from other reasons, such as, time-varying risk premiums or asymmetric fundamental news.

Duration dependence is a characteristic of hazard function for duration times. McQueen and Thorley (1994) expect that the hazard function of a run of positive abnormal returns is an inverse function of the length of the run. A run is defined as a sequence of abnormal returns (ϵ_t^r) of the same sign. Let $f(t)$ represent the density function for duration times, and $F(t)$ the corresponding distribution function. The hazard function $h(t)$ is the conditional density function for a run with duration of length t, given that it lasts at least until t. Specifically:

$$h(t) = \frac{f(t)}{1 - F(t)}. \tag{1}$$

If N_t and P_t represent the count of completed runs and partial runs, respectively, of length t in the sample, the density function version of the log likelihood for data consisting of a set S_T is as follows:

$$L(\theta|S_T) = \sum N_t \ln f_t + P_t \ln(1 - F_t), \tag{2}$$

where θ is a vector of parameters. Following McQueen and Thorley (1994), the hazard function is written as the log–logistic functional form: