Journal of Econometrics 187 (2015) 580–592

Contents lists available at ScienceDirect

Journal of Econometrics

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

The long and the short of the risk-return trade-off☆

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ARTICLE INFO

Article history:
Available online 12 March 2015

JEL classification:
G1
G12
G11
C1
C5

Keywords:
Equilibrium asset pricing
Time-aggregation
Realized measures

ABSTRACT

The relationship between conditional volatility and expected stock market returns, the so-called risk-return trade-off, has been studied at high- and low-frequency. We propose an asset pricing model with generalized disappointment aversion preferences and short- and long-run volatility risks that captures several stylized facts associated with the risk-return trade-off at short and long horizons. Writing the model in Bonomo et al. (2011) at the daily frequency, we aim at reproducing the moments of the variance premium and realized volatility, the long-run predictability of cumulative returns by the past cumulative variance, the short-run predictability of returns by the variance premium, as well as the daily autocorrelation patterns at many lags of the *VIX* and of the variance premium, and the daily cross-correlations of these two measures with leads and lags of daily returns. By keeping the same calibration as in this previous paper, we ensure that the model is capturing the first and second moments of the equity premium and the risk-free rate, and the predictability of returns by the dividend yield. Overall adding generalized disappointment aversion to the Kreps–Porteus specification improves the fit for both the short-run and the long-run risk-return trade-offs.

1. Introduction

To study the relationship between conditional volatility and expected stock market returns researchers have mainly run linear regressions. The outcome after more than two decades of empirical studies is rather disappointing. Some find a positive relation, others a negative one. In many studies, there is no significant trade-off.[1] Several recent contributions have revived the debate. Bandi and Perron (2008) find that the dependence is statistically mild at short horizons, which explains the contradicting results in the literature, but increases with the horizon and is strong in the long run (between 6 and 10 years). A recent trend in the literature has also put forward the variance risk premium (VRP) as a strong predictor of stock returns in the short run (see in particular Bollerslev et al., 2009). Bollerslev et al. (2006) study the relationship between volatility and past and future returns in high-frequency equity market data. They find an asymmetric pattern in the cross-correlations between absolute high-frequency returns and current and past high-frequency returns. Correlations between absolute returns and past returns are significantly

☆ An earlier version of this paper was presented at the Econometrics Knowledge Platform 3rd Annual Workshop, Liverpool University Management School, Liverpool, in April 2014 as well as at the SOFIE 7th Annual Conference, Rotman School of Business, University of Toronto, Toronto, in June 2014. We thank participants for their comments. We also thank two referees and the editor for their useful and constructive comments. This work was supported by grants FQRSC-ANR (ANR-11-FRQU-002-01 - DFAPRM -) to the second and third authors. Nour Meddahi benefited from the financial support of the chair "Marché des risques et création de valeur", Fondation du risque/SCOR, and from the European Communitys Seventh Framework Programme (FP7/2007–2013) Grant Agreement no. 230589.

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[1] In a survey about measuring and modeling variation in the risk-return trade-off, Lettau and Ludvigson (2010) attribute in large part the disagreement in the empirical literature on this relation to the limited amount of information generally used to model the conditional mean and conditional volatility of excess stock market returns. Rossi and Timmermann (2010) argue that there is no theoretical reason for assuming a linear relationship between the expected returns and the conditional volatility. They found support for nonlinear patterns in the risk-return trade-off.

http://dx.doi.org/10.1016/j.jeconom.2015.02.040
0304-4076/