

CORE DISCUSSION PAPER
2005/59

**TEMPORAL AGGREGATION OF UNIVARIATE LINEAR
TIME SERIES MODELS**

Andrea SILVESTRINI¹ and David VEREDAS²

September 2005

Abstract

In this paper we feature state-of-the-art econometric methodology of temporal aggregation for univariate linear time series, namely ARIMA-GARCH models. We present a unified overview of temporal aggregation techniques for this broad class of processes and we explain in detail, although intuitively, the technical machinery behind the results. An empirical application with Belgian public deficit data illustrates the main issues.

Keywords: temporal aggregation, ARIMA, GARCH, seasonality.

JEL Classification: C10, C22, C43.

¹Dipartimento di Economia, Finanza e Statistica, Università di Perugia, Italy and CORE, Université catholique de Louvain, Belgium.

²ECARES, Université Libre de Bruxelles and CORE, Université catholique de Louvain, Belgium. E-mail: dveredas@ulb.ac.be

The authors would like to thank Pierluigi Daddi, Christian Hafner, Luc Van Meensel and Bas Werker for helpful comments and suggestions. The first author gratefully acknowledges financial support from Università di Perugia.

This paper presents research results of the Belgian Program on Interuniversity Poles of Attraction initiated by the Belgian State, Prime Minister's Office, Science Policy Programming and of the Action de Recherches Concertées (Namur). The scientific responsibility is assumed by the authors.