

# Preface: Special Issue on Time Series Econometric Applications in Finance

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The last two decades brought important methodological advances in empirical finance along with extended and new datasets. This was coupled with key financial innovations and important market phenomena that led to a surge of empirical research in finance. Time series econometrics includes the most indispensable tools to any empirical work in finance. This Special Issue is a collection of papers that employ various up-to-date econometric tools to answer a host of empirical finance questions.

The motivation for this Special Issue is driven by the various Nobel Prize Awards in Economics that have empirical finance applications. The 2013 Nobel Prize in Economics was shared by three economists for their contributions on the empirical analysis of asset prices. One interesting aspect of this award is that two of the winners have very different and opposing views of the most recent financial crises. Robert S. Shiller (Yale University) had long been arguing that the rapid rise in housing prices was due to the creation of a bubble and predicted a burst that would lead to a drop in prices of up to 40%. On the same issue, Eugene Fama (University of Chicago) constantly argues that he does not even know what bubble means. Professor Fama is the proposer of the famous efficient market hypothesis, a theory that many people believe contributed to the decline on financial regulation. Whether Robert S. Shiller or Eugene Fama is closer to explaining the events that lead to the crisis remains ultimately an empirical question. This type of questions motivates the empirical research finance that we present in this Special Issue.

Shiller and Fama shared the Nobel Prize with Lars Peter Hansen (University of Chicago), whose contribution focuses on the development of time series econometric methods to evaluate price movements. Other notable developments in time series econometrics tools include the time varying volatility modeling developed by Robert F. Engle III (New York University) and Clive W.J. Granger (University of California, San Diego) who shared the Nobel Prize in Economics in 2003 as well as the Vector Autoregression by Christopher A. Sims (Princeton University) who shared the Nobel Prize in Economics in 2011. These are just a glimpse of the importance of the methods employed in the articles in this Special Issue.

Starting with the motivation of the most recent Nobel Prize winners, the first paper, by Ekaterina Damianova, finds evidence of market inefficiencies in the Bucharest Stock Exchange. The second paper, by Wuthisatian, Papadovasilaki, Gulati and Guerrero, follows on the same topic and presents a time series investigation of the 1926-1933 stock market boom and crash. Both of these first two papers support Robert S. Schiller and provide evidence against the efficient market hypothesis of Eugene Fama. The third paper, by Yapu Quispe, combines a shrinkage estimator with a constrained robust regression and applies it to portfolio robust prediction. The next two papers focus on emerging markets and the links between exchange rate movements and the integration of financial markets (in Mellado and Garcia) and exchange rate and firm value (in Flota). The last two papers center on monetary policies. Ibarra-Ramirez studies the demand for money, while Koh and Shin analyze the link between real activity, inflation, monetary policy and the stock market.

The work by Ekaterina Damianova is important for its implications on how agents make investment decisions. Investors can take advantage of inefficient markets and a seasonal pattern of returns in a way that efficient markets do not allow. Damianova uses data from the Bucharest Stock Exchange market and employs the GARCH methods in Bollerslev (1986) and the GARCH-in-mean framework of Engle, Lilien and Roberts (1987) to investigate weak-form market efficiency. She finds that while the market is becoming more efficient, there are still important market inefficiencies and a seasonal pattern in returns.

Wuthisatian, Papadovasilaki, Gulati, and Guerrero investigate the price dynamics of 24 firms included in the DJIA index during the years 1926-1933 when there was a bubble beginning in the fall of 1927 and lasting till 1929. Employing Granger causality test and unrestricted VAR model to examine the price dynamics of the firms, they find that bubble in the stock prices of innovative companies (such as Radio Corporation of America (RCA)) is transmitted to those of traditional companies. These innovative companies experience their price peak first while companies in traditional sectors have their peaks last. Investors might have been overconfident and optimistic about the new technologies developed by RCA, GM, Union Carbide, and DuPont, leading to the speculative bubble. Such sentiment is spread throughout the market. In contrast to the typical experimental bubble a la Vernon Smith, they document a significant price undershooting in the aftermath of the

crash. Overall the results are against the hypothesis of random walks in stock prices. While recently-developed advanced econometrics techniques are applied mostly to data in recent periods, Wuthisatian, Papadovasilaki, Gulati, and Guerrero make a nice contribution to the existing literature by exploring data dated back to 1927 with the new techniques to unveil the dynamics of price contagion in the bubble 1927-1929.

On the methodological side, Yapu Quispe presents a robust estimator of the portfolio weights. Its importance relies on applications of portfolio optimization and modern portfolio theory developed by Harry Markowitz (1952) and the capital assets pricing model (CAPM) introduced by Sharpe (1964), Lintner (1965) and Mossin (1966). The goal of portfolio optimization is to find optimal weights, which represent the percentage of capital to be invested in an asset, and obtain an expected return with a minimum risk. Yapu Quispe combines a shrinkage estimator with a constrained robust regression. His estimator allows changing the shrinkage parameter and interpolate between least-squares and the robust estimator, which is useful to obtain the best predictive power. He uses Monte-Carlo simulations to study the behavior of the optimal values of the shrinkage parameter considering specifically the flexibility of skew-symmetric distributions which allow modeling return distributions with high skewness and kurtosis. This is usually the case of hedge funds. His paper is considered as an application in portfolio optimization of the shrinkage estimators studied in Genton and Ronchetti (2008).

The following two papers aim to examine cross-market efficiency. Mellado and Garcia explore a unique setting of cross-market integration (the Latin American Integrated Market) and how such integration affects the dynamic correlations in the exchange rates among the countries involved. MILA is the virtual integration of The Lima Stock Exchange (in Peru), the Santiago Stock Exchange (in Chile), and the Colombia Stock Exchange (in Colombia), which allows traders of one country to have direct access to the other two exchanges, without having to depend on intermediary investment services institutions. They employ the dynamic conditional correlation GARCH model proposed by Engle (2002), which allows flexible modelling of changing correlation behaviors of the exchange rate changes under the regime shift caused by the creation of the MILA. Mellado and Garcia document significant decreases in the correlations among the exchange rates of the countries involved in the MILA, which provides portfolio diversification benefits for investors in the three currencies. Despite the wealth of the literature on impact of globalization and market integration on exchange rate changes, this paper represents a significant contribution to the literature since it employs the establishment of the MILA as the direct and concrete measure for the degree of integration of market as opposed to various indirect proxies for integration degree employed in prior studies (such as trade balance and similarity in culture and legal system). The results from the paper can also provide practice implications for investors with regard to portfolio construction and for policymakers with regard to shielding the market against financial contagion from other markets.

On the same topic of market integration and exchange rates, Chrystell examines the exchange rate exposures of publicly-traded non-financial firms from Mexico using a two-stage procedure. First, the exchange rate exposure of the firm is obtained from the market model modified to include the exchange rate factor. Second, she explores the determinants of the derived exchange rate exposure estimates. In contrast the well documented evidence for developed countries, the results in this paper suggest that firms with more international activities and foreign currency denominated liabilities are less susceptible to exchange rate movements as compared to firms that rely primarily on domestic sales. Given the closeness of the United States and Mexico both in terms of financial integration and physical distances, this paper provides a nice extension to the tantamount research on exchange rate exposures of firms in Australia (Yip and Nguyen, 2012), Canada (Al-Shboul and Anwar, 2014), Taiwan (Tsai et al., 2014) and the United States (Bartram, 2007).

Turning to a more macroeconomic analysis, Ibarra-Ramirez examines the money demand in Mexico. He uses the cointegration methods presented in Johansen (1988, 1991) to find the existence of a long term relationship between real money balances, consumption expenditures and the interest rate. Along with the cointegration analysis Ibarra-Ramirez estimates a vector error correction to model how short run deviation affect the long run equilibrium. The short run determinants of real money balances are changes in consumption expenditures and changes in the depreciation rate. This finding extends the work of Khamis and Leone (2001) and has important implications for policy makers. The results suggest that these two variables should be taken into account when making projections of money demand. Because during the period of study Mexico experienced important periods of crisis and large volatility in inflation, exchange rates and interest rates, as robustness checks Ibarra-Ramirez presents CUSUM and CUSUM of Squares to test for the stability of the coefficients. The results support the stability of the coefficients throughout the period of study.

Also following a macroeconomic approach, Koh and Shin examine the relationship between stock market, inflation, real activity, and interest rate. There is no consistent evidence in the existing literature with regard to the relationship between stock returns and inflation; while some studies document a positive relationship, others present evidence of a negative relationship. Koh and Shin tackle this empirical research question by employing a different econometrics technique than previous studies, a recursive vector autoregression (VAR) model, for a more extended sample period than the previous works (1947-2008). They document evidence of no significant relationship between stock returns and inflation, supporting the Fisher effects that common stocks are hedges against inflation. They document the link between the stock market and real activity; innovations in stock returns significantly explain the forecast error variance in real activity, and real activity also significantly and positively responds to the shock in stock returns. They also show evidence of a stark difference in the

relationship between interest rates to inflation between the pre-1980 and the post-1980 periods, which they attribute to the more aggressive monetary policy of the Fed in the post-1980 period than in the pre-1980 period. Using a different econometric approach than previous studies, Koh and Shin shed more lights into the puzzling evidence in the literature on the relationship between stock market, inflation, real activity, and interest rate.

Collectively, the seven papers presented in this Special Issue illustrate recent developments in empirical finance with up-to-date time series econometric tools. These articles were peer-reviewed by two anonymous referees and went through substantial improvements prior to the publication. We would like to thank all authors in this issue who have put up with the revision and edit requirements we impose so as to have a nice final product.

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