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Editorial

Editorial for Applied Econometrics

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Abstract: This Editorial evaluates 14 invaluable and interesting articles in the Special Issue “Applied Econometrics” for the *Journal of Risk and Financial Management* (JRFM). The topics covered include recovering historical inflation data from postage stamps prices, FHA loans in foreclosure proceedings through distinguishing sources of interdependence in competing risks, information in earnings forecasts, nonlinear time series modeling, a systemic approach to management control through determining factors, economic freedom and FDI versus economic growth, efficient cash use of the Taiwan dollar, financial health prediction in companies from post-Communist countries, influence of misery index on U.S. Presidential political elections, multivariate student versus Gaussian regression models in finance, financial derivatives markets and economic development, income inequality and economic growth in middle-income countries, abnormal returns, mis-measured risk, network effects, and risk spillovers in stock returns.

Keywords: historical postage stamps prices; FHA loans; FDI; economic growth; U.S. Presidential political elections; financial derivatives markets; income inequality; abnormal returns; mis-measured risk; network effects; risk spillovers

1. Introduction

This Special Issue is concerned with the broad topic of recent advances in “Applied Econometrics”, and includes any novel theoretical or empirical research associated with the application of econometrics in a broad range of disciplines associated with finance, risk modelling, portfolio management, optimal hedging strategies, economics, econometrics, and financial econometrics.

Although the theme of this Special Issue is primarily related to “Applied Econometrics”, there are several theoretical contributions that are associated with an empirical example, or directions in which the novel theoretical ideas might be applied. The monograph is associated with significant and novel contributions in theoretical and applied econometrics; economics; theoretical and applied financial econometrics; quantitative finance; risk; financial modelling; portfolio management; optimal hedging strategies; theoretical and applied statistics; applied time series analysis; forecasting; applied mathematics; energy economics; energy finance; tourism research; tourism finance; agricultural economics; informatics; data mining; bibliometrics; and international rankings of journals and academics. The following section presents each of the 14 papers, and discusses their significant contributions.

2. Discussion of the Review Papers

The 14 papers are presented in chronological order.

In the first paper of the Special Issue, [Franses and Janssens \(2017\)](#) observe that, for many developing countries, historical inflation figures are rarely available. The authors propose a simple

method that aims to recover such figures of inflation using prices of postage stamps issued in earlier years. They illustrate their method for Suriname, where annual inflation rates are available for 1961 until 2015, and where fluctuations in inflation rates are prominent. The authors estimate the inflation rates for the sample from the period 1873 to 1960. The main finding is that high inflation periods usually last no longer than 2 or 3 years. An Exponential Generalized Autoregressive Conditional Heteroscedasticity (EGARCH) model for the recent sample and for the full sample with the recovered inflation rates shows the relevance of adding the recovered data.

Deng and Haghani (2018) note that a mortgage borrower has several options once a system of foreclosure proceedings is initiated, mainly default and prepayment. Using a sample of FHA mortgage loans, the authors develop a dependent competing risks framework to examine the determinants of time to default and time to prepayment once the foreclosure proceedings is initiated. More importantly, they examine the interdependence between default and prepayment, through both the correlation of the unobserved heterogeneity terms and the preventive behavior of the individual mortgage borrowers. It is found that time to default and time to prepayment are affected by several factors, such as the Loan-To-Value ratio (LTV), FICO score and unemployment rate. In addition, they find strong evidence that supports the existence of interdependence between the default and prepayment hazards through both the correlation of the unobserved heterogeneity terms and the preventive behavior of individual mortgage borrowers. The paper shows that neglecting the interdependence through the preventive behavior of the individual mortgage borrowers can lead to biased estimates and misleading inference.

De Bruijn and Franses (2018) construct forecasts of earnings forecasts using data on 406 firms and forecasts made by 5419 individuals with, on average, 25 forecasts per individual. The authors verified previously found predictors, which are the average of the most recent available forecast for each forecaster, and the difference between the average and the forecast that this forecaster previously made. The authors extended the knowledge base by analyzing the unpredictable component of the earnings forecast. They found that for some forecasters the unpredictable component can be used to improve upon the predictable forecast, but they also found that this property is not persistent over time. Hence, a user of the forecasts cannot trust that the forecaster will remain of forecasting value. The authors found that, in general, the larger the unpredictable component, the larger the forecast error, while small unpredictable components can lead to gains in forecast accuracy. Based on these results, the authors formulate the following practical guidelines for investors: (i) for earnings analysts themselves, it seems to be safest to not make large adjustments to the predictable forecast, unless one is very confident about the additional information; and (ii) for users of earnings forecasts, it seems best to only use those forecasts that do not differ much from their predicted values.

Mukhopadhyay and Parzen (2018) develop a new comprehensive approach to nonlinear time series analysis and modeling. The authors introduce novel data-specific, mid-distribution-based Legendre Polynomial (LP)-like nonlinear transformations of the original time series $\{Y(t)\}$ that enable us to adapt all the existing stationary linear Gaussian time series modeling strategies and make them applicable to non-Gaussian and nonlinear processes in a robust fashion. The emphasis of the present paper is on empirical time series modeling via the algorithm LPTIME. They demonstrate the effectiveness of our theoretical framework using daily S&P 500 return data between 2 January 1963 and 31 December 2009. The proposed LPTIME algorithm systematically discovers all the 'stylized facts' of the financial time series automatically, all at once, which were previously noted by many researchers one at a time.

Bostan et al. (2018) analyse the influence of the main factors on management control used in optimization activities, in order to reach the strategic goals of a company. Agency, transactional costs and contingency theories have been analysed from the traditional perspective. This paper reviewed resource-based, institutional, planned behaviour and upper echelon theories, and underlined the main features of management control processes. Empirical evaluation was conducted using data collected from interviews of top management of the main and secondary segments of the Bucharest Stock Exchange. Consequently, the authors showed the specific features of the systemic approach to

management control by means of its determining factors: control environment, management strategies and budgetary system, operational control and the performance appraisal system.

[Dkhili and Dhiab \(2018\)](#) explain the role of economic freedom in attracting foreign investments, and thus raising the level of economic growth. Through a study based on a sample composed of the Gulf Cooperation Council (GCC) countries. A standard model consisting of GCC countries (Saudi Arabia, United Arab Emirates, Qatar, Kuwait, and Oman) was used during the period from 1995 to 2017. The authors based on the analytical descriptive and used a multivariate analysis based on the panel unit root test, the cointegration and finally the regression Fully Modified Ordinary Least Squares (FMOLS) and Dynamic Ordinary Least Squares (DOLS) following the existence of a long-term integration, which includes the modern standard methods to determine the role of economic freedom in raising foreign direct investment and thus economic growth in the second stage. The research findings from GCC countries support the literature, suggesting that there are indeed some indications that greater levels of economic freedom support higher rates of economic growth in a country.

[Franses and Welz \(2019\)](#) consider the case where two banknotes and two coins of the New Taiwan Dollar are infrequently (if at all) used in Taiwan when people make cash payments. This paper examines the effect of this behavior on the efficiency of cash payments. The results are compared with the Euro, where the two highest and two lowest tokens are also rarely used. The authors find for Taiwan that inefficiency increases with 60.7%, while for the Euro it is only 25.3%. The main reason for this is that two of the rarely used coins and notes in Taiwan are in the middle of the denominational range, whereas for the Euro, these tokens concern the ends of that range.

[Csikosova et al. \(2019\)](#) view the financial health of a company as the ability to maintain a balance against changing conditions in the environment and, at the same time, in relation to everyone participating in the business. In the evaluation of financial health and prediction of financial problems of the companies, various indexes are used that can serve as input for expert estimation or creation of various models using, for example, multi-dimensional statistical methods. The practical application of the proper method for evaluation of financial health has been analysed in post-communist countries, since they have common historic experiences and economic interests. During the research, we followed up the following indexes: Altman model, Taffler model, Springate model, and the index IN, based on multi-dimensional discrimination analysis. From the research results there is obvious a necessity to combine available methods in post-communist countries and at least to partially eliminate their disadvantages. Experiences from prediction models have proved their relatively high prediction ability, but only in perfect conditions, which cannot be affirmed in post-communist countries. The task remains to modify existing indexes to concrete situations and problems of the individual industries in the chosen countries, which have unique conditions for business making.

[Adrangi and Macri \(2019\)](#) determine whether a United States President's job approval rating is influenced by the Misery Index. This hypothesis is examined in two ways. First, the authors use a nonlinear model that includes several macroeconomic variables: the current account deficit, exchange rate, unemployment, inflation, and mortgage rates. Second, they employ probit and logit regression models to calculate the probabilities of U.S. Presidents' approval ratings to the Misery Index. The results suggest that Layton's model does not perform well when adopted for the United States. Conversely, the probit and logit regression analysis suggests that the Misery Index significantly impacts the probability of the approval of U.S. Presidents' performances.

In order to model multivariate, possibly heavy-tailed data, [Nguyen et al. \(2019\)](#) compare the multivariate normal model (N) with two versions of the multivariate Student model: the independent multivariate Student (IT) and the uncorrelated multivariate Student (UT). After recalling some facts about these distributions and models, known but scattered in the literature, the authors prove that the maximum likelihood estimator of the covariance matrix in the UT model is asymptotically biased and propose an unbiased version. They provide implementation details for an iterative reweighted algorithm to compute the maximum likelihood estimators of the parameters of the IT model. The authors present a simulation study to compare the bias and root mean squared error of the

ensuing estimators of the regression coefficients and covariance matrix under several scenarios of the potential data-generating process, misspecified or not. They propose a graphical tool and a test based on the Mahalanobis distance to guide the choice between the competing models, and also present an application to model vectors of financial assets returns.

Vo et al. (2019b) observe that, over the last three decades, China and India have attained economic power close to that of Japan and the U.S. During this period, the importance of the derivatives market within the financial market has been widely recognized. However, little supporting evidence is available on its economic effects. This paper investigates the dynamic relationship between the derivatives markets and economic development in these four large economies, which the authors consider together as the China, India, Japan, and the U.S. (CIJU) group. They use a Granger-causality test in the framework of a vector error correction model (VECM) to examine this causal and dynamic relation with data for the period 1998Q1 to 2017Q4. Derivative markets are found to positively contribute to economic development in the short term in the U.S., Japan, and India, but the effect disappears in the long term. In China, the derivatives market has a negative effect on economic development in the short run. However, in the long term, the authors observe a positive effect from the derivatives market on economic development based on two long-term estimation techniques, namely, dynamic ordinary least squares and fully modified ordinary least squares. The development of derivative markets also causes growth volatility in India, both in the short and long term.

Vo et al. (2019a) view income inequality in many middle-income countries as having increased at an alarming level. While the time series relationship between income inequality and economic growth has been extensively investigated, the causal and dynamic link between them, particularly for the middle-income countries, has been largely ignored in the current literature. The paper was conducted to fill in this gap on two different samples for the period from 1960 to 2014: (i) a full sample of 158 countries; and (ii) a sample of 86 middle-income countries. The Granger causality test and a system generalized method of moments (GMM) are utilized in this study. The findings from the paper indicate that causality is found from economic growth to income inequality and vice-versa in both samples of countries. In addition, this study also finds that income inequality contributes negatively to economic growth in the middle-income countries in the research period.

Olayungbo (2019) investigates the relative Granger causal effects of oil price on exchange rate, trade balance, and foreign reserve in Nigeria. The author used seasonally adjusted quarterly data from 1986Q4 to 2018Q1 to remove predictable changes in the series. Given the non-stationarity of our variables, he found cointegration to exist only between oil price and foreign reserve. The presence of cointegration implied the existence of long run relationship between the variables. The Granger causality result showed that oil price strongly caused foreign reserve in the short period. However, no Granger causal relationships were found between oil price and trade balance and for oil price and exchange rate. The implication of the result is that the Nigerian government should not rely solely on oil price to sustain reserves, but diversify the economy towards non-resource production and export for foreign exchange generation.

Bhattacharjee and Roy (2019) observe that the recent event study literature has highlighted abnormal stock returns, particularly in short event windows. A common explanation is the cross-correlation of stock returns that is often enhanced during periods of sharp market movements. This suggests the misspecification of the underlying factor model, typically the Fama-French model. By drawing upon the recent panel data literature with cross-section dependence, the authors argue that the Fama-French factor model can be enriched by allowing explicitly for network effects between stock returns. They show that recent empirical work is consistent with the above interpretation, and advance some hypotheses along which new structural models for stock returns may be developed. Applied to data on stock returns for the 30 Dow Jones Industrial Average (DJIA) stocks, their framework provides exciting new insights.

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