Exchange Rate Forecasting Techniques And Applications

"This paper attacks the Meese-Rogoff puzzle from a different perspective: out-of-sample interval forecasting. Most studies in the literature focus on point forecasts. In this paper, we apply Robust Semiparametric (RS) interval forecasting to a group of Taylor rule models. Forecast intervals for twelve OECD exchange rates are generated and modified tests of Giacomini and White (2006) are conducted to compare the performance of Taylor rule models and the random walk. Our contribution is twofold. First, we find that in general, Taylor rule models generate tighter forecast intervals than the random walk, given that their intervals cover out-of-sample exchange rate realizations equally well. This result is more pronounced at longer horizons. Our results suggest a connection between exchange rates and economic fundamentals: economic variables contain information useful in forecasting the distributions of exchange rates. The benchmark Taylor rule model is also found to perform better than the monetary and PPP models. Second, the inference framework proposed in this paper for forecast-interval evaluation can be applied in a broader context, such as inflation forecasting, not just to the models and interval forecasting methods used in this paper"--Page [2].
This book focuses on forecasting foreign exchange rates via artificial neural networks (ANNs), creating and applying the highly useful computational techniques of Artificial Neural Networks (ANNs) to foreign-exchange rate forecasting. The result is an up-to-date review of the most recent research developments in forecasting foreign exchange rates coupled with a highly useful methodological approach to predicting rate changes in foreign currency exchanges.
"This paper compares the true, ex-ante forecasting performance of a micro-based model against both a standard macro model and a random walk. In contrast to existing literature, which is focused on longer horizon forecasting, we examine forecasting over horizons from one day to one month (the one-month horizon being where micro and macro analysis begin to overlap). Over our 3-year forecasting sample, we find that the micro-based model consistently out-performs both the random walk and the macro model. Micro-based forecasts account for almost 16 per cent of the sample variance in monthly spot rate changes. These results provide a level of empirical validation as yet unattained by other models. Our result that the micro-based model out-performs the macro model does not imply that macro fundamentals will never explain exchange rates. Quite the contrary, our findings are in fact consistent with the view that the principal driver of exchange rates is standard macro fundamentals. In Evans and Lyons (2004b)we report firm evidence that the non-public information that we exploit here for forecasting exchange rates is also useful for forecasting macro fundamentals themselves"--NBER website
We re-examine the monetary approach to the exchange rate from a number of perspectives, using monthly data on the deutschemark-dollar exchange rate. Using the Campbell-Shiller technique for testing present value models, we reject the restrictions imposed upon the data by the forward-looking rational expectations monetary model. We demonstrate, however, that the monetary model is validated as a long-run equilibrium condition. Moreover, imposing the long-run monetary model restrictions in a dynamic error correction framework leads to exchange rate forecasts which are superior to those generated by a random walk forecasting model.

This paper examines the dynamics of the foreign exchange market. The first half addresses a number of key questions regarding the forecasts of future exchange rates made by market participants, by means of updated estimates using survey data. Here we follow most of the theoretical and empirical literature in acting as if all market participants share the same expectation. The second half then addresses the possibility of heterogeneous expectations, particularly the distinction between "chartists" and "fundamentalists," and the implications for trading in the foreign exchange market and for the formation of speculative bubbles.

????:Theory and practice of recursive identification

Praise for Handbook of Exchange Rates "This book is remarkable. I expect it to become theanchor reference for people working in the foreign exchangefield." —Richard K. Lyons, Dean and Professor of Finance,Haas School of Business, University of CaliforniaBerkeley "It is quite easily the most wide ranging treaty ofexpertise on the forex market I have ever come across. I will bekeeping a copy close to my fingertips." —Jim O'Neill, Chairman, Goldman Sachs AssetManagement How should we evaluate the forecasting power of models? What areappropriate loss functions for major market participants? Is theexchange rate the only means of adjustment? Handbook of ExchangeRates answers these questions and many more, equipping readerswith the relevant concepts and policies for working intoday's international economic climate. Featuring contributions written by leading specialists from theglobal financial arena, this handbook provides a collection oforiginal ideas on foreign exchange (FX) rates in four succinctsections: • Overview introduces the history of the FX marketand exchange rate regimes, discussing key instruments in thetrading environment as well as macro and micro approaches to FXdetermination. • Exchange Rate Models and Methods focuses onforecasting exchange rates, featuring methodological contributionson the statistical methods for evaluating forecast performance,parity relationships, fair value models, and flow–basedmodels. • FX Markets and Products outlines active currencymanagement, currency hedging, hedge accounting; high frequency andalgorithmic trading in FX; and FX strategy-based products. • FX Markets and Policy explores the currentpolicies in place in global markets and presents a framework foranalyzing financial crises. Throughout the book, topics are explored in-depth alongsidetheir founding principles. Each chapter uses real-world examplesfrom the financial industry and concludes with a summary thatoutlines key points and concepts. Handbook of Exchange Rates is an essential reference forfund managers and investors as well as practitioners andresearchers working in finance, banking, business, andeconometrics. The book also serves as a valuable supplement forcourses on economics, business, and international finance at theupper-undergraduate and graduate levels.

For the past 30 years international monetary economists have believed that exchange rate models cannot outperform the random walk in out-of-sample forecasting as a result of the 1983 paper written by Richard Meese and Kenneth Rogoff. Marking the culmination of their extensive research into the Meese-Rogoff puzzle, Moosa and Burns challenge the orthodoxy by demonstrating that the naïve random walk model can be outperformed by exchange rate models when forecasting accuracy is measured by metrics that do not rely exclusively on the magnitude of forecasting error. The authors present compelling evidence, supported by their own measure: the 'adjusted root mean square error', to finally solve the Meese-Rogoff puzzle and provide a new alternative. Demystifying the Meese-Rogoff Puzzle will appeal to academics with an interest in exchange rate economics and international monetary economics. It will also be a useful resource for central banks and financial institutions.

This book is a contribution to the knowledge concerning the volatility and forecasting of exchange rates in the emerging markets. It focuses on the exchange rates of the leading trading blocs in that part of the world and examines exchange rates of selected emerging

countries across continents in order to explain local and regional variations in exchange rates and the determinants of fluctuations in selected countries in Africa, Asia, Central and Latin America. Exchange rates of countries from the four different regions are investigated separately, followed by analysis within and across regions to identify common patterns of exchange rates fluctuations. Monthly forecasts are generated for a period of 24 months to test the performance of the times series, cointegration and combination techniques used in this book. The results show that exchange rates of countries in the same region behave similarly following a shock to the system. Additionally, exchange rates of countries at the same stage of development albeit in different geographical location (Central America, Southern Africa, Latin America and Southeast Asia) share some similarities. In this book, I argue that all exchange rates examined have been volatile. Contents PrefaceChapter I. IntroductionChapter II. Foreign Exchange Forecasting using Macroeconomic VariablesChapter III. Empirical Methods and ApplicationsChapter IV. Times Series ForecastingChapter V. ARDL Cointegration ForecastingChapter VI Combination Forecasting of Exchange RatesChapter VII Conclusions, Summary and Recommendations for Policy MakersAppendix 1 Exchange rate plots over time The purpose of this thesis is to seek answers to different questions regarding the forecasting of foreign exchange rates. Exchange rate movement is regularly monitored by central banks for macroeconomic analysis and market surveillance purposes. Results in the literature show exchange rate models perform poorly in out-of-sample prediction analysis, even though some models have good in-sample analysis. The results were found using methods including moving average, exponential smoothing, random walk, and Box-Jenkins transfer function. The questions that I ask are: how accurate are these models when compared to a random prediction of future exchange rates, and what variables, if any, allow for the most accurate prediction? This thesis is to research a variety of foreign exchange forecasting models and gather data for several different countries and variables in order to compare the future predictions to a random walk model. There are several objectives I will pursue to determine if this thesis is valid. One objective is to define the specific formulas used for each model, including which variable each model uses. Another objective is to run tests of all the models, variables, and data, and compare the viability of the results. A number of questions will arise and will be investigated.

The purpose of this research is to investigate the forecasting performance of Artificial Neural Network models applied to foreign exchange rates. The study concentrates on the behavior of forecasts of exchange rates generated from the radial basis function (RBF) network models where little previous work exists. Exchange rates examined are the German mark/US dollar, Japanese yen/US dollar, and Italian lira/US dollar. One-step-ahead forecasts from univariate and multivariate RBF models are compared with those generated from ARIMA models, random walk forecasts and the forward rates. Interest rates and the money supply (MI) are used as explanatory variables in the multivariate analyses. Out-of-sample evaluation criteria include root mean squared error, "correct direction", and "speculative direction."

Forecasting exchange rates is a variable that preoccupies economists, businesses and governments, being more critical to more people than any other variable. In Exchange Rate Forecasting the author sets out to provide a concise survey of the techniques of forecasting - bringing together the various forecasting methods and applying them to the exchange rate in a highly accessible and readable manner. Highly practical in approach, the book provides an

understanding of the techniques of forecasting with an emphasis on its applications and use in business decision-making, such as hedging, speculation, investment, financing and capital budgeting. In addition, the author also considers recent developments in the field, notably neural networks and chaos, again, with easy-to-understand explanations of these "rocket science" areas. The practical approach to forecasting is also reflected in the number of examples that pepper the text, whilst descriptions of some of the software packages that are used in practice to generate forecasts are also provided.

We run a real exchange rate forecasting "horse race", which highlights that two principles hold. First, forecasts should not replicate the high volatility of exchange rates observed in sample. Second, models should exploit the mean reversion of the real exchange rate over long horizons. Abiding by these principles, an open-economy DSGE model performs well in real exchange rate forecasting. However, it fails to forecast nominal exchange rates better than the random walk. We find that the root cause is its inability to predict domestic and foreign in ation. This shortcoming leads us toward simpler ways to outperform the random walk. The performances were compared in two ways: (i) forecast accuracy and (ii) transforming their forecasts in to a more effective technical trading rule. The results were obtained with real FX trading data, and the results showed that the method introduced in this work outperforms the other popular methods. Furthermore, we conducted a thorough investigation of optimal parameter choice with different distance measures. We adopted the concept of distance based weighting to the NN and compared the performances with traditional unweighted NN algorithm based forecasting. Time series forecasting methods, such as Auto regressive integrated moving average process (ARIMA), are widely used in many ares of time series as a forecasting technique. We compared the performances of proposed Mahalanobis distance based k-NN forecasting procedure with the traditional general ARIM- based forecasting algorithm. In this case the forecasts were also transformed into a technical trading strategy to create buy and sell signals. The two methods were evaluated for their forecasting accuracy and trading performances. Multi-step ahead forecasting is an important aspect of time series forecasting. Even though many researchers claim that the k-Nearest Neighbor forecasting procedure outperforms the linear forecasting methods for financial time series data, and the available work in the literature supports this claim with one step ahead forecasting. One of our goals in this work was to improve FX trading with multi-step ahead forecasting. A popular multi-step ahead forecasting strategy was adopted in our work to obtain more than one day ahead forecasts. We performed a comparative study on the performance of single step ahead trading strategy and multi-step ahead trading strategy by using five foreign currency data with Mahalanobis distance based k-nearest neighbor algorithm. Exchange Rate Forecasting: Techniques and ApplicationsPalgrave Macmillan Models and Strategies for Exchange Rate ForecastingMichael R. RosenbergGetting an accurate exchange rate is critical for any company doing business in today's global

economy. Exchange Rate Determination--written by the number one-ranked foreign exchange team in the world--examines the methods used to accurately and profitably forecast foreign exchange rates. This hands-on guidebook uses extensive charts and tables to examine currency option markets, productivity trends and exchange rates; technical analysis methods to improve currency forecasting accuracy; and more.

This paper shows that there are two regularities in foreign exchange markets in advanced countries with exible regimes. First, real exchange rates are mean-reverting, as implied by the Purchasing Power Parity model. Second, the adjustment takes place via nominal exchange rates. These features of the data can be exploited, even on the back of a napkin, to generate nominal exchange rate forecasts that outperform the random walk. The secret is to avoid estimating the pace of mean reversion and assume that relative prices are unchanged. Direct forecasting or panel data techniques are better than the random walk but fail to beat this simple calibrated model.

Useful for undergraduate and graduate students of international business, this work features coverage of the Asian financial crisis and the European Union. Its treatment of such topics as foreign exchange, international trade policy, and economic development introduces students to techniques for analyzing national economies.

This paper provides a selective overview of nonlinear exchange rate models recently proposed in the literature and assesses their contribution to understanding exchange rate behavior. Two key questions are examined. The first question is whether nonlinear autoregressive models of real exchange rates help resolve the "purchasing power parity (PPP) puzzles." The second question is whether recently developed nonlinear, regime-switching vector equilibrium correction models of the nominal exchange rate can beat a random walk model, the standard benchmark in the exchange rate literature, in terms of out-of-sample forecasting performance. Finally, issues related to the adequateness of standard methods of evaluation of (linear and nonlinear) exchange rate models are discussed with reference to different forecast accuracy criteria.

The main goal of this article is to provide an answer to the question: "Does anything forecast exchange rates, and if so, which variables?". It is well known that exchange rate fluctuations are very difficult to predict using economic models, and that a random walk forecasts exchange rates better than any economic model (the Meese and Rogoff puzzle). However, the recent literature has identified a series of fundamentals/methodologies that claim to have resolved the puzzle. This article provides a critical review of the recent literature on exchange rate forecasting and illustrates the new methodologies and fundamentals that have been recently proposed in an up-to-date, thorough empirical analysis. Overall, our analysis of the literature and the data suggests that the answer to the question: "Are exchange rates predictable?" is, "It depends" on the choice of predictor, forecast horizon, sample period, model, and forecast evaluation method. Predictability is most apparent when one or more of the following hold: the predictors are Taylor rule or net foreign assets, the model is linear, and a small number of parameters are estimated. The toughest benchmark is the random walk without drift.

This text explains the methods and aspects of exchange rate forecasting, including purchasing power, parity, interest rate differentials and technical analysis. Guidelines for reducing risk with forecasting strategies are included, as are techniques for co

This dissertation analyses the following three interrelated issues within an efficient

market context. 1. Comparative forecasting accuracy of forward exchange-rates vis-a-vis the spot rate predictions marketed by a number of foreign-exchange forecasting services. 2. The existence of "premiums" imbedded in forward exchange-rates. 2. The existence of "premiums" imbedded in forward exchange-rates. 3. Excess profit opportunities in speculative trading strategies on currency futures contracts based on the "trading-signals" marketed by another group of foreign-exchange forecasting services. Track records of twelve future spot exchange-rate forecasting services and four technical exchange rate trend analyzing services are used to compare their predictive performances with that of forward exchange rates and with currency futures contracts. Seven major currencies vis-a-vis the U.S. Dollar are examined during a period of seven years, from 1974 through 1980. The study reveals the following. 1. Foreign-exchange forecasting services in general do not provide more accurate point estimates of the future spot rates than those provided by the forward rates. 2. Both forward rates and forecasts marketed by those services are found to be biased predictors of the future spot rates implying the existence of "premiums" both in forward rates and in those predictions. The premiums are found to be consistently and significantly positive during the study period. This important finding kelps to eliminate ouch of the ambiguity pertaining to the issue of "forward rate bias" in foreign-exchange literature. 3. The statistical analyses used in the study do not provide support for rejecting the notion of inefficiency in the market for foreign-exchange. Although the findings regarding the market efficiency may be due to the inappropriateness of the market model which was jointly tested with the null hypothesis of "efficiency", they may remain valid until either better statistical techniques or more appropriate equilibrium models are developed.

The medium-term predictability of exchange rate movements is examined using three models of fundamentals: purchasing power parity, the monetary model, and uncovered interest parity. While the first two approaches yield favorable in-sample results, these largely reflect finite-sample estimation biases. Adjusting for these biases, there is little evidence of predictability, consistent with the lack of systematic improvement in out-of-sample forecasting performance relative to a random walk. Uncovered interest parity fares better at long horizons, but reflects information already embodied in market prices; in this sense, it may not be useful as an indicator of exchange rate misalignment. While more elaborate models of fundamentals might have better medium-term forecasting properties, careful attention must be paid to finite-sample biases in assessing predictability.

It is a well known fact that a naive random walk generates better exchange rate forecasts than economic models. The exchange rate is episodically unstable and the switching nature is inconsistent with a linear representation. However, empirical evidence in favour of non-linear models such as regime switching models, neural networks or non-parametric ones is weak. The present paper adopts an econometric method, which incorporates dynamic model averaging (DMA) and selection (DMS). The DMA / DMS framework adds additionally layers of flexibility by allowing parameters as well as the entire forecasting model to evolve over time. In addition this paper takes a different approach by forecasting exchange rates at a daily frequency. Thereby financial data is used as a proxy for macro-economic fundamentals and technical indicators are included in the set of potential predictor variables. The paper shows strong empirical

evidence in favour of the employed model in the period before the bankruptcy of Lehman Brothers. During the financial crisis predictability in terms of the mean squared forecast error breaks down. The time-varying evolution of fundamental and technical forecasts allows investigating the evolution of the influence of two types of agents (fundamentalists and chartists) believed to operate in the foreign exchange market. Global Corporate Finance, sixth edition provides studentswith the practical skills needed to understand global financialproblems and techniques. Retains the user-friendly format of previous editions whileoffering expanded material on corporate finance and governance,international markets, global financial dynamics and strategies,and risk management techniques Each chapter begins with a real-world case study to be explainedby theories and research findings presented throughout thechapter End-of-chapter mini-cases further reinforce students'understanding of the material covered This edition is supported by a comprehensive Study Guide and anInstructor's Manual, available atwww.blackwellpublishing.com/kim.

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