

Exchange Rate Forecasts and Stochastic Trend Breaks

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Declaration of Originality

I certify that the work in this thesis has not previously been submitted for another degree nor has it been submitted as part of the requirements for another degree.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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Contents

1	Exchange Rate Prediction and Trend Breaks	3
1.1	Introduction	3
1.2	FX Return Predictability and the Meese-Rogoff Puzzle	4
1.3	Forecasting, Breaks and Exchange Rate Trends	6
1.3.1	Forecasting with Breaks	6
1.3.2	Exchange Rate Trend Modelling	6
1.4	A Roadmap	7
I	Research Chapters	10
2	A Degree of Difficulty Measure for Exchange Rate Forecasts	11
2.1	Introduction	11
2.2	Degree of Forecast Difficulty	13
2.2.1	The Dacco-Satchell Condition	13
2.2.2	Degree of Difficulty	14
2.2.3	The Sample Dependence of the Probability of Misclassification	15
2.2.4	The k-Step Ahead Forecast Difficulty	17
2.2.5	The Degree of Difficulty of a Forecast Period	18
2.2.6	Estimating The Degree of Difficulty	19
2.3	Forecasting the Australian Dollar	19
2.3.1	Data	20
2.3.2	Formulating a VEqCM	20
2.3.3	Determining the Cointegration Rank	20
2.3.4	Estimating the VEqCM	21
2.3.5	Recursive Forecasts	22
2.3.6	Time-Varying Predictive Ability	23

2.4	Ex-Post Degree of Difficulty Analysis	28
2.4.1	Degree of Difficulty	28
2.5	Conclusion	31
2.A	Appendix: Forward Rate Systems	33
2.B	Unit Root Testing	34
2.C	Appendix: Forecast Error Densities	35
2.C.1	Unsmoothed Forecast Error Densities	35
2.C.2	Smoothed Forecast Error Densities	37
3	Long Horizon Exchange Rate Forecasts When There Are Trend Breaks	43
3.1	Introduction	43
3.2	Forecasts of Exchange Rates with Long Swings	45
3.2.1	Trend Breaks and Exchange Rate Forecast Errors	45
3.2.2	Recursive Forecasts and Trend Breaks	46
3.2.3	Bimodal Forecast Error Densities	47
3.3	A Theory of Forecast Error Ensembles Under Trend Breaks	50
3.3.1	Asymptotics for Markov-Switching Trends	50
3.3.2	Regime-Switching Trends with Fixed Out-of-Sample Breaks	51
3.3.3	Recursive Forecasts of Regime-Switching Trends	51
3.4	Empirical Application: The AUD-USD Exchange Rate	53
3.5	Estimating Break Distortion	53
3.5.1	Break Configurations	56
3.5.2	Averaging Over Break Configurations	56
3.6	Modelling Forecast Error Dynamics	57
3.6.1	Untangling the Breaks	57
3.6.2	A Segmented Trend Model for Forecast Errors	58
3.6.3	Results	58
3.7	Monte Carlo Sampling	60
3.7.1	Sampling Break Configurations	61
3.7.2	The Conditional Density of Forecast Errors	61
3.7.3	Simulations	61
3.7.4	Break-Averaged Forecast Statistics	63
3.8	The Information Content of Forward Premia and Break Distortion	65
3.9	Conclusion	70

4	Broken Trend Modelling of Exchange Rates	73
4.1	Introduction	73
4.2	Broken Trend Processes	75
4.2.1	The Karhunen-Loève Representation of a Stochastic Trend	75
4.2.2	A Broken Trend Representation	76
4.2.3	Segmented Brownian Motion	77
4.2.4	Estimating the Broken Trend Representation	79
4.2.5	Eliminating Nonessential Breaks	79
4.3	Empirical Application: The AUD-GBP 1997 - 2004	80
4.3.1	Data	80
4.3.2	Model Selection	80
4.3.3	A Markov Switching Long Swings Model	85
4.4	Explaining Trends with Monetary Policy Shocks	87
4.4.1	Monetary Shocks and Exchange Rate Trends	89
4.4.2	Rationalizing the Trend Breaks	90
4.5	Conclusion	92
5	Overview	98

Abstract

This thesis examines the forecastability of exchange rates in the presence of trend breaks. In particular, its focus is the predictive power of the interest rate differential for the exchange rate.

Chapter 1 is the Introduction to the thesis. In this Chapter, I briefly review the relevant literature on exchange rate predictability, forecasting in the presence of structural breaks and modelling trends in exchange rate time series.

Models are often evaluated via their out-of-sample forecasts over a single out-of-sample period. However, not all out-of-sample (OOS) periods are of equal difficulty - poor forecast performance of a model over a certain OOS period might actually be evidence in favour of the model if the OOS period was particularly difficult. In Chapter 2, I develop a way to quantify the difficulty of an OOS period affected by trend breaks. This method uses the deficit between the mean square forecast error of the optimal univariate forecast of the trend breaking process and the random walk forecast. This MSFE deficit is what needs to be made up by any extra information in a model in order to beat the random walk. In Chapter 2, I use the degree of difficulty measure in an ex-post analysis of the forecasts of a VEqCM over two separate periods.

Chapter 3 shows that when an out-of-sample period has trend breaks, the forecast error densities generated from a recursive forecasting procedure can have a spurious multimodality at various horizons. This is clearly problematic for any statistics calculated from these densities - in particular, any forecast evaluation statistics or tests. It would also produce misleading value-at-risk calculations. I develop a limit theory explaining why this occurs. In the second half of the Chapter I show how the forecast error density can be disentangled from the trend breaks. This allows an estimate of the extent to which breaks have affected a particular forecast statistic.

In Chapter 4 I use a general trend representation (from the work of P.C.B.Phillips) to model inter-break exchange rate behaviour. I show how this broken trend representation can be used to estimate the trend breaks in an exchange rate series. I show that with the general trend representation, only 'large' breaks are identified - i.e., small (potentially spurious) breaks can be modelled with an unbroken trend. In an empirical application to the AUD-GBP exchange rate, I find that the estimated breaks can be rationalized using some recent theory on the effect of monetary policy shocks on exchange rate trends.

Chapter 5 concludes the thesis.