Internet Appendix for
"Properties of Foreign Exchange Risk Premiums"

This separate Internet Appendix first reports and discusses detailed empirical results related to parameter estimations. We then present a number of Tables which are discussed and referenced in the main text but are not included in the paper.

AA Details related to model estimation results

We present the parameter estimates for the global model of the US and the six foreign countries estimated using the zero yields of the two countries and the respective spot exchange rate applying the procedure described in Section *3.2*. Table A.1 reports point estimates and corresponding 95 percent confidence intervals for the US parameters in Panel A and for the foreign economies in Panel B. Point estimates are computed as the draw from the posterior distribution with minimal L1 distance to the other draws. Confidence intervals are computed from the empirical posterior distribution. All confidence intervals are fairly tight, only for 18 of the 182 parameters we report the confidence interval includes zero and most of these are significant at the 10 percent level.

We also check whether the properties of model-implied US bond risk premiums are consistent with those reported in other studies. Duffee (2002) demonstrates that affine term structure models can replicate observed term structure characteristics only if the specification of the market price of risk is flexible enough. A first check reveals that the risk premiums implied by the model change signs and are highly variable, a necessary condition to match the observed data. Following Duffee (2002), we assess the specification of the market price of risk by analyzing whether the model is capable to replicate the empirical relation between expected returns and the slope of the yield curve. We generate yield predictions for maturities of 6 months, 2 years, and 4 years (the longest maturity in our data set) at prediction horizons of 3 months, 6 months, and 1 year, and regress the prediction errors on the slope defined as the 4-year minus the 3-month yield. The t-statistics are all small and insignificant (ranging from -0.20 to -1.24) which implies that the model captures the information contained in the slope. Overall, the results suggest that the market price of risk specification is indeed consistent with the prevailing literature on US term structure risk premiums.

BB Comparison of model parameters for estimations conditioning on information in currency options

To take another close look at the effect of conditioning on MFIV, we compare parameters and state variables of our baseline estimation to the estimation that requires the model to match MFIV. Bayesian methodology treats the latent state variables as free parameters. Consequently the state variable estimates can be different for the estimations with and without MFIV. For a meaningful comparison we therefore apply the third rotation described in Section *4.3.2*, where the international economy is driven by the carry factor (i.e. the interest rate differential), the level of the domestic short rate, and the quadratic variations of both. This allows us to compare the rotated parameters, as calculated in Appendix C, for the two estimation strategies, because the factors and their parameters then have the same economic interpretation.

For the comparison, we use the posterior draws from the MCMC estimations and consider the joint distribution of all rotated parameters. Tables A.10 and A.11 report point estimates and confidence intervals for the parameters of the estimations with and without information in currency options, and Table A.12 presents results for parameter comparisons. We report quantiles of the marginal distributions of the parameters as descriptives and use multiple-testing procedures to compare parameters.[31] We first test whether the parameters of the two estimations are different by calculating empirical p-values for each parameter and subsequently control for the dependency of these tests using conventional Bonferroni corrections and a (more powerful) procedure controlling for false discovery rates (FDR); for both see Benjamini and Hochberg (1995). The results in Table A.12 report whether parameters are significantly different at the 1%, 5%, or 10% level using Bonferroni and FDR corrections, indicated by bbb, bb, or b, and fff, ff, or f, respectively. We find

[31] We apply multiple-testing procedures to test for equality of parameters across estimations because the notion of a multivariate quantile is subject to current statistical research (see Hallin et al., 2010, for a recent advance); for a survey see the article by Serfling (2002).

that for the Bonferroni test 17 of the 240 parameters are significantly different, for the FDR corrections two more parameters are different across estimations with and without MFIV at conventional levels of significance. These results suggests that 7% to 8% of the parameters significantly change once we condition on MFIV. Taking a closer look reveals some interesting observations. First, most of these differences (7 parameters) are found for the JPY estimations. Second, as one would expect, most of the differences in parameters are associated with the processes for quadratic variations (rotated state variables 1 and 2). Third, most of the differences do not appear to be quantitatively important (are economically small) when comparing the respective values in Tables A.10 and A.11.

Overall, these findings suggest that conditioning on MFIV does not have a material effect on the estimation results and the argument that differences are very small in economic terms is supported by the fact the empirical model evaluation results reported in Section *5.2* are qualitatively identical to those above and quantitatively very similar for both estimation strategies, perhaps with the exception of the model for the JPY.

Table A.1: Model Parameters

The table shows parameter estimates for our data set. Point estimates are computed as the draw from the posterior distribution with minimal L1 distance to the other draws. Confidence intervals are computed from the empirical posterior distribution.

Panel A: Domestic (US) Parameters

	ζ	β	$a_1^{\mathbb{P}}$	$a_2^{\mathbb{P}}$	$b_{11}^{\mathbb{P}}$	$b_{21}^{\mathbb{P}}$	$b_{22}^{\mathbb{P}}$	$a_1^{\mathbb{Q}}$	$b_{11}^{\mathbb{Q}}$	$b_{21}^{\mathbb{Q}}$	$b_{22}^{\mathbb{Q}}$	δ_0	δ_1	δ_2
Est	0.0012	0.0036	1.0369	−0.4328	−0.2473	0.3499	−0.2983	2.0214	−0.2439	0.6682	−0.3560	0.0001	−0.0004	0.0059
q2.5%	0.0012	0.0001	0.5551	−1.9845	−0.6272	0.1895	−0.4363	1.8376	−0.2563	0.5898	−0.3739	0.0000	−0.0007	0.0057
q97.5%	0.0012	0.0125	3.0698	0.8063	−0.0753	0.6038	−0.1359	2.2685	−0.2295	0.7497	−0.3408	0.0005	−0.0004	0.0061

Panel B: Foreign Parameters

	AUD			CAD			CHF			EUR			GBP			JPY		
	Est	q2.5%	q97.5%	Est	q2.5%	q97.5%	Est	q2.5%	q97.5%	Est	q2.5%	q97.5%	Est	q2.5%	q97.5%	Est	q2.5%	q97.5%
$\zeta^\star$	0.0015	0.0015	0.0015	0.0023	0.0023	0.0023	0.0021	0.0020	0.0099	0.0027	0.0026	0.0028	0.0029	0.0029	0.0119	0.0023	0.0023	0.0023
γ_1	0.0004	0.0000	0.0008	0.0005	0.0000	0.0018	0.0016	0.0000	0.0065	0.0009	0.0000	0.0046	0.5326	0.2105	141.9860	0.0001	0.0000	0.0016
γ_2	0.0002	0.0000	0.0005	0.2058	0.1903	0.2484	0.0880	0.0108	0.1037	0.0221	0.0166	0.0303	160.3280	43.6922	295.1040	0.0001	0.0000	0.0010
Σ_1	−0.0035	−0.0048	−0.0029	−0.0010	−0.0015	−0.0004	−0.0020	−0.0034	0.0034	−0.0037	−0.0048	−0.0023	−0.0025	−0.0062	−0.0017	0.0028	0.0017	0.0038
Σ_2	0.0095	0.0089	0.0109	0.0024	−0.0004	0.0037	−0.0057	−0.0237	−0.0026	0.0044	0.0026	0.0053	0.0024	0.0019	0.0051	−0.0054	−0.0096	0.0015
Σ_3	0.0016	0.0003	0.0036	−0.0033	−0.0043	−0.0015	0.0033	−0.0012	0.0088	0.0011	−0.0037	0.0038	0.0016	−0.0013	0.0040	−0.0226	−0.0256	−0.0197
Σ_4	−0.1030	−0.1047	−0.1023	−0.0343	−0.0356	−0.0322	−0.1029	−0.1066	−0.0998	−0.0962	−0.0984	−0.0916	−0.0006	−0.0008	−0.0005	−0.1043	−0.1060	−0.1018
$a_1^{\star\mathbb{P}}$	0.5228	0.5020	0.6651	8.9729	6.9834	10.3567	0.5415	0.5014	0.6567	0.5685	0.5041	0.8238	9.4683	1.6353	11.6699	0.5020	0.5008	0.6598
$a_2^{\star\mathbb{P}}$	17.5507	16.2030	18.1243	−70.6874	−78.2190	−56.4685	92.4746	90.6046	103.7450	3.2136	−0.3775	7.5117	−105.4120	−107.3600	−71.6949	−27.9669	−31.3595	−26.2398
$b_{11}^{\star\mathbb{P}}$	2.6327	2.3737	3.2351	0.0362	0.0012	0.1313	0.0237	0.0009	0.0857	0.0050	0.0004	0.0821	0.1139	0.0037	1.5720	0.0203	0.0005	0.0582
$b_{13}^{\star\mathbb{P}}$	−1.7699	−2.1763	−1.6307	−1.2516	−1.4324	−1.0137	−0.4459	−0.6734	−0.1530	−0.0480	−0.0893	−0.0121	−0.2583	−0.2987	−0.1534	−0.2828	−0.3178	−0.2382
$b_{21}^{\star\mathbb{P}}$	−6.1516	−7.2563	−5.5299	−0.2026	−3.0676	2.1494	89.1603	86.1016	95.8949	−11.5947	−13.1558	−10.5432	−25.9713	−31.0278	8.5852	−7.9065	−8.6165	−7.2070
$b_{22}^{\star\mathbb{P}}$	8.0640	7.1146	10.0154	13.1616	11.1984	15.2171	−101.9410	−121.7070	−86.9512	96.4639	94.9958	97.1469	180.8390	173.4650	207.0880	34.3351	33.5866	34.9210
$b_{23}^{\star\mathbb{P}}$	−0.5167	−0.6090	−0.3920	19.9765	16.9530	23.1464	45.6830	45.3458	50.8453	−27.7192	−30.4070	−23.6198	21.2037	9.8664	33.6936	−3.5655	−3.6346	−3.5376
$b_{24}^{\star\mathbb{P}}$	−6.2514	−7.0615	−5.8294	−18.1105	−21.4426	−15.1966	−109.4530	−111.5090	−108.8100	−126.3060	−130.5050	−122.7490	−191.6850	−218.0000	−186.1790	−15.5912	−15.7064	−15.3064
$a_1^{\star\mathbb{Q}}$	0.5021	0.5000	0.5071	0.5054	0.5002	0.5375	0.5005	0.5000	0.6942	0.5019	0.5000	0.5067	14.5513	1.5459	17.8573	0.5002	0.5000	0.5025
$a_2^{\star\mathbb{Q}}$	16.3712	14.9792	16.9334	−62.1151	−70.4172	−50.5235	71.6269	69.5451	74.1814	2.7006	0.2762	5.3491	37.2817	28.5245	74.6281	−25.8715	−27.9198	−24.5489
$b_{11}^{\star\mathbb{Q}}$	0.2152	0.1778	0.2324	0.3628	0.3457	0.3784	0.1201	0.1165	0.1838	0.7519	0.7259	0.7926	4.3811	3.4314	6.1378	0.1677	0.1559	0.1736
$b_{13}^{\star\mathbb{Q}}$	−0.0737	−0.0782	−0.0646	−0.2112	−0.2222	−0.2001	−0.3092	−0.3159	−0.1686	−0.2675	−0.2792	−0.2615	−0.4300	−0.4369	−0.4162	−0.0949	−0.0978	−0.0886
$b_{21}^{\star\mathbb{Q}}$	−5.7094	−6.5934	−5.1861	−0.0424	−2.7282	2.1218	69.1671	65.8495	70.4776	−7.6697	−9.0186	−6.8449	−0.3252	−7.0412	36.8939	−7.4527	−8.2085	−6.5695
$b_{22}^{\star\mathbb{Q}}$	7.3091	6.4786	8.9833	11.9562	10.4688	14.1669	−78.6974	−83.2775	−70.7910	65.1075	62.7263	66.4914	167.3930	153.0490	172.9400	31.9289	31.2603	32.3692
$b_{23}^{\star\mathbb{Q}}$	−0.7210	−0.8012	−0.6062	17.3839	14.9454	20.7767	35.1726	34.1674	37.6736	−18.9619	−21.5649	−15.5231	4.9401	−7.8595	17.2710	−3.3889	−3.4732	−3.2874
$b_{24}^{\star\mathbb{Q}}$	−5.3798	−6.0345	−5.0046	−16.1769	−19.6581	−13.8439	−84.7377	−89.3905	−76.3759	−85.1644	−85.9106	−84.1430	−178.2750	−185.7220	−162.7290	−14.4511	−14.6877	−14.0120
$\delta_0^\star$	0.0137	0.0128	0.0147	0.0004	0.0000	0.0008	0.0000	0.0000	0.0055	0.0110	0.0106	0.0117	0.0001	0.0000	0.0004	0.0007	0.0002	0.0014
$\delta_1^\star$	0.0003	0.0000	0.0006	0.0000	−0.0000	0.0001	−0.0005	−0.0034	−0.0003	0.0019	−0.0002	0.0039	−0.0016	−0.0025	−0.0014	−0.0001	−0.0002	0.0001
$\delta_2^\star$	−0.0001	−0.0005	0.0003	−0.0002	−0.0002	−0.0001	0.0088	0.0061	0.0114	−0.0234	−0.0343	−0.0082	0.0001	−0.0002	0.0004	−0.0010	−0.0015	−0.0005
$\delta_3^\star$	0.0004	0.0004	0.0005	0.0000	0.0000	0.0002	0.0011	0.0000	0.0011	0.0045	0.0010	0.0073	0.0035	0.0027	0.0037	0.0001	0.0000	0.0001
$\delta_4^\star$	0.0043	0.0040	0.0046	0.0040	0.0039	0.0041	0.0000	0.0000	0.0002	0.0381	0.0175	0.0531	0.0003	0.0000	0.0007	0.0028	0.0026	0.0031

Table A.2: Yield Pricing Errors and Matching Depreciation Rates: Small Model

The table reports pricing errors for domestic (US) and foreign yields as well as results for how well model implied depreciation rates match observed rates. Columns labeled "Yield Pricing Errors" report annualized root mean squared errors in basis points for the yield maturities indicated in the header. Columns labeled "Matching Depreciation Rates" report correlations of model implied and observed rates ("corr") and results of regressing the later on the former with c_0 denoting the intercept, c_1 the slope coefficient, and se(·) the respective block-bootstrapped standard errors in parentheses. R^2 is the in-sample coefficient of determination. The results are for the global model described in section *3.1* based on daily observations for the sample periods October 12, 1994 to October 10, 2008 for AUD; June 1, 1993 to October 10, 2008 for CAD; and September 18, 1989 to October 10, 2008 for CHF, DEM-EUR, GBP, and JPY.

	Yield Pricing Errors							Matching Depreciation Rates					
	1m	3m	6m	1y	2y	3y	4y	corr	c_0	se(c_0)	c_1	se(c_1)	R^2
USD	11	15	16	19	37	67	95						
AUD	9	11	12	14	23	35	50	0.9996	-0.0000	(0.0000)	1.0190	(0.0005)	0.9992
CAD	24	38	47	54	54	56	71	0.9995	-0.0000	(0.0000)	0.9990	(0.0006)	0.9991
CHF	8	10	10	14	29	44	57	0.9545	-0.0000	(0.0000)	1.1431	(0.0061)	0.9111
DEM-EUR	12	18	20	21	32	49	69	0.9993	-0.0000	(0.0000)	1.0087	(0.0008)	0.9987
GBP	30	45	54	58	39	30	51	0.9979	-0.0000	(0.0000)	1.0497	(0.0013)	0.9958
JPY	7	10	12	17	23	47	79	0.9231	0.0001	(0.0000)	1.0347	(0.0106)	0.8522

Table A.3: Regressions of Excess Returns on Expected Excess Returns: Small Model

The table shows the results from estimating, by ordinary least squares, the regression (23), $rx_{t,T} = \alpha' + \beta'\widehat{rx}_{t,T} + \eta'_{t,T}$, for the horizons indicated in the column headers. Values in parentheses are block-bootstrapped standard errors. $t[\beta' = 1]$ is the t-statistic for testing $\beta' = 1$. R^2 is the in-sample coefficient of determination. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. The results are based on non-overlapping observations for horizons up to 1 month and on monthly frequency for horizons of 3 months and beyond. The sample periods are October 12, 1994 to October 10, 2008 for AUD; June 1, 1993 to October 10, 2008 for CAD; and September 18, 1989 to October 10, 2008 for CHF, DEM-EUR, GBP, and JPY.

	1 day	1 week	1 month	3 months	1 year	4 years
AUD						
α'	0.0000	0.0001	0.0007	−0.0004	−0.0065	0.0085
se(α')	(0.0001)	(0.0007)	(0.0027)	(0.0076)	(0.0235)	(0.0805)
β'	0.9249**	0.9580**	0.9491**	1.2867***	1.3708***	0.8841**
se(β')	(0.4252)	(0.4097)	(0.4436)	(0.3661)	(0.3486)	(0.3640)
$t[\beta' = 1]$	[-0.18]	[-0.10]	[-0.11]	[0.78]	[1.06]	[-0.32]
R^2	0.0024	0.0134	0.0563	0.2250	0.5117	0.4530
CAD						
α'	0.0000	0.0001	−0.0000	−0.0018	−0.0067	0.0033
se(α')	(0.0001)	(0.0003)	(0.0014)	(0.0035)	(0.0090)	(0.0353)
β'	0.1207	0.1518	0.4149	0.9399**	1.1292***	0.8966***
se(β')	(0.1341)	(0.1473)	(0.2704)	(0.3949)	(0.2356)	(0.2189)
$t[\beta' = 1]$	[-6.56]	[-5.76]	[-2.16]	[-0.15]	[0.55]	[-0.47]
R^2	0.0004	0.0026	0.0380	0.1894	0.5345	0.5961
CHF						
α'	0.0000	0.0002	0.0005	0.0016	−0.0018	−0.0086
se(α')	(0.0001)	(0.0006)	(0.0023)	(0.0067)	(0.0217)	(0.0411)
β'	0.1563*	0.3314**	0.9079***	0.9654**	1.0330**	0.8444***
se(β')	(0.0798)	(0.1596)	(0.3511)	(0.4260)	(0.4514)	(0.2721)
$t[\beta' = 1]$	[-10.57]	[-4.19]	[-0.26]	[-0.08]	[0.07]	[-0.57]
R^2	0.0008	0.0029	0.0215	0.0553	0.2115	0.3479
DEM-EUR						
α'	0.0001	0.0003	0.0010	0.0025	0.0020	0.0001
se(α')	(0.0001)	(0.0005)	(0.0020)	(0.0055)	(0.0188)	(0.0512)
β'	0.6698***	0.7241***	1.0010***	1.1782***	1.1037***	0.8412***
se(β')	(0.1683)	(0.1408)	(0.1410)	(0.1983)	(0.3661)	(0.2913)
$t[\beta' = 1]$	[-1.96]	[-1.96]	[0.01]	[0.90]	[0.28]	[-0.55]
R^2	0.0089	0.0404	0.1545	0.2044	0.3141	0.3306
GBP						
α'	0.0002	0.0009	0.0039	0.0105	0.0179	0.0126
se(α')	(0.0002)	(0.0008)	(0.0035)	(0.0107)	(0.0309)	(0.0385)
β'	−0.4337	−0.4900	−0.4784	−0.2518	0.4578	0.8147***
se(β')	(1.4099)	(1.3706)	(1.3952)	(1.3813)	(0.9305)	(0.2815)
$t[\beta' = 1]$	[-1.02]	[-1.09]	[-1.06]	[-0.91]	[-0.58]	[-0.66]
R^2	0.0001	0.0004	0.0016	0.0012	0.0190	0.3174
JPY						
α'	−0.0001	−0.0001	0.0005	0.0030	0.0129	−0.0135
se(α')	(0.0002)	(0.0006)	(0.0022)	(0.0058)	(0.0204)	(0.0472)
β'	0.6026***	0.9029***	0.5413*	0.8397***	0.9897***	0.8495***
se(β')	(0.1038)	(0.2269)	(0.3028)	(0.3204)	(0.2887)	(0.2008)
$t[\beta' = 1]$	[-3.83]	[-0.43]	[-1.51]	[-0.50]	[-0.04]	[-0.75]
R^2	0.0319	0.0549	0.0165	0.0723	0.3426	0.5853

Table A.4: Ability to Predict Excess Returns: Small Model

The table reports results related to the predictive ability of the model as compared to the UIP and RW benchmarks. Hit-ratios (HR) are calculated as the proportion of times the sign of the excess return is correctly predicted by the model. $R2 = 1 - MSE_M/MSE_B$ where MSE_M denotes the mean squared prediction error of the model and MSE_B that of the benchmark. CW and GW denote the test-statistics of Clark and West (2007) and Giacomini and White (2006) as described in Section *3.3*. The one-sided p-values of the test-statistics in square brackets are obtained from the block bootstrap procedure described in Appendix F which accounts for autocorrelation and heteroscedasticity. The results are based on non-overlapping observations for horizons up to 1 month and on monthly frequency for horizons of 3 months and beyond. The sample periods are October 12, 1994 to October 10, 2008 for AUD; June 1, 1993 to October 10, 2008 for CAD; and September 18, 1989 to October 10, 2008 for CHF, DEM-EUR, GBP, and JPY.

	Model vs. UIP						Model vs. RW					
	1d	1w	1m	3m	1y	4y	1d	1w	1m	3m	1y	4y
AUD												
HR	0.5213	0.5655	0.6250	0.7000	0.8000	0.8000	0.5213	0.5655	0.6250	0.7000	0.8000	0.8000
$R2$	0.0025	0.0141	0.0596	0.2292	0.5172	0.4929	0.0012	0.0072	0.0278	0.1607	0.4115	0.4271
p-value[CW]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]
p-value[GW]	[0.153]	[0.127]	[0.068]	[<0.01]	[<0.01]	[<0.01]	[0.225]	[0.181]	[0.141]	[0.018]	[0.018]	[<0.01]
CAD												
HR	0.5176	0.5702	0.6324	0.5882	0.7426	0.6544	0.5176	0.5702	0.6324	0.5882	0.7426	0.6544
$R2$	0.0005	0.0028	0.0386	0.1908	0.5433	0.6642	-0.0008	-0.0032	0.0155	0.1349	0.4339	0.6298
p-value[CW]	[0.106]	[0.097]	[0.021]	[<0.01]	[<0.01]	[<0.01]	[0.169]	[0.166]	[0.050]	[0.021]	[<0.01]	[<0.01]
p-value[GW]	[0.414]	[0.115]	[0.260]	[0.141]	[0.030]	[<0.01]	[0.326]	[0.105]	[0.353]	[0.176]	[0.080]	[<0.01]
CHF												
HR	0.5303	0.5272	0.5889	0.6833	0.7667	0.7611	0.5303	0.5272	0.5889	0.6833	0.7667	0.7611
$R2$	0.0008	0.0031	0.0225	0.0573	0.2115	0.3573	0.0002	0.0000	0.0091	0.0245	0.1123	0.2530
p-value[CW]	[0.056]	[0.069]	[0.031]	[0.019]	[<0.01]	[<0.01]	[0.081]	[0.172]	[0.148]	[0.104]	[<0.01]	[<0.01]
p-value[GW]	[0.376]	[0.209]	[0.173]	[0.053]	[0.027]	[<0.01]	[0.553]	[0.243]	[0.345]	[0.084]	[0.063]	[<0.01]
DEM-EUR												
HR	0.5422	0.5954	0.6389	0.6611	0.7389	0.7778	0.5422	0.5954	0.6389	0.6611	0.7389	0.7778
$R2$	0.0090	0.0410	0.1572	0.2096	0.3178	0.3336	0.0085	0.0383	0.1454	0.1772	0.2049	0.2452
p-value[CW]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]
p-value[GW]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[0.011]	[<0.01]	[<0.01]	[0.020]	[<0.01]
GBP												
HR	0.5248	0.5082	0.5056	0.5000	0.5556	0.6778	0.5248	0.5082	0.5056	0.5000	0.5556	0.6778
$R2$	0.0007	0.0029	0.0128	0.0327	0.1092	0.5268	0.0000	0.0001	-0.0001	-0.0029	0.0077	0.4963
p-value[CW]	[0.237]	[0.262]	[0.290]	[0.144]	[0.028]	[<0.01]	[0.297]	[0.306]	[0.359]	[0.245]	[0.012]	[<0.01]
p-value[GW]	[<0.01]	[0.384]	[0.424]	[0.247]	[0.101]	[<0.01]	[<0.01]	[0.437]	[0.469]	[0.301]	[0.104]	[<0.01]
JPY												
HR	0.5455	0.5702	0.5833	0.6167	0.7222	0.9444	0.5455	0.5702	0.5833	0.6167	0.7222	0.9444
$R2$	0.0319	0.0550	0.0167	0.0728	0.3459	0.6522	0.0311	0.0517	-0.0004	0.0305	0.2006	0.4532
p-value[CW]	[<0.01]	[<0.01]	[0.040]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[0.243]	[0.019]	[<0.01]	[0.032]
p-value[GW]	[<0.01]	[<0.01]	[0.281]	[0.084]	[0.014]	[<0.01]	[<0.01]	[0.010]	[0.254]	[0.161]	[0.021]	[0.018]

Table A.5: Yield Pricing Errors, Matching Depreciation Rates, and Fitting Model-Free Implied Variance: Sample 01/1996 to 10/2008

The table reports pricing errors for domestic (US) and foreign yields as well as results for how well model implied depreciation rates match observed rates. Columns labeled "Yield Pricing Errors" report annualized root mean squared errors in basis points for the yield maturities indicated in the header. Columns labeled "Matching Depreciation Rates" report correlations of model implied and observed rates ("corr") and results of regressing the later on the former with c_0 denoting the intercept, c_1 the slope coefficient, and se($\cdot$) the respective block-bootstrapped standard errors in parentheses. R^2 is the in-sample coefficient of determination. Panel A presents results for the global model described in section *3.1* and Panel B presents results for the model that accounts for information in currency options as described in Section *5.2*. Panel C presents descriptives for model-free implied variance (MFIV) estimates and MFIV pricing errors when the estimation conditions on MFIV. The results are based on daily observations for the sample periods are January 24, 1996 to October 10, 2008 for AUD, CAD, CHF, GBP, and JPY. For DEM-EUR the sample period is January 1, 1998 to October 10, 2008.

Panel A: Global Model

	Yield Pricing Errors							Matching Depreciation Rates					
	1m	3m	6m	1y	2y	3y	4y	corr	c_0	se(c_0)	c_1	se(c_1)	R^2
USD	4	3	6	14	13	11	21						
AUD	5	6	8	12	15	23	37	0.9957	0.0000	(0.0000)	1.0261	(0.0020)	0.9914
CAD	5	6	7	15	23	35	53	0.9986	0.0000	(0.0000)	1.0227	(0.0012)	0.9972
CHF	6	6	7	12	20	30	41	0.9004	0.0000	(0.0000)	0.9445	(0.0109)	0.8107
DEM-EUR	6	7	6	10	19	27	35	0.9086	0.0000	(0.0001)	1.0158	(0.0112)	0.8255
GBP	7	7	8	17	23	40	63	0.9774	-0.0000	(0.0000)	1.1021	(0.0049)	0.9552
JPY	5	7	9	9	16	33	52	0.9990	0.0000	(0.0000)	1.0538	(0.0013)	0.9979

Panel B: Global Model including Information in Currency Options

	Yield Pricing Errors							Matching Depreciation Rates					
	1m	3m	6m	1y	2y	3y	4y	corr	c_0	se(c_0)	c_1	se(c_1)	R^2
USD	4	3	6	14	13	11	21						
AUD	4	6	8	11	14	23	37	0.9963	-0.0000	(0.0000)	1.0244	(0.0020)	0.9926
CAD	5	6	7	14	22	34	53	0.9989	-0.0000	(0.0000)	1.0259	(0.0011)	0.9978
CHF	6	6	6	12	20	30	41	0.8878	0.0000	(0.0000)	0.9418	(0.0115)	0.7882
DEM-EUR	6	7	6	10	19	27	35	0.8869	0.0000	(0.0001)	0.9990	(0.0131)	0.7866
GBP	7	7	8	17	22	40	62	0.9742	-0.0000	(0.0000)	1.1185	(0.0057)	0.9491
JPY	4	7	8	8	15	30	47	0.9989	0.0000	(0.0000)	1.0566	(0.0015)	0.9977

Panel C: Descriptive Statistics for MFIV and Pricing Errors

	1-Month Options				3-Month Options			
	MFIV		Pricing Errors		MFIV		Pricing Errors	
	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
AUD	0.1111	0.0266	0.0003	0.0269	0.1076	0.0230	0.0038	0.0233
CAD	0.0671	0.0190	−0.0050	0.0166	0.0657	0.0166	−0.0029	0.0141
CHF	0.1119	0.0154	−0.0025	0.0157	0.1143	0.0125	−0.0051	0.0130
DEM-EUR	0.1110	0.0182	−0.0041	0.0170	0.1124	0.0152	−0.0054	0.0138
GBP	0.0861	0.0147	0.0002	0.0159	0.0885	0.0120	−0.0025	0.0132
JPY	0.1202	0.0331	0.0051	0.0345	0.1210	0.0282	0.0046	0.0289

Table A.6: Regressions of Excess Returns on Expected Excess Returns: Sample 01/1996 to 10/2008

The table shows the results from estimating, by ordinary least squares, the regression (23), $rx_{t,T} = \alpha' + \beta'\widehat{rx}_{t,T} + \eta'_{t,T}$, for the horizons indicated in the column headers. Values in parentheses are block-bootstrapped standard errors. $t[\beta' = 1]$ is the t-statistic for testing $\beta' = 1$. R^2 is the in-sample coefficient of determination. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. The results are based on non-overlapping observations for horizons up to 1 month and on monthly frequency for horizons of 3 months and beyond. The sample periods are January 24, 1996 to October 10, 2008 for AUD, CAD, CHF, GBP, and JPY. For DEM-EUR the sample period is January 1, 1998 to October 10, 2008.

	1 day	1 week	1 month	3 months	1 year	4 years
AUD						
α'	0.0001	0.0003	0.0018	0.0055	0.0028	0.0234
se(α')	(0.0002)	(0.0007)	(0.0027)	(0.0068)	(0.0257)	(0.0898)
β'	0.6311**	0.7629**	1.0990***	1.3020***	1.2971***	0.8069**
se(β')	(0.3117)	(0.3242)	(0.3134)	(0.3495)	(0.3506)	(0.3144)
$t[\beta' = 1]$	[-1.18]	[-0.73]	[0.32]	[0.86]	[0.85]	[-0.61]
R^2	0.0017	0.0125	0.0918	0.3046	0.6172	0.3686
CAD						
α'	0.0000	0.0002	0.0004	0.0000	−0.0068	0.0031
se(α')	(0.0001)	(0.0004)	(0.0013)	(0.0033)	(0.0076)	(0.0339)
β'	0.0735	0.2137	0.6613***	0.8933***	1.0452***	0.9984***
se(β')	(0.1679)	(0.2041)	(0.2372)	(0.2291)	(0.1522)	(0.1340)
$t[\beta' = 1]$	[-5.52]	[-3.85]	[-1.43]	[-0.47]	[0.30]	[-0.01]
R^2	0.0001	0.0024	0.0660	0.2373	0.7342	0.7647
CHF						
α'	−0.0000	−0.0001	0.0005	0.0026	0.0019	−0.0033
se(α')	(0.0001)	(0.0006)	(0.0027)	(0.0077)	(0.0186)	(0.0439)
β'	0.5902***	0.6574***	0.8048***	1.0554***	1.1648***	0.9620***
se(β')	(0.1318)	(0.1579)	(0.2232)	(0.2842)	(0.2482)	(0.1985)
$t[\beta' = 1]$	[-3.11]	[-2.17]	[-0.87]	[0.19]	[0.66]	[-0.19]
R^2	0.0249	0.0405	0.0501	0.1580	0.5423	0.5199
DEM-EUR						
α'	−0.0001	−0.0000	0.0017	0.0047	−0.0061	0.0239
se(α')	(0.0002)	(0.0007)	(0.0037)	(0.0080)	(0.0122)	(0.0625)
β'	1.0570***	0.7741***	0.6238*	1.1669***	1.5131***	0.8066***
se(β')	(0.1254)	(0.1358)	(0.3356)	(0.3423)	(0.1386)	(0.2130)
$t[\beta' = 1]$	[0.45]	[-1.66]	[-1.12]	[0.49]	[3.70]	[-0.91]
R^2	0.1264	0.0845	0.0413	0.2111	0.8016	0.6240
GBP						
α'	0.0002**	0.0007	0.0009	0.0010	−0.0005	−0.0032
se(α')	(0.0001)	(0.0005)	(0.0023)	(0.0070)	(0.0223)	(0.0335)
β'	−0.1942	0.0779	1.1666**	1.3306***	1.2225***	0.9788***
se(β')	(0.1390)	(0.2763)	(0.5132)	(0.4962)	(0.4373)	(0.1442)
$t[\beta' = 1]$	[-8.59]	[-3.34]	[0.32]	[0.67]	[0.51]	[-0.15]
R^2	0.0003	0.0001	0.0397	0.1601	0.4197	0.6419
JPY						
α'	0.0002	0.0001	0.0001	0.0052	0.0345	−0.0296
se(α')	(0.0003)	(0.0009)	(0.0038)	(0.0090)	(0.0225)	(0.0469)
β'	1.3048**	0.6544	0.6008	1.0009**	1.5739***	0.7871**
se(β')	(0.6125)	(0.3995)	(0.5140)	(0.4788)	(0.4942)	(0.3184)
$t[\beta' = 1]$	[0.50]	[-0.86]	[-0.78]	[0.00]	[1.16]	[-0.67]
R^2	0.0032	0.0041	0.0118	0.0640	0.3102	0.2805

Table A.7: Regressions of Excess Returns on Expected Excess Returns: Sample 01/1996 to 10/2008 including Currency Options

The table shows the results from estimating, by ordinary least squares, the regression (23), $rx_{t,T} = \alpha' + \beta' \widehat{rx}_{t,T} + \eta'_{t,T}$, for the horizons indicated in the column headers. Values in parentheses are block-bootstrapped standard errors. $t[\beta' = 1]$ is the t-statistic for testing $\beta' = 1$. R^2 is the in-sample coefficient of determination. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. The results are based on non-overlapping observations for horizons up to 1 month and on monthly frequency for horizons of 3 months and beyond. The sample periods are January 24, 1996 to October 10, 2008 for AUD, CAD, CHF, GBP, and JPY. For DEM-EUR the sample period is January 1, 1998 to October 10, 2008.

	1 day	1 week	1 month	3 months	1 year	4 years
AUD						
α'	0.0000	0.0003	0.0016	0.0057	0.0054	0.0175
se(α')	(0.0001)	(0.0007)	(0.0028)	(0.0067)	(0.0249)	(0.0911)
β'	0.7983**	0.8625**	1.1095***	1.3339***	1.3164***	0.7856**
se(β')	(0.3261)	(0.3384)	(0.3303)	(0.3412)	(0.3430)	(0.3095)
$t[\beta' = 1]$	[-0.62]	[-0.41]	[0.33]	[0.98]	[0.92]	[-0.69]
R^2	0.0023	0.0139	0.0864	0.3009	0.6361	0.3719
CAD						
α'	0.0000	0.0002	0.0007	0.0012	−0.0031	−0.0008
se(α')	(0.0001)	(0.0004)	(0.0014)	(0.0035)	(0.0078)	(0.0334)
β'	0.2620	0.2853	0.5862**	0.8365***	1.0189***	0.9981***
se(β')	(0.1863)	(0.2058)	(0.2324)	(0.2259)	(0.1509)	(0.1285)
$t[\beta' = 1]$	[-3.96]	[-3.47]	[-1.78]	[-0.72]	[0.12]	[-0.01]
R^2	0.0007	0.0045	0.0592	0.2285	0.7328	0.7664
CHF						
α'	−0.0000	−0.0000	0.0006	0.0024	0.0013	−0.0038
se(α')	(0.0001)	(0.0007)	(0.0026)	(0.0079)	(0.0183)	(0.0441)
β'	0.6983***	0.6569***	0.7093***	0.9655***	1.1230***	0.9748***
se(β')	(0.1032)	(0.1422)	(0.1949)	(0.2873)	(0.2408)	(0.2006)
$t[\beta' = 1]$	[-2.92]	[-2.41]	[-1.49]	[-0.12]	[0.51]	[-0.13]
R^2	0.0451	0.0453	0.0466	0.1523	0.5473	0.5216
DEM-EUR						
α'	−0.0001	−0.0003	0.0019	0.0051	−0.0056	0.0369
se(α')	(0.0003)	(0.0007)	(0.0027)	(0.0078)	(0.0127)	(0.0584)
β'	1.0159***	0.8894***	0.7747**	1.0622***	1.4242***	0.7559***
se(β')	(0.1083)	(0.1355)	(0.3836)	(0.2983)	(0.1280)	(0.1940)
$t[\beta' = 1]$	[0.15]	[-0.82]	[-0.59]	[0.21]	[3.31]	[-1.26]
R^2	0.2020	0.1786	0.0693	0.1897	0.7949	0.6284
GBP						
α'	0.0001	0.0005	0.0009	0.0011	0.0003	0.0010
se(α')	(0.0001)	(0.0004)	(0.0024)	(0.0079)	(0.0250)	(0.0299)
β'	0.3529***	0.4692**	1.0896**	1.2216**	1.1351**	0.9260***
se(β')	(0.1121)	(0.2281)	(0.4739)	(0.5412)	(0.4765)	(0.1237)
$t[\beta' = 1]$	[-5.77]	[-2.33]	[0.19]	[0.41]	[0.28]	[-0.60]
R^2	0.0022	0.0034	0.0355	0.1350	0.3712	0.6548
JPY						
α'	0.0001	−0.0001	−0.0009	0.0001	0.0168	−0.0357
se(α')	(0.0002)	(0.0008)	(0.0038)	(0.0083)	(0.0244)	(0.0453)
β'	1.1021**	0.6532*	0.4919	0.8068**	1.4156***	0.7554**
se(β')	(0.5526)	(0.3433)	(0.4290)	(0.3551)	(0.4000)	(0.3029)
$t[\beta' = 1]$	[0.18]	[-1.01]	[-1.18]	[-0.54]	[1.04]	[-0.81]
R^2	0.0037	0.0068	0.0138	0.0669	0.3619	0.2948

Table A.8: Ability to Predict Excess Returns: Sample 01/1996 to 10/2008

The table reports results related to the predictive ability of the model as compared to the UIP and RW benchmarks. Hit-ratios (HR) are calculated as the proportion of times the sign of the excess return is correctly predicted by the model. $R2 = 1 - MSE_M/MSE_B$ where MSE_M denotes the mean squared prediction error of the model and MSE_B that of the benchmark. CW and GW denote the test-statistics of Clark and West (2007) and Giacomini and White (2006) as described in Section *3.3*. The one-sided p-values of the test-statistics in square brackets are obtained from the block bootstrap procedure described in Appendix F which accounts for autocorrelation and heteroscedasticity. The results are based on non-overlapping observations for horizons up to 1 month and on monthly frequency for horizons of 3 months and beyond. The sample periods are January 24, 1996 to October 10, 2008 for AUD, CAD, CHF, GBP, and JPY. For DEM-EUR the sample period is January 1, 1998 to October 10, 2008.

	Model vs. UIP						Model vs. RW					
	1d	1w	1m	3m	1y	4y	1d	1w	1m	3m	1y	4y
AUD												
HR	0.5403	0.5739	0.6286	0.7524	0.8381	0.7143	0.5403	0.5739	0.6286	0.7524	0.8381	0.7143
$R2$	0.0018	0.0132	0.0943	0.3082	0.6183	0.4339	0.0005	0.0057	0.0648	0.2459	0.5375	0.3385
p-value[CW]	[0.017]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[0.056]	[0.024]	[<0.01]	[<0.01]	[<0.01]	[<0.01]
p-value[GW]	[0.289]	[0.132]	[0.050]	[0.012]	[<0.01]	[<0.01]	[0.449]	[0.183]	[0.090]	[0.023]	[<0.01]	[<0.01]
CAD												
HR	0.5272	0.5652	0.6476	0.6476	0.8857	0.7238	0.5272	0.5652	0.6476	0.6476	0.8857	0.7238
$R2$	0.0003	0.0034	0.0709	0.2451	0.7403	0.8266	-0.0011	-0.0037	0.0421	0.1806	0.6703	0.8042
p-value[CW]	[0.285]	[0.100]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[0.505]	[0.276]	[0.020]	[<0.01]	[<0.01]	[<0.01]
p-value[GW]	[0.351]	[0.170]	[0.205]	[0.056]	[<0.01]	[<0.01]	[0.269]	[0.240]	[0.312]	[0.106]	[<0.01]	[<0.01]
CHF												
HR	0.5590	0.5761	0.5714	0.6857	0.8667	0.8762	0.5590	0.5761	0.5714	0.6857	0.8667	0.8762
$R2$	0.0251	0.0415	0.0536	0.1671	0.5638	0.5278	0.0240	0.0355	0.0283	0.1057	0.4440	0.4907
p-value[CW]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[0.011]	[<0.01]	[<0.01]	[<0.01]
p-value[GW]	[<0.01]	[0.045]	[0.173]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[0.070]	[0.267]	[0.012]	[<0.01]	[<0.01]
DEM-EUR												
HR	0.6175	0.5850	0.6220	0.6220	0.9146	0.9268	0.6175	0.5850	0.6220	0.6220	0.9146	0.9268
$R2$	0.1265	0.0852	0.0458	0.2216	0.8036	0.7417	0.1256	0.0806	0.0237	0.1714	0.7591	0.7534
p-value[CW]	[<0.01]	[<0.01]	[0.011]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[0.042]	[<0.01]	[<0.01]	[<0.01]
p-value[GW]	[<0.01]	[<0.01]	[0.265]	[<0.01]	[<0.01]	[1.000]	[<0.01]	[<0.01]	[0.384]	[0.016]	[<0.01]	[1.000]
GBP												
HR	0.5120	0.5283	0.5524	0.6000	0.6095	0.8476	0.5120	0.5283	0.5524	0.6000	0.6095	0.8476
$R2$	0.0012	0.0050	0.0658	0.2246	0.5154	0.7607	0.0001	-0.0011	0.0351	0.1386	0.3553	0.7128
p-value[CW]	[0.732]	[0.272]	[0.014]	[<0.01]	[<0.01]	[<0.01]	[0.841]	[0.554]	[0.043]	[<0.01]	[<0.01]	[<0.01]
p-value[GW]	[0.364]	[0.073]	[0.290]	[0.065]	[0.029]	[<0.01]	[0.537]	[0.217]	[0.417]	[0.086]	[0.054]	[<0.01]
JPY												
HR	0.5381	0.5652	0.4952	0.5905	0.6667	1.0000	0.5381	0.5652	0.4952	0.5905	0.6667	1.0000
$R2$	0.0036	0.0062	0.0203	0.0868	0.3867	0.8603	0.0028	0.0016	-0.0011	0.0276	0.1841	0.1370
p-value[CW]	[<0.01]	[0.061]	[0.105]	[0.030]	[0.013]	[<0.01]	[0.011]	[0.241]	[0.418]	[0.166]	[0.047]	[<0.01]
p-value[GW]	[0.204]	[0.395]	[0.381]	[0.163]	[0.056]	[<0.01]	[0.216]	[0.580]	[0.427]	[0.185]	[0.031]	[<0.01]

Table A.9: Ability to Predict Excess Returns: Sample 01/1996 to 10/2008 including Currency Options

The table reports results related to the predictive ability of the model as compared to the UIP and RW benchmarks. Hit-ratios (HR) are calculated as the proportion of times the sign of the excess return is correctly predicted by the model. $R2 = 1 - MSE_M/MSE_B$ where MSE_M denotes the mean squared prediction error of the model and MSE_B that of the benchmark. CW and GW denote the test-statistics of Clark and West (2007) and Giacomini and White (2006) as described in Section *3.3*. The one-sided p-values of the test-statistics in square brackets are obtained from the block bootstrap procedure described in Appendix F which accounts for autocorrelation and heteroscedasticity. The results are based on non-overlapping observations for horizons up to 1 month and on monthly frequency for horizons of 3 months and beyond. The sample periods are January 24, 1996 to October 10, 2008 for AUD, CAD, CHF, GBP, and JPY. For DEM-EUR the sample period is January 1, 1998 to October 10, 2008.

	Model vs. UIP						Model vs. RW					
	1d	1w	1m	3m	1y	4y	1d	1w	1m	3m	1y	4y
AUD												
HR	0.5329	0.5761	0.6190	0.7333	0.8571	0.7429	0.5329	0.5761	0.6190	0.7333	0.8571	0.7429
$R2$	0.0024	0.0146	0.0889	0.3045	0.6371	0.4368	0.0010	0.0072	0.0592	0.2419	0.5604	0.3419
p-value[CW]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[0.031]	[0.012]	[<0.01]	[<0.01]	[<0.01]	[<0.01]
p-value[GW]	[0.269]	[0.160]	[0.065]	[0.013]	[<0.01]	[<0.01]	[0.385]	[0.241]	[0.120]	[0.024]	[<0.01]	[<0.01]
CAD												
HR	0.5233	0.5543	0.6571	0.6476	0.8762	0.7429	0.5233	0.5543	0.6571	0.6476	0.8762	0.7429
$R2$	0.0009	0.0055	0.0642	0.2363	0.7390	0.8278	-0.0004	-0.0016	0.0351	0.1711	0.6687	0.8055
p-value[CW]	[0.064]	[0.038]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[0.168]	[0.132]	[0.018]	[<0.01]	[<0.01]	[<0.01]
p-value[GW]	[0.248]	[0.226]	[0.200]	[0.064]	[<0.01]	[<0.01]	[0.366]	[0.367]	[0.303]	[0.122]	[<0.01]	[<0.01]
CHF												
HR	0.5847	0.5696	0.5810	0.6952	0.8667	0.8762	0.5847	0.5696	0.5810	0.6952	0.8667	0.8762
$R2$	0.0453	0.0463	0.0500	0.1614	0.5686	0.5295	0.0442	0.0403	0.0246	0.0996	0.4500	0.4925
p-value[CW]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[0.018]	[<0.01]	[<0.01]	[<0.01]
p-value[GW]	[<0.01]	[0.043]	[0.173]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[0.065]	[0.257]	[0.013]	[<0.01]	[<0.01]
DEM-EUR												
HR	0.6488	0.6574	0.6463	0.6341	0.8902	0.9146	0.6488	0.6574	0.6463	0.6341	0.8902	0.9146
$R2$	0.2022	0.1793	0.0737	0.2005	0.7969	0.7448	0.2014	0.1751	0.0523	0.1489	0.7509	0.7563
p-value[CW]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]
p-value[GW]	[<0.01]	[<0.01]	[0.092]	[0.011]	[<0.01]	[1.000]	[<0.01]	[<0.01]	[0.132]	[0.021]	[<0.01]	[1.000]
GBP												
HR	0.5294	0.5261	0.5619	0.5810	0.6190	0.8571	0.5294	0.5261	0.5619	0.5810	0.6190	0.8571
$R2$	0.0031	0.0083	0.0617	0.2014	0.4749	0.7693	0.0020	0.0022	0.0308	0.1128	0.3014	0.7231
p-value[CW]	[0.018]	[0.046]	[0.018]	[<0.01]	[<0.01]	[<0.01]	[0.028]	[0.128]	[0.061]	[<0.01]	[<0.01]	[<0.01]
p-value[GW]	[0.224]	[0.052]	[0.304]	[0.080]	[0.039]	[<0.01]	[0.372]	[0.210]	[0.440]	[0.096]	[0.072]	[<0.01]
JPY												
HR	0.5442	0.5848	0.5238	0.6476	0.6476	1.0000	0.5442	0.5848	0.5238	0.6476	0.6476	1.0000
$R2$	0.0041	0.0089	0.0222	0.0896	0.4327	0.8631	0.0033	0.0043	0.0008	0.0306	0.2453	0.1542
p-value[CW]	[<0.01]	[0.018]	[0.064]	[0.016]	[<0.01]	[<0.01]	[<0.01]	[0.071]	[0.234]	[0.078]	[<0.01]	[<0.01]
p-value[GW]	[0.153]	[0.357]	[0.351]	[0.152]	[0.044]	[<0.01]	[0.143]	[0.456]	[0.405]	[0.177]	[0.012]	[<0.01]

Table A.10: Model Parameters: Sample 01/1996 to 10/2008

The table shows parameter estimates for our data set. The values reported are based on the third factor rotation described in Section *4.3.2* and in Appendix C. Point estimates are based on the draw from the posterior distribution with minimal L1 distance to the other draws. Confidence intervals are computed from the empirical posterior distribution.

	AUD			CAD			CHF			EUR			GBP			JPY		
	Est	q2.5%	q97.5%	Est	q2.5%	q97.5%	Est	q2.5%	q97.5%	Est	q2.5%	q97.5%	Est	q2.5%	q97.5%	Est	q2.5%	q97.5%
φ_1	-0.0000	-0.0000	-0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	-0.0915	-0.1017	-0.0812	-0.0000	-0.0001	0.0001	-0.0001	-0.0001	-0.0001
φ_2	0.0016	0.0007	0.0075	0.0196	0.0106	0.0303	0.0756	0.0027	0.1001	-27.440	-33.405	-22.341	-0.3831	-1.8470	3.5437	0.0011	0.0011	0.0014
φ_3	0.0001	-0.0014	0.0009	-0.0019	-0.0095	-0.0003	0.0003	-0.0014	0.0009	-0.0363	-0.0412	-0.0327	0.0034	0.0021	0.0054	-0.0133	-0.0143	-0.0117
φ_4	-0.0928	-0.1114	-0.0188	0.3531	0.1603	0.9052	-0.0196	-0.1226	0.5383	-63.782	-75.964	-55.481	-1.7233	-2.0970	-1.4647	1.3033	1.1037	1.4594
ϑ_{11}	-0.1360	-0.1487	-0.1212	-3.4170	-4.2204	-3.1517	-0.3776	-0.3928	-0.3586	-2.0212	-2.2149	-1.7914	-0.8802	-10.1498	-0.4140	-0.1057	-0.1137	-0.0929
ϑ_{12}	0.0060	0.0024	0.0102	0.0164	0.0079	0.0330	0.0000	0.0000	0.0004	0.0051	0.0046	0.0054	0.0000	0.0000	0.0003	0.0147	0.0133	0.0154
ϑ_{21}	0.0066	0.0008	0.0190	-518.71	-1019.2	-389.22	-153.12	-261.01	-1.8992	-617.58	-737.91	-507.86	-12568	-307864	-547.59	0.4581	0.3883	0.5261
ϑ_{22}	-0.2436	-0.2438	-0.2421	2.6226	2.3707	3.4078	-0.2300	-0.2403	-0.2221	1.5381	1.3054	1.7375	0.3073	-0.1554	9.5854	-0.1949	-0.2076	-0.1849
ϑ_{31}	-89.927	-126.61	-46.438	-242.07	-514.76	-162.52	-211.37	-281.94	-65.337	-5.1378	-5.3667	-4.8648	-412.66	-524.46	-350.01	-174.62	-178.14	-168.65
ϑ_{32}	0.2951	0.0995	0.4884	0.6865	0.1589	3.3939	0.0139	0.0119	0.1516	0.0025	0.0023	0.0026	0.0158	0.0129	0.0224	2.2997	2.1301	2.4448
ϑ_{33}	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
ϑ_{34}	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
ϑ_{41}	1172.6	981.85	1320.0	11168	7244.9	29176	16661	6125.8	21692	-458.33	-656.18	-265.17	70310	55885	102222	4255.5	4149.4	4680.7
ϑ_{42}	-16.420	-19.217	-9.3877	-55.188	-247.50	-13.873	0.7952	-46.194	1.0499	3.1696	2.7359	3.6050	-2.7940	-4.1521	-2.2818	-231.50	-240.56	-213.48
ϑ_{43}	-13.492	-19.991	-11.172	-23.072	-33.377	-18.337	-122.01	-124.78	-117.45	-107.75	-112.37	-103.50	-221.49	-245.21	-193.63	-21.038	-23.611	-20.255
ϑ_{44}	-10.306	-15.099	-8.5949	-17.371	-24.970	-13.879	-90.335	-92.374	-86.972	-79.820	-83.222	-76.683	-163.69	-181.19	-143.15	-15.871	-17.768	-15.293
c_1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0004	0.0000	0.0000	0.0000
c_2	0.0001	0.0000	0.0001	0.0000	0.0000	0.0001	0.0000	0.0000	0.0001	0.0014	0.0013	0.0014	0.0001	0.0000	0.0002	0.0000	0.0000	0.0000
d_1	0.0026	0.0013	0.0104	0.0007	0.0002	0.0030	0.1040	0.0033	0.1352	0.2298	0.2104	0.2600	3.5071	0.2535	10.3469	0.0002	0.0002	0.0002
d_2	0.0000	0.0000	0.0000	0.0077	0.0047	0.0184	0.0338	0.0015	0.0432	0.4790	0.4403	0.5204	1.0615	0.0429	6.2231	0.0001	0.0001	0.0001
κ_1	-0.0019	-0.0036	-0.0012	-0.0005	-0.0006	-0.0005	0.0020	-0.0010	0.0025	-0.0049	-0.0054	-0.0044	0.0003	0.0001	0.0004	-0.0002	-0.0003	-0.0002
κ_2	0.0081	0.0068	0.0112	0.0059	0.0059	0.0060	0.0055	0.0048	0.0096	0.0371	0.0361	0.0380	0.0038	0.0035	0.0042	0.0059	0.0059	0.0060
κ_3	-0.0005	-0.0005	-0.0004	-0.0000	-0.0001	-0.0000	-0.0011	-0.0027	-0.0008	-0.0093	-0.0097	-0.0085	-0.0029	-0.0034	-0.0025	-0.0000	-0.0000	-0.0000
κ_4	-0.0058	-0.0081	-0.0050	-0.0040	-0.0041	-0.0039	-0.0049	-0.0056	-0.0009	-0.0437	-0.0444	-0.0427	-0.0008	-0.0013	-0.0002	-0.0020	-0.0021	-0.0019
ρ_1	0.0504	0.0354	0.1016	0.0269	0.0132	0.0545	-0.3191	-0.3650	-0.0565	0.4436	0.4245	0.4613	-0.0080	-0.0149	-0.0019	0.0133	0.0129	0.0138
ρ_2	0.0013	-0.0035	0.0028	-0.0681	-0.0873	-0.0576	-0.1788	-0.2033	-0.0378	0.6880	0.6601	0.7162	-0.0670	-0.1109	-0.0153	0.0107	0.0091	0.0113
ρ_3	-0.0800	-0.1716	-0.0514	-0.0605	-0.0896	-0.0479	0.4207	0.0789	0.4817	-2.6076	-2.6999	-2.5218	-0.0856	-0.1546	-0.0161	-0.0702	-0.0742	-0.0683
ρ_4	0.0577	0.0410	0.1191	0.0680	0.0526	0.1004	0.4440	0.0772	0.5094	3.4488	3.2951	3.6080	0.1226	0.0274	0.2151	0.0305	0.0284	0.0362
f_0	-3.8040	-4.4320	-3.3705	-7.9527	-23.542	-4.2468	-3.4914	-3.6787	-3.3650	-81.137	-94.305	-71.455	0.1327	0.0684	0.6205	-30.935	-33.232	-27.272
f_1	-16.721	-131.83	-1.7639	-238575	-767824	-116164	-11491	-14854	-4875.2	-1580.3	-1769.8	-1319.1	-16654	-91935	-8327.7	-17663	-19865	-12301
f_2	389.86	95.833	791.38	1445.4	340.96	6926.6	10.085	8.0866	304.93	4.5251	4.0103	4.9123	1.0327	0.5095	4.7005	5143.7	4755.3	5477.5
g_0	-0.3141	-0.4341	-0.0866	-0.2876	-0.3024	-0.1526	-0.3233	-0.4344	-0.0471	0.1090	-0.0358	0.2460	-0.5802	-0.9216	-0.3618	-0.0609	-0.0685	-0.0516
g_1	15356	7929.6	21612	23154	19043	30637	35255	10792	47051	756.41	722.29	790.57	68755	59134	83896	28530	27633	29045
g_2	-21.232	-26.275	-9.8345	-9.3167	-61.729	-1.5389	-1.5372	-3.0880	-0.1048	-0.0860	-0.0989	-0.0745	-2.6123	-3.5918	-2.1150	-8.4049	-10.146	-6.4093
y_0	0.9864	0.9841	0.9879	0.9715	0.9156	0.9848	0.9875	0.9868	0.9879	0.7090	0.6618	0.7437	1.0005	1.0002	1.0022	0.8891	0.8808	0.9022
y_1	-0.0600	-0.4728	-0.0063	-855.66	-2753.8	-416.62	-41.214	-53.273	-17.485	-5.6678	-6.3474	-4.7310	-59.733	-329.73	-29.868	-63.351	-71.247	-44.118
y_2	1.3982	0.3437	2.8383	5.1841	1.2229	24.843	0.0362	0.0290	1.0936	0.0162	0.0144	0.0176	0.0037	0.0018	0.0169	18.448	17.055	19.645
z_0	0.9993	0.9968	1.0000	0.7943	0.6819	0.9170	0.9626	0.8879	0.9955	0.9550	0.7704	0.9986	-0.2832	-0.4870	-0.0348	0.9874	0.9261	0.9989
z_1	2.5060	0.1472	14.774	15209	12372	20262	142.69	-162.25	705.31	-0.4993	-4.0596	0.6011	-21685	-26947	-13289	24.441	-19.010	1280.7
z_2	0.0442	-0.0039	0.4939	-4.3299	-24.733	0.3427	0.0942	-0.0164	6.0592	0.0025	0.0001	0.0121	67.344	22.160	1332.5	2.0262	0.1150	11.457

Table A.11: Model Parameters: Sample 01/1996 to 10/2008 including Currency Options

The table shows parameter estimates for our data set. The values reported are based on the third factor rotation described in Section *4.3.2* and in Appendix C. Point estimates are based on the draw from the posterior distribution with minimal L1 distance to the other draws. Confidence intervals are computed from the empirical posterior distribution.

	AUD			CAD			CHF			EUR			GBP			JPY		
	Est	q2.5%	q97.5%	Est	q2.5%	q97.5%	Est	q2.5%	q97.5%	Est	q2.5%	q97.5%	Est	q2.5%	q97.5%	Est	q2.5%	q97.5%
φ_1	-0.0000	-0.0001	-0.0000	0.0002	0.0001	0.0004	0.0000	0.0000	0.0000	-0.0764	-0.0859	-0.0686	0.0000	0.0000	0.0002	-0.0001	-0.0001	-0.0000
φ_2	0.0014	0.0006	0.0070	0.0295	0.0262	0.0357	0.0702	0.0179	0.0967	-31.515	-37.480	-27.997	0.0959	-0.0012	3.9112	0.0007	0.0005	0.0009
φ_3	0.0004	-0.0013	0.0013	0.0011	0.0004	0.0011	0.0014	-0.0007	0.0031	-0.0275	-0.0308	-0.0225	0.0018	0.0015	0.0027	-0.0095	-0.0116	-0.0068
φ_4	-0.1071	-0.1211	-0.0285	0.1446	0.0875	0.2876	-0.1577	-0.3374	0.2850	-103.67	-117.09	-90.601	-0.6731	-1.2548	0.7862	0.7127	0.4148	1.0067
ϑ_{11}	-0.1374	-0.1495	-0.1232	-2.7409	-3.4175	-2.3056	-0.4045	-0.4406	-0.3663	-2.3488	-2.6346	-2.1591	-1.4510	-18.683	-0.7035	-0.1184	-0.1241	-0.1090
ϑ_{12}	0.0075	0.0029	0.0125	0.0159	0.0081	0.0335	0.0000	0.0000	0.0001	0.0045	0.0042	0.0050	0.0003	0.0001	0.1080	0.0183	0.0163	0.0196
ϑ_{21}	0.0046	0.0006	0.0117	-282.87	-764.24	-240.73	-254.80	-580.55	-17.430	-985.23	-1161.1	-866.66	-5287.3	-398668	-2.5146	0.4514	0.4254	0.4752
ϑ_{22}	-0.2437	-0.2439	-0.2427	1.9420	1.5005	2.5967	-0.2000	-0.2280	-0.1686	1.8646	1.6709	2.1447	0.9347	0.1909	18.136	-0.1787	-0.1892	-0.1727
ϑ_{31}	-101.25	-135.40	-52.137	-189.70	-231.48	-159.55	-251.07	-346.59	-100.39	-5.6747	-6.0959	-5.2336	-245.95	-428.83	-210.76	-182.06	-186.81	-174.14
ϑ_{32}	0.3381	0.1132	0.5422	0.3943	0.1508	0.8904	0.0136	0.0108	0.0185	0.0021	0.0018	0.0023	0.0125	0.0088	1.1734	2.5883	2.4314	2.7074
ϑ_{33}	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
ϑ_{34}	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
ϑ_{41}	1314.4	1093.0	1421.6	3173.6	2589.9	4964.5	19047	8486.4	25562	-1957.3	-2526.0	-1420.2	28848	-1217.4	57733	3850.9	3365.1	4034.6
ϑ_{42}	-14.621	-15.930	-10.160	-8.9379	-10.648	-7.8102	0.9417	-0.2475	1.2633	5.6577	4.8614	6.5769	0.9889	-2.2359	2524.1	-206.16	-223.37	-170.70
ϑ_{43}	-13.492	-20.122	-11.303	-20.138	-31.405	-16.842	-122.42	-126.58	-116.80	-111.69	-115.34	-108.02	-222.36	-232.27	-211.44	-18.034	-19.697	-15.817
ϑ_{44}	-10.306	-15.195	-8.6918	-15.207	-23.516	-12.776	-90.634	-93.704	-86.494	-82.720	-85.418	-80.019	-164.34	-171.65	-156.28	-13.655	-14.881	-12.020
c_1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000
c_2	0.0001	0.0000	0.0001	0.0000	0.0000	0.0001	0.0000	0.0000	0.0001	0.0012	0.0012	0.0013	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000
d_1	0.0022	0.0011	0.0086	0.0013	0.0006	0.0032	0.1000	0.0259	0.1368	0.3156	0.2586	0.3941	0.3371	0.0004	1.3864	0.0002	0.0002	0.0002
d_2	0.0000	0.0000	0.0000	0.0050	0.0031	0.0146	0.0400	0.0084	0.0606	0.5940	0.5207	0.6359	0.1732	0.0001	3.1820	0.0001	0.0001	0.0001
κ_1	-0.0017	-0.0032	-0.0011	-0.0007	-0.0007	-0.0005	0.0018	-0.0002	0.0023	-0.0059	-0.0070	-0.0048	0.0004	0.0003	0.0007	-0.0002	-0.0002	-0.0001
κ_2	0.0076	0.0066	0.0106	0.0059	0.0059	0.0060	0.0050	0.0044	0.0077	0.0353	0.0340	0.0365	0.0050	0.0042	0.0054	0.0058	0.0057	0.0059
κ_3	-0.0004	-0.0005	-0.0004	-0.0000	-0.0001	-0.0000	-0.0012	-0.0021	-0.0008	-0.0098	-0.0105	-0.0088	-0.0028	-0.0029	-0.0025	-0.0000	-0.0000	-0.0000
κ_4	-0.0057	-0.0079	-0.0050	-0.0039	-0.0041	-0.0039	-0.0049	-0.0058	-0.0025	-0.0415	-0.0432	-0.0401	-0.0003	-0.0008	-0.0000	-0.0018	-0.0019	-0.0017
ρ_1	0.0462	0.0333	0.0920	0.0363	0.0248	0.0565	-0.3134	-0.3663	-0.1584	0.5292	0.4768	0.5964	-0.0048	-0.0158	0.0072	0.0126	0.0124	0.0130
ρ_2	0.0010	-0.0021	0.0020	-0.0601	-0.0819	-0.0519	-0.1981	-0.2426	-0.0912	0.7677	0.7178	0.7934	-0.0162	-0.0491	-0.0009	0.0110	0.0106	0.0115
ρ_3	-0.0707	-0.1594	-0.0450	-0.0324	-0.0736	-0.0176	0.4106	0.2129	0.4730	-2.5328	-2.5713	-2.4222	-0.0429	-0.0984	0.0024	-0.0571	-0.0644	-0.0493
ρ_4	0.0574	0.0419	0.1175	0.0585	0.0484	0.0936	0.4460	0.2122	0.5342	3.4289	3.2793	3.5004	0.0526	0.0016	0.1226	0.0238	0.0195	0.0282
f_0	-3.7956	-4.5335	-3.2963	-2.2359	-3.0284	-1.9274	-3.4242	-3.5175	-3.3188	-58.970	-70.094	-45.868	0.1745	0.0629	1.2127	-22.486	-26.970	-16.313
f_1	-12.360	-86.681	-1.2763	-95414	-146210	-83971	-16593	-25531	-5591.7	-1574.4	-1873.1	-1271.3	-24026	-195013	-9926.9	-20828	-22855	-18398
f_2	464.32	116.84	895.30	788.30	318.62	1732.3	10.579	8.2998	38.658	3.3568	2.7045	4.0399	5.6839	2.3185	2437.6	5838.9	5430.9	6116.5
g_0	-0.3825	-0.4889	-0.1384	-0.3550	-0.3776	-0.3058	-0.5252	-0.8063	-0.1640	0.2902	0.0022	0.4199	-0.3101	-0.3843	-0.2550	-0.0721	-0.0775	-0.0580
g_1	17291	8903.7	23119	25275	20353	28645	41645	16740	57329	854.10	797.23	900.31	40613	34834	59672	29515	28371	30326
g_2	-22.568	-27.151	-10.649	-8.5280	-22.251	-1.8696	-1.4758	-2.3692	-0.0624	-0.1006	-0.1175	-0.0841	-1.6527	-19.372	-1.2855	-5.8063	-9.6764	-3.3393
y_0	0.9864	0.9837	0.9882	0.9920	0.9891	0.9931	0.9877	0.9874	0.9881	0.7885	0.7486	0.8355	1.0006	1.0002	1.0043	0.9194	0.9033	0.9415
y_1	-0.0443	-0.3109	-0.0046	-342.21	-524.39	-301.16	-59.511	-91.569	-20.055	-5.6466	-6.7178	-4.5594	-86.170	-699.42	-35.603	-74.700	-81.971	-65.984
y_2	1.6653	0.4191	3.2110	2.8273	1.1427	6.2130	0.0379	0.0298	0.1386	0.0120	0.0097	0.0145	0.0204	0.0083	8.7425	20.941	19.478	21.937
z_0	0.9993	0.9964	0.9999	0.8549	0.7159	0.9287	0.9750	0.9235	0.9965	0.9667	0.8475	0.9993	-0.6136	-3.1469	-0.2110	0.9923	0.9557	0.9994
z_1	2.3377	0.3002	10.792	10130	5193.6	18051	51.487	-277.34	507.17	-0.4404	-3.9477	0.9400	-3804.2	-6785.8	138186	28.581	-17.357	202.38
z_2	0.0629	-0.0016	0.5353	-2.5072	-3.8263	-0.2911	0.0698	-0.0106	0.5885	0.0019	-0.0000	0.0087	361.32	66.746	351449	2.0201	0.1308	11.3395

Table A.12: Comparison of Model Parameters for Estimations Conditioning on Information in Currency Options: Sample 01/1996 to 10/2008

Using the joint distribution of parameter estimates, we assess whether parameters in A.11 are equal to corresponding estimates in Table A.10. We first calculate empirical p-values for individual parameter tests of equality and subsequently control for the dependency of these tests using conventional Bonferroni corrections and a procedure controlling for false discovery rates; see Benjamini and Hochberg (1995). b, bb, and bbb indicate significance at the 10%, 5%, and 1% levels using the Bonferroni corrections. f, ff, and fff indicate significance at the 10%, 5%, and 1% levels when controlling for false discovery rates.

	AUD	CAD	CHF	DEM-EUR	GBP	JPY
φ_1	–	–	–	–	–	–
φ_2	–	–	–	–	–	bbb/fff
φ_3	–	bbb/fff	–	–	–	–
φ_4	–	–	–	bbb/fff	f	bbb/fff
ϑ_{11}	–	–	–	–	–	–
ϑ_{12}	–	–	–	–	–	bbb/fff
ϑ_{21}	–	–	–	bbb/fff	–	–
ϑ_{22}	–	–	–	–	–	–
ϑ_{31}	–	–	–	–	–	–
ϑ_{32}	–	–	–	–	–	–
ϑ_{33}	–	–	–	–	–	–
ϑ_{34}	–	–	–	–	–	–
ϑ_{41}	–	bbb/fff	–	bbb/fff	–	bbb/fff
ϑ_{42}	–	bbb/fff	–	bbb/fff	–	–
ϑ_{43}	–	–	–	–	–	bbb/fff
ϑ_{44}	–	–	–	–	–	bbb/fff
c_1	–	–	–	–	–	–
c_2	–	–	–	–	–	–
d_1	–	–	–	–	–	–
d_2	–	–	–	–	–	–
κ_1	–	–	–	–	–	–
κ_2	–	–	–	–	–	–
κ_3	–	–	–	–	–	–
κ_4	–	–	–	–	–	–
ρ_1	–	–	–	ff	–	–
ρ_2	–	–	–	–	–	–
ρ_3	–	–	–	–	–	bbb/fff
ρ_4	–	–	–	–	–	–
f_0	–	bbb/fff	–	–	–	–
f_1	–	–	–	–	–	–
f_2	–	–	–	–	–	–
g_0	–	–	–	–	–	–
g_1	–	–	–	–	–	–
g_2	–	–	–	–	–	–
y_0	–	bbb/fff	–	–	–	–
y_1	–	–	–	–	–	–
y_2	–	–	–	–	–	–
z_0	–	–	–	–	–	–
z_1	–	–	–	–	bbb/fff	–
z_2	–	–	–	–	–	–

Table A.13: Yield Pricing Errors and Matching Depreciation Rates: Sample until December 2006

The table reports pricing errors for domestic (US) and foreign yields as well as results for how well model implied depreciation rates match observed rates. Columns labeled "Yield Pricing Errors" report annualized root mean squared errors in basis points for the yield maturities indicated in the header. Columns labeled "Matching Depreciation Rates" report correlations of model implied and observed rates ("corr") and results of regressing the later on the former with c_0 denoting the intercept, c_1 the slope coefficient, and se$(\cdot)$ the respective block-bootstrapped standard errors in parentheses. R^2 is the in-sample coefficient of determination. The results are for the global model described in section *3.1* based on daily observations for the sample periods are October 12, 1994 to December 29, 2006 for AUD; June 1, 1993 to December 29, 2006 for CAD; and September 18, 1989 to December 29, 2006 for CHF, DEM-EUR, GBP, and JPY.

	Yield Pricing Errors							Matching Depreciation Rates					
	1m	3m	6m	1y	2y	3y	4y	corr	c_0	se(c_0)	c_1	se(c_1)	R^2
USD	5	4	6	17	15	11	23						
AUD	6	7	9	14	18	24	41	0.9990	-0.0000	(0.0000)	1.0171	(0.0010)	0.9981
CAD	9	10	11	17	30	44	68	0.9845	-0.0000	(0.0000)	0.9908	(0.0043)	0.9693
CHF	8	9	9	16	29	41	55	0.9365	0.0000	(0.0000)	0.9940	(0.0072)	0.8771
DEM-EUR	12	15	14	17	39	61	84	0.9990	0.0000	(0.0000)	1.0239	(0.0008)	0.9980
GBP	10	11	10	24	38	58	89	0.9554	0.0000	(0.0000)	1.1636	(0.0097)	0.9129
JPY	7	10	12	19	28	50	82	0.8804	0.0001	(0.0000)	1.0241	(0.0178)	0.7752

Table A.14: Regressions of Excess Returns on Expected Excess Returns: Sample until December 2006

The table shows the results from estimating, by ordinary least squares, the regression (23), $rx_{t,T} = \alpha' + \beta'\widehat{rx}_{t,T} + \eta'_{t,T}$, for the horizons indicated in the column headers. Values in parentheses are block-bootstrapped standard errors. $t[\beta' = 1]$ is the t-statistic for testing $\beta' = 1$. R^2 is the in-sample coefficient of determination. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. The results are based on non-overlapping observations for horizons up to 1 month and on monthly frequency for horizons of 3 months and beyond. The sample periods are October 12, 1994 to December 29, 2006 for AUD; June 1, 1993 to December 29, 2006 for CAD; and September 18, 1989 to December 29, 2006 for CHF, DEM-EUR, GBP, and JPY.

	1 day	1 week	1 month	3 months	1 year	4 years
AUD						
α'	−0.0000	−0.0002	−0.0010	−0.0019	0.0039	0.0083
se(α')	(0.0001)	(0.0006)	(0.0026)	(0.0061)	(0.0185)	(0.0857)
β'	0.3285	0.3402	0.3488	0.7917***	1.2774***	0.5761
se(β')	(0.2890)	(0.2825)	(0.2755)	(0.2227)	(0.1460)	(0.4098)
$t[\beta' = 1]$	[-2.32]	[-2.34]	[-2.36]	[-0.94]	[1.90]	[-1.03]
R^2	0.0011	0.0062	0.0238	0.2369	0.7198	0.2917
CAD						
α'	−0.0001	−0.0003	−0.0012	−0.0027	−0.0003	0.0062
se(α')	(0.0001)	(0.0003)	(0.0012)	(0.0034)	(0.0096)	(0.0340)
β'	0.4318*	0.5349**	0.5382**	0.6282***	1.0288***	0.8464**
se(β')	(0.2500)	(0.2426)	(0.2560)	(0.2358)	(0.2765)	(0.3686)
$t[\beta' = 1]$	[-2.27]	[-1.92]	[-1.80]	[-1.58]	[0.10]	[-0.42]
R^2	0.0009	0.0060	0.0271	0.1043	0.5194	0.4570
CHF						
α'	0.0000	0.0001	0.0002	0.0010	0.0014	0.0036
se(α')	(0.0001)	(0.0006)	(0.0027)	(0.0073)	(0.0235)	(0.0425)
β'	0.3798***	0.6031***	0.7641**	1.0403***	1.0369**	0.9146***
se(β')	(0.0914)	(0.1359)	(0.3426)	(0.3772)	(0.4078)	(0.2908)
$t[\beta' = 1]$	[-6.78]	[-2.92]	[-0.69]	[0.11]	[0.09]	[-0.29]
R^2	0.0038	0.0170	0.0267	0.0868	0.2413	0.3319
DEM-EUR						
α'	0.0000	0.0001	0.0006	0.0009	0.0025	0.0022
se(α')	(0.0001)	(0.0005)	(0.0024)	(0.0063)	(0.0213)	(0.0519)
β'	1.2621***	0.9379***	0.8902**	0.9634**	1.0362**	0.7076**
se(β')	(0.3122)	(0.3341)	(0.3656)	(0.3858)	(0.4316)	(0.3035)
$t[\beta' = 1]$	[0.84]	[-0.19]	[-0.30]	[-0.09]	[0.08]	[-0.96]
R^2	0.0033	0.0085	0.0319	0.0897	0.2765	0.2465
GBP						
α'	0.0002**	0.0006	0.0025	0.0061	0.0198	0.0209
se(α')	(0.0001)	(0.0005)	(0.0025)	(0.0077)	(0.0198)	(0.0398)
β'	−1.7946	−0.8173	−0.3884	−0.0375	−0.0365	0.7485*
se(β')	(1.3293)	(1.3965)	(1.4380)	(1.4750)	(0.9902)	(0.4138)
$t[\beta' = 1]$	[-2.10]	[-1.30]	[-0.97]	[-0.70]	[-1.05]	[-0.61]
R^2	0.0016	0.0011	0.0010	0.0000	0.0001	0.2515
JPY						
α'	0.0001	−0.0003	−0.0011	−0.0037	−0.0065	−0.0117
se(α')	(0.0003)	(0.0009)	(0.0027)	(0.0071)	(0.0227)	(0.0465)
β'	0.9237***	0.8238***	0.4083*	0.7152**	1.0602***	0.9134***
se(β')	(0.0877)	(0.1519)	(0.2271)	(0.2893)	(0.2707)	(0.1968)
$t[\beta' = 1]$	[-0.87]	[-1.16]	[-2.61]	[-0.98]	[0.22]	[-0.44]
R^2	0.1974	0.1913	0.0168	0.0493	0.3368	0.6157

Table A.15: Ability to Predict Excess Returns: Sample until December 2006

The table reports results related to the predictive ability of the model as compared to the UIP and RW benchmarks. Hit-ratios (HR) are calculated as the proportion of times the sign of the excess return is correctly predicted by the model. $R2 = 1 - MSE_M/MSE_B$ where MSE_M denotes the mean squared prediction error of the model and MSE_B that of the benchmark. CW and GW denote the test-statistics of Clark and West (2007) and Giacomini and White (2006) as described in Section *3.3*. The one-sided p-values of the test-statistics in square brackets are obtained from the block bootstrap procedure described in Appendix F which accounts for autocorrelation and heteroscedasticity. The results are based on non-overlapping observations for horizons up to 1 month and on monthly frequency for horizons of 3 months and beyond. The sample periods are October 12, 1994 to December 29, 2006 for AUD; June 1, 1993 to December 29, 2006 for CAD; and September 18, 1989 to December 29, 2006 for CHF, DEM-EUR, GBP, and JPY.

	Model vs. UIP						Model vs. RW					
	1d	1w	1m	3m	1y	4y	1d	1w	1m	3m	1y	4y
AUD												
HR	0.5238	0.5507	0.6162	0.7475	0.8485	0.5960	0.5238	0.5507	0.6162	0.7475	0.8485	0.5960
$R2$	0.0013	0.0069	0.0270	0.2459	0.7207	0.2974	0.0006	0.0030	0.0092	0.1990	0.6763	0.2917
p-value[CW]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[0.026]	[0.014]	[<0.01]	[0.019]	[<0.01]	[<0.01]	[0.014]
p-value[GW]	[0.218]	[0.186]	[0.154]	[<0.01]	[<0.01]	[<0.01]	[0.249]	[0.216]	[0.192]	[0.010]	[<0.01]	[<0.01]
CAD												
HR	0.5386	0.5406	0.5478	0.5652	0.7217	0.5652	0.5386	0.5406	0.5478	0.5652	0.7217	0.5652
$R2$	0.0014	0.0085	0.0411	0.1299	0.5220	0.4878	0.0004	0.0036	0.0240	0.0704	0.4153	0.4690
p-value[CW]	[0.026]	[0.024]	[0.021]	[<0.01]	[<0.01]	[0.014]	[0.160]	[0.133]	[0.080]	[0.015]	[<0.01]	[0.026]
p-value[GW]	[0.028]	[0.192]	[0.123]	[0.021]	[0.034]	[<0.01]	[0.048]	[0.218]	[0.224]	[0.040]	[0.075]	[<0.01]
CHF												
HR	0.5279	0.5387	0.5786	0.6352	0.7736	0.7421	0.5279	0.5387	0.5786	0.6352	0.7736	0.7421
$R2$	0.0038	0.0171	0.0269	0.0868	0.2423	0.3527	0.0030	0.0134	0.0106	0.0484	0.1366	0.2113
p-value[CW]	[<0.01]	[<0.01]	[0.029]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[0.157]	[0.042]	[<0.01]	[<0.01]
p-value[GW]	[0.068]	[0.135]	[0.168]	[0.045]	[0.025]	[<0.01]	[0.128]	[0.261]	[0.303]	[0.084]	[0.074]	[<0.01]
DEM-EUR												
HR	0.5371	0.5516	0.5535	0.6289	0.7799	0.7547	0.5371	0.5516	0.5535	0.6289	0.7799	0.7547
$R2$	0.0033	0.0086	0.0324	0.0901	0.2765	0.2477	0.0027	0.0058	0.0189	0.0526	0.1581	0.1367
p-value[CW]	[<0.01]	[<0.01]	[0.012]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[0.022]	[0.033]	[0.013]	[<0.01]	[<0.01]
p-value[GW]	[0.149]	[0.070]	[0.098]	[0.019]	[0.017]	[<0.01]	[0.093]	[0.044]	[0.121]	[0.024]	[0.048]	[<0.01]
GBP												
HR	0.5085	0.5201	0.5283	0.5535	0.5283	0.6289	0.5085	0.5201	0.5283	0.5535	0.5283	0.6289
$R2$	0.0020	0.0026	0.0073	0.0145	0.0476	0.4256	0.0016	0.0006	-0.0018	-0.0068	-0.0104	0.4598
p-value[CW]	[0.946]	[0.573]	[0.403]	[0.175]	[0.172]	[<0.01]	[0.746]	[0.340]	[0.319]	[0.205]	[0.037]	[<0.01]
p-value[GW]	[0.050]	[0.504]	[0.382]	[0.248]	[0.201]	[<0.01]	[0.070]	[0.451]	[0.425]	[0.283]	[0.147]	[<0.01]
JPY												
HR	0.6371	0.6418	0.5409	0.6541	0.7736	0.9371	0.6371	0.6418	0.5409	0.6541	0.7736	0.9371
$R2$	0.1974	0.1915	0.0181	0.0529	0.3430	0.6690	0.1966	0.1881	-0.0020	0.0026	0.1879	0.4923
p-value[CW]	[<0.01]	[<0.01]	[0.080]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[<0.01]	[0.208]	[0.071]	[<0.01]	[0.011]
p-value[GW]	[<0.01]	[<0.01]	[0.250]	[0.111]	[0.012]	[<0.01]	[<0.01]	[<0.01]	[0.487]	[0.206]	[0.019]	[<0.01]