Online Appendix to:

Treasury Rates No Longer Predict Returns: A Reappraisal of Breen, Glosten and Jagannathan (1989)

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This appendix contains supplemental material to the paper. In several places, the paper refers to results that are 'tabulated in an online appendix.' This document tabulates all such supplemental results and provides a concise summary of the key takeaways. The appendix also provides an overview of the Matlab code and Excel data files to guide a reader wishing to run our code for themselves. All data and code is available in an accompanying ZIP file.

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Overview of Appendix Contents

Breen, Glosten, and Jagannathan (1989, hereafter BGJ) study predictable variation in both value- and equal-weighted indexes of NYSE stocks. However, their findings in support of economically significant predictability are confined to the value-weighted index. For this reason, the main analysis in our paper focuses on the value-weighted index. For completeness, this appendix tabulates our replication of BGJ's **equal-weighted** results and associated extension to the 1987 to 2018 out-of-sample period. It also tabulates full details of our application of BGJ's methodology to G7 and G20 countries.

Finally, this appendix provides an overview of the Matlab code and Excel data files that will (hopefully) assist an interested reader to run our code for themselves. A ZIP file is available that contains all Matlab m-files, key data for this study and printouts of the results of the main analysis.

Table A1 Summary Statistics

Table A1 presents summary statistics for the equal-weighted index of NYSE-only stocks. As was the case with the value-weighted market index, a comparison of the 'BGJ' the 'Replication' panels demonstrates that we are able to almost perfectly replicate BGJ's summary statistics. As such, we can proceed with confidence that we are utilizing the same data for the equal-weighted predictability analysis.

Table A2 Regression Estimates

Table A2 reports estimates of predictive model (1). Comparing the BGJ and Replication panels, our estimates of model parameters (β_0, β_1), T-statistics and R^2 are again extremely close. There is a strong overall negative relation between Treasury bill returns and one-month-ahead excess returns on the equal-weighted index, but particularly so in the first subperiod.

Over the 1987 to 2018 Update period, the significance of the negative relation dissipates ($\beta_1 = -1.75, \mathrm{T} = -1.40$). Curiously, each subperiod shows some statistical evidence of a negative regression slope. However, as we see next, this does not translate into economically meaningful predictive ability.

Table A3 Returns to Managed Portfolio

Table A3 allows an assessment of whether predictive model (1) facilitates a trading strategy that significantly outperforms a buy-and-hold market investment. Over the in-sample period, BGJ's model forecasted 120 down markets (273 up markets), of which 53 (161) proved to be correct. Our replication forecasts 122 down markets (271 up markets), of which 54 (159) prove to be correct. As such, we are able to replicate the original findings with the exception of two months (both of which occurred during the first subperiod). Our summary statistics for returns to the managed portfolio also closely match BGJ, the only exception being the first-order autocorrelation across the full in-sample period.[1]

Over the 1987 to 2018 Update period, and despite some statistical evidence of a negative relation between Treasury bill returns and the equal-weighted market (see Table A2), trading on the signals from the predictive model does not generate superior performance. Across 1987 to 2018, Table A1 reports that a buy-and-hold market investment in the equal-weighted market index averages 0.92% per month. In contrast, the managed portfolio only averages 0.52%. The outcome is similar in each out-of-sample subperiod, as well as the combined in-sample and out-of-sample period (1954 to 2018).

Table A4 Market Timing Tests

Table A4 assesses the market timing ability of model (1) to predict equal-weighted returns. Comparing the BGJ and Replication panels, there is again a high level of integrity in the original results. Two minor issues were identified. First, Table A4 Panel B consistently reports that, when the model predicts an up market, the volatility of next month's excess market return is lower (that is, $b_1 < 0$). In the second subperiod, BGJ report $b_1 = +21.28$, whereas our estimate is $b_1 = -21.23$. This is almost certainly a typo in the original results. Second, as was the case with the value-weighted results in the main paper, we could only replicate T-statistics in Table A4 Panel D when we use heteroscedasticity-only corrected standard errors (in square brackets).

With regard to the Update analysis over 1987 to 2018, there is virtually no evidence that the predictive model allows timing of investments in the equal-weighted index of NYSE-only stocks. To summarize, BGJ (1989, p.1187) found the inability of model (1) to forecast equal-weighted market returns 'puzzling', given the apparent success of the value-weighted market timing strategy. However, our out-of-sample analysis suggests that the poor predictive ability for equal-weighted returns has been quite consistent across both 1954 to 1986 and 1987 to 2018 periods.

Table A5 Out-of-sample Countries and Data

We further examine the predictive ability of short-term interest rates for future market returns by examining a number of major global markets. To be specific, we examine non-US countries included in the G7 and G20. Table A5 documents the countries examined, the data sources for each and the time horizon studied. All data are sourced from Thomson Reuters Datastream and sampled at monthly frequency. Value-weighted MSCI market returns are available for all but three countries (Brazil, Saudi Arabia and South Africa). Our choice of short rate depends on the series available in each market. Where possible, we choose a 3-month Treasury bill rate. Alternatively, we select a short-term deposit or dealer bill rate. G7 countries have data

[1] BGJ report $\rho(1) = 0.05$ whereas our estimate is $\rho(1) = 0.18$. Given how close all other summary statistics are, it is likely that BGJ's 0.05 is a typo.

available from the mid 1970s, whereas G20 countries tend to have a shorter time series available.

Table A6 Global Evidence of Predictability

As an additional out-of-sample test, we employ the precise empirical methodology of BGJ to assess whether short-term interest rates are economically-meaningful predictors of market returns in other G20 countries. Table A6 collates the key parameters from the various tests.

The mean and standard deviation of the market risk premium (MRP) can be compared to those for the returns to the managed portfolio (MP). Estimated from predictive model (1) using the full time series available, β_1 and R^2 examine the negative relation between the short rate and future excess market returns. α_1 from model (2) assesses whether excess market returns are higher when the predictive model signals an up market. b_1 from model (3) assesses whether the variance of excess market returns is higher when the predictive model signals an up market. c_1 from model (4) assesses whether signals from the predictive model forecast the sign of future excess market returns. α_1 from model (5) is an estimate of the number of call options required for Henriksson and Merton's (1981) value at margin.

In a number of countries, trading based on signals from the predictive model generates average returns that exceed those from a buy-and-hold market investment, and with lower risk (France, Germany, Japan, Australia, Brazil, South Korea, Saudi Arabia, South Africa). However, very few of these countries have a reliably significant negative relation between short-term interest rates and future market returns ($\beta_1 < 0$). Similarly, very few of these countries have evidence that the predictive model has market timing ability ($a_1, c_1, \alpha_1 > 0, b_1 < 0$). As noted in the paper, Table A6 does not engender confidence that there is consistent support for predictability across different metrics and across different countries.

Matlab Code and Data Files

The Excel spreadsheet `NYSE2018.xlsx` contains all requisite data for both the value-weighted analysis which is the focus of the main paper and the equal-weighted analysis in this appendix. Analysis for this paper was conducted in Matlab. For non-Matlab users, the methodology is very straight forward and the code should be relatively easy to follow. We provide a brief summary as follows.

- `BGJ_Table1.m` generates all summary statistics for Table 1 (value weighted) and Table A1 (equal weighted). It compiles summary statistics to replicate BGJ's in-sample period (and subperiods) as well as out out-of-sample extension (and subperiods).
- `BGJ_Table3.m` estimates the in-sample regressions from model (1). Note that, while BGJ report these in their Table 3, we tabulate them in our Table 2. This m-file generates regression estimates to replicate BGJ's in-sample period (and subperiods) as well as out out-of-sample extension (and subperiods).

- `BGJ_Table2.m` estimates the rolling 36-month predictive regressions that generates a series of signals to implement the trading strategy. The m-file saves a mat-file named `signals_CombinedSamples.mat` which is critical to conducting the market timing tests within `BGJ_Table4.m`. `BGJ_Table2.m` generates output to replicate BGJ's in-sample period (and subperiods) as well as out out-of-sample extension (and subperiods). It generates output for both value- and equal-weighted predictive models. Note that, while BGJ report these estimates in their Table 2, we tabulate them in our Table 3.
- `BGJ_Table4_VW.m` conducts all market timing tests for the value-weighted market index. `BGJ_Table4_EW.m` is the analogous code for equal-weighted results (tabulated in appendix Table A4). These m-files generate output to replicate BGJ's in-sample period (and subperiods) as well as our out-of-sample extension (and subperiods).

With respect to the out-of-sample global analysis of G7 and G20 countries, market returns and short rate data for each of the G20 countries are sourced from Thomson Reuters Datastream (see Table A5). We are uncomfortable distributing all of this data. However, the ZIP folder contains a file `Sample_Data_Datastream.xlsx` which provides a sample of the market index and short rate at a single point in time for each G20 country. This will allow an interested reader who is downloading their own Datatstream data to cross reference back to the data we employed.

The ZIP folder also contains a 'placebo' data set and associated code:

- `PlaceboData.xlsx` is a randomized subset of data from an international market.
- `PlaceboData_AllKeyResults.m` is Matlab code that runs all key analysis on the placebo dataset.
- `Placebo_Results.docx` reports results from running `PlaceboData_AllKeyResults.m` on `PlaceboData.xlsx`. This allows an interested reader to confirm that they are running the Matlab code correctly. Further, printout of results for placebo data will also be useful if a reader is tranlsating our Matlab code to a different software language.

Note that some of the above m-files utilize matlab functions drawn from the econometrics toolbox made publicly available by Professor James P Lesage. In particular, we use his functions to estimate OLS regressions, regressions with Newey-West standard errors and regressions with White's heteroscedasticity-corrected standard errors. There are likely to be other m-files that are called from within each of these functions. Rather than trying to ZIP up all files that are called, we suggest that interested readers download the econometrics toolbox for themselves (`https://www.spatial-econometrics.com/`).

The accompanying ZIP file also includes Word docs that contain printouts of all results generated to screen for the main paper. For those not wanting to run the Matlab code for themselves, these docs illustrate the output and can be cross referenced to our tables.

Table A1: Summary Statistics

Description: This table reports summary statistics for monthly returns to the CRSP **equal-weighted** NYSE-only market index, the one-month Treasury bill and the market return in excess of the riskfree rate. The full period spans April 1954 through December 2018, with various subperiods as indicated. The time-series mean and standard deviation of monthly returns is reported, along with the first-order autocorrelation in returns. The BGJ panel displays results copied verbatim from Breen et al. (1989). The Replication panel reflects our attempt to replicate BGJ's findings. The Update panel reports summary statistics for the out-of-sample period.

Interpretation: Comparing the BGJ and Replication panels demonstrates that we have sourced nearly identical data to the original study over the in-sample period. The Update panel shows that the out-of-sample period exhibits qualitatively similar characteristics to the in-sample period, whilst the subperiod breakdown suggests the existence of two distinct interest-rate regimes over which to study predictability.

	BGJ			Replication			Update			
	54:4 to 86:12	54:4 to 70:7	70:8 to 86:12	54:4 to 86:12	54:4 to 70:7	70:8 to 86:12	87:1 to 18:12	87:1 to 07:7	07:8 to 18:12	54:4 to 18:12
	$N = 393$	$N = 196$	$N = 197$	$N = 393$	$N = 196$	$N = 197$	$N = 384$	$N = 247$	$N = 137$	$N = 777$
					Monthly Stock Return (%)					
Mean	1.24	1.05	1.43	1.24	1.05	1.43	0.92	1.09	0.63	1.08
Std dev	5.06	4.27	5.75	5.06	4.28	5.75	4.65	4.18	5.40	4.86
$\rho(1)$	0.12	0.17	0.08	0.12	0.17	0.08	0.22	0.23	0.21	0.16
					Monthly Nominal Interest Rate (%)					
Mean	0.45	0.28	0.63	0.45	0.28	0.63	0.25	0.37	0.05	0.35
Std dev	0.26	0.13	0.24	0.26	0.13	0.24	0.21	0.16	0.08	0.26
$\rho(1)$	0.95	0.93	0.92	0.96	0.94	0.92	0.98	0.95	0.90	0.97
					Monthly Excess Stock Return (%)					
Mean	0.79	0.77	0.80	0.79	0.77	0.80	0.67	0.72	0.58	0.73
Std dev	5.08	4.30	5.77	5.09	4.31	5.77	4.66	4.20	5.41	4.88
Kurtosis	3.07	0.99	3.17	3.04	0.99	3.15	5.42	7.52	3.37	4.06
$\rho(1)$	0.12	0.18	0.09	0.12	0.18	0.09	0.23	0.24	0.21	0.17

Table A2: Regression Estimates

Description: Panel A reports estimates of model (1) which regresses the excess return on the CRSP **equal-weighted** index of NYSE-only stocks on the Treasury bill rate. Panel B reports estimates where the squared error term from model (1) are regressed on the Treasury bill return. T-statistics that correct for heteroscedasticity and autocorrelation are reported in parentheses. Heteroscedasticity-corrected T-statistics are reported in square brackets. The BGJ panel displays results copied verbatim from Breen et al. (1989). The Replication panel reflects our attempt to replicate BGJ's estimates. The Update panel reports new regression estimates for the out-of-sample period.

Interpretation: A comparison of the BGJ and Replication panels demonstrates that the original regression estimates can be nearly perfectly replicated. The Update panel provides some evidence of a negative relation between Treasury bill returns and future excess market returns within each subperiod. However, across the entire 1987 to 2018 out-of-sample period, it is not statistically significant.

	BGJ			Replication			Update			
	54:4 to 86:12	54:4 to 70:7	70:8 to 86:12	54:4 to 86:12	54:4 to 70:7	70:8 to 86:12	87:1 to 18:12	87:1 to 07:7	07:8 to 18:12	54:4 to 18:12
	Panel A: $x_t = \beta_0 + \beta_1 r_{ft} + \varepsilon_t$									
β_0	1.78	3.10	2.50	1.77	3.05	2.55	1.12	1.95	1.20	1.31
	(4.18)	(4.59)	(2.47)	(4.15)	(4.46)	(2.50)	(2.71)	(2.98)	(2.33)	(4.44)
β_1	−2.19	−8.42	−2.72	−2.18	−8.24	−2.79	−1.75	−3.33	−13.24	−1.63
	(−2.31)	(−3.23)	(−1.80)	(−2.29)	(−3.11)	(−1.83)	(−1.40)	(−1.84)	(−2.72)	(−2.18)
R^2	0.01	0.06	0.01	0.01	0.06	0.01	0.00	0.01	0.03	0.01
	Panel B: $\varepsilon_t^2 = \gamma_0 + \gamma_1 r_{ft} + \xi_t$									
γ_0	12.17	2.14	28.80	12.14	1.93	28.70	23.68	5.85	28.62	18.00
	(2.12)	(0.49)	(2.02)	(2.34)	(0.41)	(2.39)	(2.51)	(0.69)	(2.66)	(3.00)
	[3.84]	[0.50]	[2.89]	[3.82]	[0.44]	[2.87]	[4.72]	[0.79]	[4.95]	[5.81]
γ_1	29.36	54.31	6.17	29.53	55.66	6.32	−8.30	30.87	−13.78	15.80
	(1.77)	(4.33)	(0.37)	(2.09)	(3.90)	(0.40)	(−0.33)	(1.11)	(−0.35)	(1.19)
	[3.47]	[3.06]	[0.50]	[3.46]	[3.09]	[0.51]	[−0.46]	[1.18]	[−0.37]	[1.87]
R^2	0.02	0.05	0.00	0.02	0.05	0.00	0.00	0.01	0.01	0.00

Table A3: Summary Statistics for Managed Portfolio

Description: This table reports summary statistics for monthly returns to the managed portfolio. At the end of each month, model (1) is fit using the a rolling window of 36 months prior data. The parameter estimates and the current riskfree rate generate a forecast of the one-month-ahead excess **equal-weighted** market return. The managed fund is a trading strategy that fully invests funds in either the market portfolio (if the forecast is positive) or Treasury bills (if the forecast is negative). The time-series mean and standard deviation of monthly returns is reported, along with the first-order autocorrelation in returns. The BGJ panel displays results copied verbatim from Breen et al. (1989). The Replication panel reflects our attempt to replicate BGJ's findings. The Update panel reports summary statistics for the out-of-sample period.

Interpretation: A comparison of the BGJ and Replication panels demonstrates that the original in-sample performance of the managed portfolio can be nearly perfectly replicated. Across 393 month, our replication differs in just two months. Comparing the summary statistics in the Update panel to those in Table A1 for a buy-and-hold market investment suggests that the predictability is not economically significant out of sample.

	BGJ			Replication			Update			
	54:4 to 86:12	54:4 to 70:7	70:8 to 86:12	54:4 to 86:12	54:4 to 70:7	70:8 to 86:12	87:1 to 18:12	87:1 to 07:7	07:8 to 18:12	54:1 to 18:12
	$N = 393$	$N = 196$	$N = 197$	$N = 393$	$N = 196$	$N = 197$	$N = 384$	$N = 247$	$N = 137$	$N = 777$
Monthly Excess Return on the Managed Portfolio (%)										
Mean	0.64	0.69	0.59	0.64	0.69	0.59	0.52	0.49	0.58	0.58
Std dev	3.91	3.18	4.52	3.91	3.18	4.52	3.67	3.67	3.68	3.79
$\rho(1)$	0.05	0.21	0.15	0.18	0.22	0.15	0.13	0.25	-0.09	0.15
Forecasted Down Markets										
N	120	68	52	122	70	52	86	65	21	208
Correct forecasts	53	28	25	54	29	25	34	25	9	88
Forecasted Up Markets										
N	273	128	145	271	126	145	298	182	116	569
Correct forecasts	161	84	77	159	82	77	185	115	70	344

Table A4: Market Timing Tests

Description: This table reports assorted tests of the market timing ability of the predictive model (1) for **equal-weighted** excess market returns. Panel A and Panel B are Cumby and Modest (1987)-style tests of whether the model is useful in predicting the first and second moments of the return distribution respectively. Panel C assesses whether the model predicts the one-month ahead sign of the market return. Panel D relates to estimating Henriksson and Merton's (1981) value at margin. The BGJ panel displays results copied verbatim from Breen et al. (1989). The Replication panel reflects our attempt to replicate BGJ's findings. The Update panel reports our estimates for the out-of-sample period.

Interpretation: A comparison of the BGJ and Replication panels demonstrates that our in-sample replication of market timing tests are extremely close but not identical to the original estimates. The Update panel suggests that the predictive model has no market timing ability over the out-of sample period, other than to forecast the variance of excess **equal-weighted** market returns.

	BGJ			Replication			Update			
	54:4 to 86:12	54:4 to 70:7	70:8 to 86:12	54:4 to 86:12	54:4 to 70:7	70:8 to 86:12	87:1 to 18:12	87:1 to 07:7	07:8 to 18:12	54:4 to 18:12
					Panel A: $x_{t+1} = a_0 + a_1 I_t + \nu_{t+1}$					
a_0	0.41	0.22	0.78	0.48	0.24	0.79	0.66	0.86	0.04	0.55
	(0.86)	(0.37)	(0.81)	(0.97)	(0.39)	(0.90)	(1.03)	(1.41)	(0.02)	(1.40)
a_1	0.46	0.84	0.02	0.45	0.82	0.01	0.01	−0.20	0.65	0.24
	(0.76)	(1.22)	(0.02)	(0.81)	(1.07)	(0.01)	(0.02)	(−0.25)	(0.33)	(0.55)
					Panel B: $\nu_{t+1}^2 = b_0 + b_1 I_t + \eta_{t+1}$					
b_0	35.09	24.50	48.77	34.56	23.91	48.73	37.28	16.14	102.19	35.69
	(3.42)	(3.54)	(3.16)	(3.73)	(3.79)	(3.02)	(2.35)	(4.11)	(4.37)	(4.19)
	[4.56]	[5.16]	[3.13]	[4.70]	[5.16]	[3.14]	[4.31]	[5.31]	[3.43]	[6.39]
b_1	−13.46	−9.53	21.28	−12.76	−8.70	−21.23	−20.08	1.95	−86.39	−16.29
	(−1.56)	(−1.42)	(−1.69)	(−1.44)	(−1.28)	(−1.27)	(−1.26)	(0.34)	(−3.72)	(−1.92)
	[−1.70]	[−1.80]	[−1.31]	[−1.63]	[−1.68]	[−1.32]	[−2.20]	[0.36]	[−2.89]	[−2.75]
					Panel C: $y_{t+1} = c_0 + c_1 I_t + \omega_{t+1}$					
c_0	0.56	0.59	0.52	0.56	0.59	0.52	0.60	0.62	0.57	0.58
	(12.32)	(0.86)	(7.49)	(11.47)	(10.07)	(6.71)	(12.61)	(10.56)	(5.76)	(16.43)
c_1	0.03	0.06	0.01	0.03	0.07	0.01	0.02	0.02	0.03	0.03
	(0.51)	(0.82)	(0.15)	(0.52)	(0.79)	(0.15)	(0.26)	(0.20)	(0.31)	(0.64)
					Panel D: $I_{t-1} = \alpha_0 + \alpha_1 y_t + \eta_t$					
α_0	0.68	0.62	0.73	0.67	0.60	0.73	0.77	0.73	0.84	0.72
	(18.81)	(10.83)	(15.90)	(9.76)	(6.64)	(7.83)	(11.21)	(8.33)	(8.96)	(14.47)
				[18.56]	[10.52]	[15.90]	[22.10]	[15.70]	[16.77]	[28.29]
α_1	0.02	0.06	0.01	0.03	0.06	0.01	0.01	0.01	0.02	0.02
	(0.51)	(0.82)	(0.15)	(0.51)	(0.78)	(0.15)	(0.26)	(0.20)	(0.31)	(0.64)
				[0.54]	[0.90]	[0.15]	[0.27]	[0.23]	[0.27]	[0.69]
VaM	0.48	1.23	0.28	0.72	1.23	0.27	0.23	0.41	0.52	0.47

Table A5: Out-of-Sample Countries and Data

Description: The table summarizes the data used for robustness analysis in non-US markets. Panel A (Panel B) lists the non-US countries included in the G7 (G20). All data are obtained from Thomson Reuters Datastream and sampled at monthly frequency. To maintain consistency across countries, we employ the MSCI total return index where available (the exceptions being Brazil, Saudi Arabia and South Africa). The choice of short-term interest rate depends on the series available for each market. The sample period studied and total number of monthly observations is shown for each country.

Country	Market index	Short-term interest rate	Sample period	Obs
		Panel A: G7 Countries		
Canada	MSCI	3-mth T-Bill	1975:01-2019:01	529
France	MSCI	3-mth T-Bill	1975:01-2019:01	529
Germany	MSCI	Financial Times short-term deposit rate	1975:01-2019:01	529
Italy	MSCI	Financial Times 3-mth short-term deposit rate	1978:06-2019:01	488
Japan	MSCI	3-mth T-Bill	1978:08-2019:01	486
UK	MSCI	Financial Times 1-mth short-term deposit rate	1975:01-2019:01	529
		Panel B: G20 Countries		
Argentina	MSCI	Argentina 1-mth interbank rate	1991:04-2019:01	334
Australia	MSCI	3-mth dealer bill	1976:01-2019:01	517
Brazil	FTSE	IMF 3-mth T-Bill benchmark rate	1995:01-2019:01	289
China	MSCI	3-mth deposit rate	1993:05-2019:01	309
India	MSCI	Indian Govt 3-mth benchmark rate to 2007; 3-mth T-Bill after 2007	2001:09-2019:01	209
Indonesia	MSCI	3-mth deposit rate	1995:06-2019:01	284
Korea	MSCI	3-mth deposit rate	1992:01-2019:01	325
Mexico	MSCI	3-mth deposit rate	1994:10-2019:01	292
Russia	MSCI	1-mth deposit rate	2007:10-2019:01	136
Saudi Arabia	S&P	TR Saudi Riyal 2-mth deposit rate	1998:01-2019:01	253
South Africa	FTSE	South Africa 91-Day T-Bill	1986:01-2019:01	396
Turkey	MSCI	Turkey 1-mth deposit rate	1995:01-2019:01	278

Table A6: Summary of Global Predictability Evidence

Description: This table reports key estimates that assess the ability of short-term interest rates to predict one-month-ahead excess market returns in G7 and G20 countries. The market risk premium(MRP and its standard deviation can be compared to the mean and standard deviation of returns to the managed portfolio (MP). β_1 and R^2 are estimated using predictive model (1) using the full time series available. α_1 from model (2) assesses whether excess market returns are higher when the predictive model signals an up market. b_1 from model 3) assesses whether the variance of excess market returns is higher when the predictive model signals an up market. c_1 from model (4) assesses whether signals from the predictive model forecast the sign of future excess market returns. α_1 from model (5) is an estimate of the number of call options to enter to calculate Henriksson and Merton's (1981) value at margin. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels respectively.

Interpretation: In a number of countries, trading based on signals from the predictive model generates average returns that exceed those form a buy-and-hold market investment, and with lower risk (France, Germany, Japan, Australia, Brazil, South Korea, Saudi Arabia, South Africa). However, very few of these countries have a reliably significant negative relation between short-term interest rates and future market returns ($\beta_1 < 0$). Similarly, very few of these countries have evidence that the predictive model has market timing ability ($a_1, c_1, \alpha_1 > 0, b_1 < 0$).

	MRP	std	MP	std	β_1	R^2	a_1	b_1	c_1	α_1	VaM
Panel A: G7 Countries											
Canada	0.44	4.60	0.40	3.76	−1.18*	0.01	0.35	−8.23	0.06	0.04	0.88
France	0.58	5.67	0.62	4.35	−0.52	0.00	0.94	−9.10	0.06	0.05	1.35
Germany	0.33	5.61	0.35	4.58	−1.15	0.00	0.63	−4.99	0.08*	0.07*	1.91
Italy	0.44	6.75	0.20	5.57	0.24	0.00	0.17	−1.93	0.04	0.03	0.96
Japan	0.35	5.33	0.46	4.10	−0.51	0.00	1.19*	−18.23**	0.12**	0.10**	2.56
UK	0.64	5.32	0.38	3.97	0.35	0.00	0.11	−6.34	0.04	0.02	0.49
Panel B: G20 Countries											
Argentina	0.76	12.74	0.34	8.02	−1.45***	0.02	0.26	−78.35*	0.03	0.03	1.72
Australia	0.44	4.90	0.46	4.08	−0.54	0.00	0.67	−0.52	0.12**	0.11**	2.68
Brazil	0.25	7.75	0.26	5.52	−0.19	0.00	0.40	−9.77	0.06	0.06	2.29
China	0.30	9.53	0.14	5.99	−5.38	0.01	−0.57	−61.98	−0.04	−0.04	−1.80
India	0.88	6.60	0.83	5.49	−12.56***	0.05	1.41*	14.67	0.12	0.12	3.77
Indonesia	0.57	9.03	0.48	5.71	−1.74	0.02	−0.15	−63.05	0.06	0.06	2.60
South Korea	0.50	8.23	0.63	6.21	−2.23	0.01	1.37	−45.16	0.12**	0.10**	3.80
Mexico	0.37	6.12	0.13	4.68	−0.53	0.00	−0.67	−2.15	−0.06	−0.05	−1.47
Russia	−0.13	7.62	−0.27	3.95	−3.27	0.01	−1.69*	3.87	−0.05	−0.05	−1.90
Saudi Arabia	0.85	7.03	1.12	6.07	−3.56	0.01	2.45	−50.09**	0.12	0.07	2.38
South Africa	0.60	5.63	0.72	4.33	−1.83*	0.01	1.61**	−9.41	0.10	0.08	2.16
Turkey	0.83	12.62	0.50	10.76	0.16	0.00	−0.03	37.88	0.00	0.00	0.00

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