1 Data

The dependent variable is always the equity premium, i.e., the total rate of return on the stock market minus the prevailing short-term interest rate.

- Stock Prices: We use S&P 500 index prices from 1926 to 2005 from CRSP's month-end values. Stock Returns are the continuously compounded returns on the S&P 500 index.

  For yearly and longer data frequencies, we can go back as far as 1871, using data from Robert Shiller's website. For monthly frequency, we can only begin in the CRSP period.

- Risk-free Rate: The risk-free rate for the period 1920 to 2005 is the T-bill rate. Because there was no risk-free short-term debt prior to the 1920's, we had to estimate it. We obtained commercial paper rates for New York City from NBER's Macrohistory data base. These are available for the period 1871 to 1970. We estimated a regression for the period 1920 to 1971, which yielded

$$\text{T-bill Rate} \;=\; -0.004 \;+\; 0.886 \times \text{Commercial Paper Rate} \qquad . \tag{1}$$

  with an R^2 of 95.7%. Therefore, we instrumented the risk-free rate for the period 1871 to 1919 with the predicted regression equation. The correlation for the period 1920 to 1971 between the equity premium computed using the T-bill rate and that computed using the predicted commercial paper rate is 99.8%.

The equity premium had a mean of 4.77%, median of 6.51%, and standard deviation of 17.88% over the entire sample period of 1872 to 2005. The equity premium is 5.99% (standard deviation of 19.31%) from 1927–2005, 6.35% (standard deviation of 15.89%) from 1947–2005, and 3.89% (standard deviation of 15.92%) from 1965–2005.

Our first set of independent variables relate primarily to characteristics of stocks:

- Dividends: Dividends are twelve-month moving sums of dividends paid on the S&P 500 index. They are from Robert Shiller's website for the period 1871 to 1970. Dividends from 1971 to 2005 are from S&P Corporation.

  The **Dividend Price Ratio** (**d/p**) is the difference between the log of dividends and the log of prices. The **Dividend Yield** (**d/y**) is the difference between the log of dividends and the log of lagged prices.

- Earnings: Earnings are twelve-month moving sums of earnings on the S&P 500 index. These are from Robert Shiller's website for the period 1871 to June 2003. Earnings from June 2003 to December 2005 are our own estimates based on interpolation of quarterly earnings provided by S&P Corporation.

  The **Earnings Price Ratio** (**e/p**) is the difference between log of earnings and log of prices. **Dividend Payout Ratio** (**d/e**) is the difference between log of dividends and log of earnings.

- Stock Variance (**svar**): Stock Variance is computed as sum of squared daily returns on S&P 500. Daily returns for 1871 to 1926 are obtained from Bill Schwert while daily returns from 1926 to 2005 are obtained from CRSP.

- Cross-Sectional Premium (**csp**): The cross-sectional beta premium measures the relative valuations of high- and low-beta stocks. We obtained this variable directly from Sam Thompson. This variable is available from May 1937 to December 2002.

- Book Value: Book values from 1920 to 2005 are from Value Line's website, specifically their *Long-Term Perspective Chart* of the Dow Jones Industrial Average. The **Book to Market Ratio** (**b/m**) is the ratio of book value to market value for the Dow Jones Industrial Average. For the months of March to December, this is computed by dividing book value at the end of previous year by the price at the end of the current month. For the months of January to February, this is computed by dividing book value at the end of 2 years ago by the price at the end of the current month.

- Corporate Issuing Activity: We entertain two measures of corporate issuing activity. **Net Equity Expansion** (**ntis**) is the ratio of twelve-month moving sums of net issues by NYSE listed stocks divided by the total market capitalization of NYSE stocks. This dollar amount of net equity issuing activity (IPOs, SEOs, stock repurchases, less dividends) for NYSE listed stocks is computed from CRSP data as

$$\text{Net Issue}_t \;=\; \text{Mcap}_t - \text{Mcap}_{t-1} \cdot (1 + \text{vwretx}_t)\;, \tag{2}$$

  where Mcap is the total market capitalization, and vwretx is the value weighted return (excluding dividends) on the NYSE index.[1] These data are available from 1926 to 2005. The second measure, **Percent Equity Issuing** (**eqis**), is the ratio of equity issuing activity as a fraction of total issuing activity. This is the variable proposed in Baker and Wurgler (2000). The authors provided us with the data, except for 2005, which we added ourselves. The first equity issuing measure is relative to aggregate market cap, while the second is relative to aggregate corporate issuing.

Our next set of independent variables are interest-rate related:

- Treasury Bills (**tbl**): T-bill rates from 1920 to 1933 are the *U.S. Yields On Short-Term United States Securities, Three-Six Month Treasury Notes and Certificates, Three Month Treasury* series from NBER's Macrohistory data base. T-bill rates from 1934 to 2005 are the *3-Month Treasury Bill: Secondary Market Rate* from the economic research database at Federal Reserve Bank at St. Louis (FRED).

- Long Term Yield (**lty**): Long-term government bond yields for the period 1919 to 1925 is the *U.S. Yield On Long-Term United States Bonds* series from NBER's Macrohistory database. Yields from 1926 to 2005 are from Ibbotson's Stocks, Bonds, Bills and Inflation Yearbook.

  Long Term Rate of Return (**ltr**): Long-term government bond returns for the period 1926 to 2005 are from Ibbotson's Stocks, Bonds, Bills and Inflation Yearbook.

  The **Term Spread** (**tms**) is the difference between the long term yield on government bonds and the T-bill.

[1] This calculation implicitly assumes that the delisting return is –100 percent. Using the actual delisting return, where available, or ignoring delistings altogether, has no impact on our results.

- Corporate Bond Returns: Long-term corporate bond returns for the period 1926 to 2005 are from Ibbotson's Stocks, Bonds, Bills and Inflation Yearbook.

  Corporate Bond Yields: Yields on AAA- and BAA-rated bonds for the period 1919 to 2005 are from FRED.

  The **Default Yield Spread** (**dfy**): is the difference between BAA- and AAA- rated corporate bond *yields*.

  The **Default Return Spread** (**dfr**): is the difference between the return on long-term corporate bonds and returns on the long-term government bonds.

- Inflation (**infl**): Inflation is the *Consumer Price Index (All Urban Consumers)* for the period 1919 to 2005 from the Bureau of Labor Statistics. Because inflation information is released only in the following month, in our monthly regressions, we inserted one month of waiting before use.

The next variable is related to broad macroeconomic activity

- Investment to Capital Ratio (**i/k**): Investment to Capital Ratio is the ratio of aggregate (private nonresidential fixed) investment to aggregate capital for the whole economy. This is the variable proposed in Cochrane (1991), which we obtained directly from the author.

Finally, we also entertain two methods that rely on multiple variables or models (**all** and **ms**), and two models that are themselves rolling in their independent variable construction (**cay** and **ms**).

- A "Kitchen Sink" Regression, named "**all**," which includes all the aforementioned variables. (It does not include **cay**, described below.) We do not report coefficients, just prediction statistics. Consequently, even perfect multicollinearity does not change our results—redundant variables can simply be deleted.

- A model selection approach, named "**ms**." If there are K variables, we consider 2^K models essentially consisting of all possible combinations of variables. Every period, we select one of these models that gives the minimum cumulative prediction errors up to that time period t. This method is based on Rissanen (1986) and is recommended by Bossaerts and Hillion (1999). Essentially, this method uses our criterion of minimum OOS prediction errors to choose amongst competing models *in each time period* t. This is also similar in spirit to the use of more conventional criteria (like R^2) in Pesaran and Timmerman (1995), who however do not entertain our NULL hypothesis.

- Consumption, wealth, income ratio (**cay**) is suggested in Lettau and Ludvigson (2001). Data for its construction is available from Martin Lettau's website at quarterly frequency from the second quarter of 1952 to the fourth quarter of 2005. Although annual data from 1948 to 2001 is also available from Martin Lettau's website, we reconstruct the data following their procedure as this allows us to expand the time-series from 1945 to 2005 (an addition of 7 observations). Lettau-Ludvigson estimate the following equation:

$$c_t = \alpha + \beta_w\, w_t + \beta_y\, y_t + \sum_{i=-k}^{k} b_{w,i}\Delta w_{t-i} + \sum_{i=-k}^{k} b_{y,i}\Delta y_{t-i} + \epsilon_t, \quad t = k+1, \ldots, T-k, \qquad (3)$$

where c is the aggregate consumption, w is the aggregate wealth, and y is the aggregate income. The estimates of the above equation provide **cay** $\equiv \widehat{cay}_t = c_t - \hat{\beta}_a\, a_t - \hat{\beta}_y\, y_t, \quad t = 1, \ldots, T$. Eight leads/lags are used in quarterly estimation ($k = 8$) while two lags are used in annual estimation ($k = 2$). (For further details, see Lettau and Ludvigson (2001).)

Because the Lettau-Ludvigson measure of **cay** is constructed using look-ahead (*in-sample* regression coefficients), we created an equivalent measure that uses only prevailing data. In other words, if the current time period is 's', then we estimated equation (3) using only the data up to 's' through

$$c_t = \alpha + \beta_w^s\, w_t + \beta_y^s\, y_t + \sum_{i=-k}^{k} b_{w,i}^s \Delta w_{t-i} + \sum_{i=-k}^{k} b_{y,i}^s \Delta y_{t-i} + \epsilon_t, \quad t = k+1, \ldots, s-k, \quad (4)$$

where the superscript on betas indicates that these are rolling estimates. This measure is called **caya** ("ante") to distinguish it from the traditional variable **cayp** constructed with look-ahead bias ("post").

The latter two models change every period, which renders an in-sample regression problematic. (We would not want to use the final models, and project them backwards as if they were static.) This is also why we did not include **caya** in the kitchen sink specification.

2 Empirical Procedure

All regressions are estimated using OLS. The in-sample significance of a regression is determined using the F-statistic, critical values of which are estimated using the bootstrap procedure described below. The OOS forecast uses only the data available up to the time at which the forecast is made. Let e_{N} denote the vector of rolling OOS errors from the historical mean model and e_{A} denote the vector of rolling OOS errors from the OLS model. Define $d_t = e_{\mathsf{N}t} - e_{\mathsf{A}t}$, and $\overline{d} = T^{-1} \cdot \sum_t^T d_t = \mathrm{MSE}_{\mathsf{N}} - \mathrm{MSE}_{\mathsf{A}}$ over the entire OOS period. Then, our OOS statistics are computed as

$$\begin{aligned}
R^2 &= 1 - \frac{\mathrm{MSE}_{\mathsf{A}}}{\mathrm{MSE}_{\mathsf{N}}} \quad , \\
\Delta\mathrm{MAE} &= \frac{1}{T}\sum_{t=1}^{T} \left(|e_{\mathsf{N}t}| - |e_{\mathsf{A}t}|\right) \quad , \\
\Delta\mathrm{RMSE} &= \sqrt{\mathrm{MSE}_{\mathsf{N}}} - \sqrt{\mathrm{MSE}_{\mathsf{A}}} \quad , \\
\text{MSE-T} &= \sqrt{T+1-2\cdot h + h\cdot(h-1)/T} \cdot \left[\frac{\overline{d}}{\widehat{se}\left(\overline{d}\right)}\right] \quad , \\
\text{MSE-F} &= (T-h+1) \times \left(\frac{\mathrm{MSE}_{\mathsf{N}} - \mathrm{MSE}_{\mathsf{A}}}{\mathrm{MSE}_{\mathsf{A}}}\right) \quad , \\
\mathrm{ENC} &= \frac{T-h+1}{T}\, \frac{\sum_{t=1}^{T}\left(e_{\mathsf{N}t}^2 - e_{\mathsf{N}t}\cdot e_{\mathsf{A}t}\right)}{\mathrm{MSE}_{\mathsf{A}}} \quad , \qquad (5)
\end{aligned}$$

where T is the total number of forecast observations and h is the overlap degree ($h = 1$ for no overlap).

MSE-T is the Diebold and Mariano (1995) T-statistic modified by Harvey et al. (1997), and MSE-F is F-statistic by McCracken (2004). Both the MSE-T and MSE-F statistics test for equal MSE of the unconditional forecast and the conditional forecast (i.e., ΔMSE = 0). ENC is the statistic proposed by Clark and McCracken (2001) for an encompassing forecast test. Clark and McCracken show that all these statistics follow non-standard distributions when testing nested models. The reason for this is that under the null, the asymptotic difference in squared forecast errors is exactly 0 with 0 variance. This renders the standard distributions asymptotically valid. Because our models are nested, we could use asymptotic critical values for MSE tests provided by McCracken, and asymptotic critical values for ENC tests provided by Clark and McCracken. To account for small-sample issues and to calculate critical values for the 5-year overlapping observations (for which asymptotic critical values are not available), we actually calculate critcal values using the bootstrap procedure described below (critical values for **caya** and **all** models are not calculated using bootstrap, critical values for **ms** model are not calculated at all). The NULL hypothesis is that the unconditional forecast is not inferior to the conditional forecast, so our critical values are for a one-sided test.[2]

Our bootstrap procedure follows Mark (1995) and Kilian (1999) and imposes the NULL of no predictability for calculating the critical values. In other words, the data generating process is assumed to be

$$\begin{aligned} y_{t+1} &= \alpha + u_{1t+1} \\ x_{t+1} &= \mu + \rho \cdot x_t + u_{2t+1} \end{aligned} \quad .$$

The bootstrap procedure for calculating the power assumes the data generating process is

$$\begin{aligned} y_{t+1} &= \alpha + \beta \cdot x_t + u_{1t+1} \\ x_{t+1} &= \mu + \rho \cdot x_t + u_{2t+1} \end{aligned} \quad .$$

These equations are estimated by OLS using the full sample of observations, with the residuals stored for sampling. We then generate 10,000 bootstrapped time series by drawing with replacement from the residuals. The initial observation—preceding the sample of data used to estimate the models—is selected by picking one date from one actual data at random. This bootstrap procedure not only preserves the autocorrelation structure of the predictor variable, thereby adjusting for the Stambaugh (1999) effect, but also preserves the cross-correlation structure of the two residuals.

[2]If the regression coefficient β is small (so that explanatory power is low or in-sample R^2 is low), it may happen that our unconditional model outperforms on OOS because of estimation error in rolling estimates of β. In this case, ΔRMSE might be negative but still significant *because these tests are ultimately tests of whether β is equal to zero.*

List of Tables

Table 1: Forecasts at Monthly Frequency

This table presents statistics on forecast errors (*in-sample* and *out-of-sample*) for excess stock return forecasts at the monthly frequency (both in the forecasting equation and forecast). Variables are explained in Section 1. Stock return is price changes, *excluding* dividends, of S&P500. Panel A uses the full sample period for each variable and constructs first forecast 20 years after the first data observation. Panel B uses the full sample period for each variable and constructs first forecast in January 1965. Panel C uses only the sample period January 1927 to December 2005 and constructs first forecast in January 1965. The data period for **ms** model is January 1927 to December 2005. All numbers, except $\overline{R}^2$ and power, are in percent per month. A star next to IS-$\overline{R}^2$ denotes significance of the in-sample regression (as measured by bootstrapped F-statistic). RMSE is the root mean square error and MAE is the mean absolute error. ΔRMSE (ΔMAE) is the RMSE (MAE) difference between the unconditional forecast and the conditional forecast for the same sample/forecast period (positive numbers signify superior *out-of-sample* conditional forecast). OOS-R^2 is calculated as one minus the ratio of the variance of conditional forecast errors and the variance of the unconditional forecast errors. MSE-T is the Diebold and Mariano (1995) t-statistic modified by Harvey, Leybourne, and Newbold (1998) and MSE-F is F-statistic by McCracken (2004). Both the MSE-T and MSE-F statistics test for equal MSE of the unconditional forecast and the conditional forecast. One-sided critical values of MSE statistics are obtained empirically from bootstrapped distributions, except for **all** model where they are obtained from McCracken (2004) (critical values for **ms** model are not calculated). 'Power' is the power of ΔRMSE and is calculated as the fraction of draws where the simulated ΔRMSE is greater than the empirically calculated 95% critical value and is reported in percent. The two numbers under the power column are power for all simulations and simulations that are found to be in-sample *significant* at the 95% level. Significance levels at 90%, 95%, and 99% are denoted by one, two, and three stars, respectively.

Panel A: Full data, Forecasts begin 20 years after the first sample date

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS ΔMAE	Relative OOS ΔRMSE	Relative OOS MSE-T	Relative OOS MSE-F	Relative OOS Power
d/p	Dividend Price Ratio	187102–200512	–0.06	0.0000	5 (**96**)	–0.07	0.0000	6 (**81**)	–0.57	–0.0061	–0.0125	–0.88	–6.83	5 (**60**)
d/y	Dividend Yield	187102–200512	–0.04	0.0005	9 (**97**)	–0.01	0.0005	10 (**77**)	–0.52	–0.0149	–0.0113	–1.25	–6.20	8 (**71**)
e/p	Earning Price Ratio	187102–200512	0.08	0.0033	37 (**98**)	0.07	0.0033	37 (**86**)	–0.14	–0.0123	–0.0017	–0.28	–0.92	28 (**65**)
d/e	Dividend Payout Ratio	187112–200512	0.17*	0.0056	44 (**99**)	–0.04	0.0056	42 (**84**)	–0.56	0.0005	–0.0123	–0.70	–6.64	40 (**84**)
svar	Stock Variance	188502–200512	–0.05	0.0005	8 (**96**)	–0.06	0.0005	9 (**75**)	–1.45	–0.0036	–0.0353	–0.75	–16.28	8 (**61**)
csp	Cross-Sectional Prem	193705–200212	0.66**	0.0185	66 (**99**)	0.37	0.0185	61 (**84**)	–1.26	–0.0596	–0.0231	–0.76	–5.83	57 (**82**)
b/m	Book to Market	192103–200512	0.15	0.0067	40 (**98**)	–0.25	0.0067	40 (**82**)	–0.90	–0.0376	–0.0159	–0.84	–5.91	33 (**66**)
ntis	Net Equity Expansion	192701–200512	0.70***	0.0225	71 (**99**)	0.18	0.0225	66 (**87**)	0.18	0.0109	0.0067	0.45**	2.30**	63 (**85**)
tbl	T-Bill Rate	192002–200512	0.14	0.0065	27 (**97**)	0.54	0.0065	27 (**79**)	–0.01	0.0042	0.0024	0.13*	0.91**	24 (**78**)
lty	Long Term Yield	191901–200512	–0.00	0.0026	10 (**96**)	0.10	0.0026	11 (**71**)	–0.78	–0.0054	–0.0142	–0.59	–5.22	10 (**73**)
ltr	Long Term Return	192601–200512	0.04	0.0040	22 (**96**)	0.59	0.0040	23 (**75**)	–1.48	–0.0379	–0.0278	–1.99	–9.49	20 (**72**)
tms	Term Spread	192002–200512	0.13	0.0061	32 (**98**)	0.48	0.0061	32 (**80**)	0.16	0.0063	0.0061	0.55**	2.27**	28 (**76**)
dfy	Default Yield Spread	191901–200512	–0.09	0.0002	6 (**94**)	–0.12	0.0002	8 (**73**)	–0.37	–0.0069	–0.0052	–2.11	–1.94	7 (**67**)
dfr	Default Return Spread	192601–200512	–0.01	0.0025	16 (**97**)	–0.23	0.0025	18 (**76**)	–0.62	–0.0068	–0.0100	–1.62	–3.45	14 (**72**)
infl	Inflation	191902–200512	–0.01	0.0023	14 (**96**)	0.26	0.0023	15 (**74**)	–0.14	0.0014	–0.0003	–0.08	–0.13	14 (**72**)
all	Kitchen Sink	192701–200512	1.65***	0.0788	— (—)	1.14	0.0788	— (—)	–13.48	–0.2184	–0.2364	–3.79	–74.25	— (—)
ms	Model Selection	192701–200512	—	—	— (—)	—	—	— (—)	–1.23	–0.0175	–0.0255	–1.15	–8.62	— (—)

Panel B: Full data, Forecasts begin in 196501

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS Performance ΔMAE	Relative OOS Performance ΔRMSE	Relative OOS Performance MSE-T	Relative OOS Performance MSE-F	Relative OOS Performance Power
d/p	Dividend Price Ratio	187102–200512	–0.06	0.0000	5 (**96**)	–0.20	0.0000	11 (**67**)	–0.48	–0.0075	–0.0060	–1.31	–1.35	5 (**51**)
d/y	Dividend Yield	187102–200512	–0.04	0.0005	9 (**97**)	–0.15	0.0005	16 (**58**)	–0.53	–0.0220	–0.0070	–0.83	–1.58	8 (**50**)
e/p	Earning Price Ratio	187102–200512	0.08	0.0033	37 (**98**)	–0.22	0.0033	40 (**68**)	–0.59	–0.0263	–0.0083	–0.60	–1.87	26 (**52**)
d/e	Dividend Payout Ratio	187112–200512	0.17*	0.0056	44 (**99**)	–0.34	0.0056	42 (**69**)	–0.98	–0.0039	–0.0169	–1.13	–3.79	33 (**63**)
svar	Stock Variance	188502–200512	–0.05	0.0005	8 (**96**)	–0.08	0.0005	14 (**57**)	–0.30	–0.0012	–0.0020	–1.39	–0.46	7 (**50**)
csp	Cross-Sectional Prem	193705–200212	0.66**	0.0185	66 (**99**)	0.44	0.0185	59 (**79**)	0.45	0.0059	0.0151	0.58*	3.08**	55 (**78**)
b/m	Book to Market	192103–200512	0.15	0.0067	40 (**98**)	–0.91	0.0067	41 (**73**)	–1.99	–0.0676	–0.0387	–1.48	–8.61	30 (**59**)
ntis	Net Equity Expansion	192701–200512	0.70***	0.0225	71 (**99**)	0.49	0.0225	62 (**78**)	–0.12	0.0039	0.0019	0.10	0.43	57 (**75**)
tbl	T-Bill Rate	192002–200512	0.14	0.0065	27 (**97**)	0.32	0.0065	28 (**69**)	–0.06	0.0090	0.0030	0.10	0.68*	22 (**67**)
lty	Long Term Yield	191901–200512	–0.00	0.0026	10 (**96**)	–0.15	0.0026	14 (**67**)	–0.96	–0.0018	–0.0165	–0.44	–3.70	9 (**65**)
ltr	Long Term Return	192601–200512	0.04	0.0040	22 (**96**)	0.67	0.0040	25 (**67**)	–0.54	–0.0247	–0.0072	–0.45	–1.63	18 (**62**)
tms	Term Spread	192002–200512	0.13	0.0061	32 (**98**)	0.70	0.0061	33 (**69**)	0.26	0.0122	0.0101	0.58*	2.29**	25 (**64**)
dfy	Default Yield Spread	191901–200512	–0.09	0.0002	6 (**94**)	–0.11	0.0002	11 (**60**)	–0.28	–0.0042	–0.0018	–1.13	–0.40	6 (**56**)
dfr	Default Return Spread	192601–200512	–0.01	0.0025	16 (**97**)	–0.13	0.0025	19 (**67**)	–0.34	–0.0022	–0.0029	–0.40	–0.64	13 (**60**)
infl	Inflation	191902–200512	–0.01	0.0023	14 (**96**)	–0.06	0.0023	18 (**65**)	–0.07	0.0043	0.0028	0.50*	0.64	13 (**61**)
all	Kitchen Sink	192701–200512	1.65***	0.0788	— (—)	0.67	0.0788	— (—)	–8.67	–0.1506	–0.1340	–2.09	–28.87	— (—)
ms	Model Selection	192701–200512	—	—	— (—)	—	—	— (—)	–0.22	0.0014	–0.0049	–0.19	–1.09	— (—)

Panel C: Data begin in 192701, Forecasts begin in 196501

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS Performance ΔMAE	Relative OOS Performance ΔRMSE	Relative OOS Performance MSE-T	Relative OOS Performance MSE-F	Relative OOS Performance Power
d/p	Dividend Price Ratio	192701–200512	–0.01	0.0028	19 (**96**)	–0.18	0.0028	22 (**71**)	–0.40	–0.0319	–0.0043	–0.32	–0.98	15 (**54**)
d/y	Dividend Yield	192701–200512	0.06	0.0047	22 (**97**)	–0.22	0.0047	24 (**70**)	–0.61	–0.0464	–0.0089	–0.44	–2.01	19 (**66**)
e/p	Earning Price Ratio	192701–200512	0.28*	0.0108	53 (**98**)	–0.55	0.0108	52 (**78**)	–1.35	–0.0542	–0.0249	–0.93	–5.56	38 (**60**)
d/e	Dividend Payout Ratio	192701–200512	0.04	0.0040	20 (**98**)	–0.32	0.0040	21 (**71**)	–1.82	–0.0246	–0.0350	–2.34	–7.79	17 (**70**)
svar	Stock Variance	192701–200512	–0.07	0.0009	8 (**96**)	–0.06	0.0009	12 (**62**)	–0.31	–0.0011	–0.0022	–1.44	–0.50	8 (**55**)
csp	Cross-Sectional Prem	193705–200212	0.66**	0.0185	66 (**99**)	0.44	0.0185	59 (**79**)	0.45	0.0059	0.0151	0.58*	3.08**	55 (**78**)
b/m	Book to Market	192701–200512	0.17	0.0078	40 (**98**)	–0.98	0.0078	41 (**74**)	–2.39	–0.0800	–0.0473	–1.60	–10.49	30 (**59**)
ntis	Net Equity Expansion	192701–200512	0.70***	0.0225	71 (**99**)	0.49	0.0225	62 (**78**)	–0.12	0.0039	0.0019	0.10	0.43	57 (**75**)
tbl	T-Bill Rate	192701–200512	0.09	0.0054	21 (**98**)	0.30	0.0054	23 (**70**)	–0.18	0.0071	0.0005	0.02	0.12	18 (**68**)
lty	Long Term Yield	192701–200512	–0.03	0.0022	8 (**95**)	–0.15	0.0022	11 (**68**)	–1.00	–0.0026	–0.0173	–0.46	–3.87	8 (**69**)
ltr	Long Term Return	192701–200512	0.04	0.0042	22 (**97**)	0.67	0.0042	25 (**67**)	–0.49	–0.0242	–0.0062	–0.38	–1.40	19 (**62**)
tms	Term Spread	192701–200512	0.08	0.0051	25 (**97**)	0.66	0.0051	27 (**69**)	0.09	0.0105	0.0064	0.43	1.45*	21 (**66**)
dfy	Default Yield Spread	192701–200512	–0.09	0.0004	7 (**95**)	–0.08	0.0004	12 (**65**)	–0.24	–0.0036	–0.0007	–0.38	–0.15	7 (**59**)
dfr	Default Return Spread	192701–200512	–0.02	0.0024	14 (**96**)	–0.13	0.0024	18 (**65**)	–0.33	–0.0021	–0.0028	–0.40	–0.63	13 (**62**)
infl	Inflation	192701–200512	0.02	0.0036	19 (**96**)	–0.01	0.0036	23 (**68**)	–0.03	0.0068	0.0038	0.44	0.86*	17 (**64**)
all	Kitchen Sink	192701–200512	1.65***	0.0788	— (—)	0.67	0.0788	— (—)	–8.67	–0.1506	–0.1340	–2.09	–28.87	— (—)
ms	Model Selection	192701–200512	—	—	— (—)	—	—	— (—)	–0.22	0.0014	–0.0049	–0.19	–1.09	— (—)

Table 2: Forecasts at Monthly Frequency with Total Returns

This table presents statistics on forecast errors (*in-sample* and *out-of-sample*) for excess stock return forecasts at the monthly frequency (both in the forecasting equation and forecast). Variables are explained in Section 1. Stock return is price changes, *including* dividends, of S&P500 calculated using CRSP data. Panel A uses the full sample period for each variable and constructs first forecast 20 years after the first data observation. Panel B uses the full sample period for each variable and constructs first forecast in January 1965. The data period for **ms** model is January 1927 to December 2005. All numbers, except $\overline{R}^2$ and power, are in percent per month. A star next to IS-$\overline{R}^2$ denotes significance of the in-sample regression (as measured by bootstrapped F-statistic). RMSE is the root mean square error and MAE is the mean absolute error. ΔRMSE (ΔMAE) is the RMSE (MAE) difference between the unconditional forecast and the conditional forecast for the same sample/forecast period (positive numbers signify superior *out-of-sample* conditional forecast). OOS-R^2 is calculated as one minus the ratio of the variance of conditional forecast errors and the variance of the unconditional forecast errors. MSE-T is the Diebold and Mariano (1995) t-statistic modified by Harvey, Leybourne, and Newbold (1998) and MSE-F is F-statistic by McCracken (2004). Both the MSE-T and MSE-F statistics test for equal MSE of the unconditional forecast and the conditional forecast. One-sided critical values of MSE statistics are obtained empirically from bootstrapped distributions, except for **all** model where they are obtained from McCracken (2004) (critical values for **ms** model are not calculated). 'Power' is the power of ΔRMSE and is calculated as the fraction of draws where the simulated ΔRMSE is greater than the empirically calculated 95% critical value and is reported in percent. The two numbers under the power column are power for all simulations and simulations that are found to be in-sample *significant* at the 95% level. Significance levels at 90%, 95%, and99% are denoted by one, two, and three stars, respectively.

Panel A: Data begin in 192701, Forecasts begin in 194701

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS ΔMAE	Relative OOS ΔRMSE	Relative OOS MSE-T	Relative OOS MSE-F	Relative OOS Power
d/p	Dividend Price Ratio	192701–200512	0.15	0.0070	39 (**96**)	0.56	0.0070	41 (**82**)	–0.07	–0.0322	0.0015	0.09	0.51	28 (**59**)
d/y	Dividend Yield	192701–200512	0.25*	0.0100	40 (**98**)	0.61	0.0100	38 (**80**)	–0.43	–0.0506	–0.0059	–0.26	–2.02	35 (**79**)
e/p	Earning Price Ratio	192701–200512	0.54**	0.0181	83 (**99**)	0.26	0.0181	79 (**91**)	–1.23	–0.0501	–0.0226	–0.73	–7.64	59 (**68**)
d/e	Dividend Payout Ratio	192701–200512	0.01	0.0032	17 (**98**)	–0.42	0.0032	15 (**68**)	–1.58	–0.0109	–0.0297	–1.60	–10.04	14 (**71**)
svar	Stock Variance	192701–200512	–0.08	0.0006	7 (**96**)	–0.03	0.0006	9 (**72**)	–0.28	–0.0014	–0.0029	–1.86	–0.99	7 (**60**)
csp	Cross-Sectional Prem	193705–200212	0.92***	0.0244	77 (**99**)	0.36	0.0244	71 (**87**)	–0.94	–0.0552	–0.0164	–0.49	–4.13	68 (**85**)
b/m	Book to Market	192701–200512	0.40**	0.0143	67 (**98**)	–0.35	0.0143	65 (**87**)	–1.72	–0.0688	–0.0326	–1.21	–11.00	51 (**69**)
ntis	Net Equity Expansion	192701–200512	0.75***	0.0239	73 (**99**)	0.12	0.0239	68 (**87**)	0.06	0.0085	0.0042	0.26*	1.45**	66 (**86**)
tbl	T-Bill Rate	192701–200512	0.11	0.0060	23 (**98**)	0.67	0.0060	23 (**76**)	–0.13	0.0031	0.0002	0.01*	0.06*	20 (**74**)
lty	Long Term Yield	192701–200512	–0.01	0.0027	9 (**96**)	0.22	0.0027	10 (**70**)	–1.05	–0.0187	–0.0188	–0.58	–6.36	8 (**71**)
ltr	Long Term Return	192701–200512	0.04	0.0041	21 (**96**)	0.55	0.0041	22 (**74**)	–1.12	–0.0363	–0.0201	–1.48	–6.83	19 (**72**)
tms	Term Spread	192701–200512	0.07	0.0050	25 (**98**)	0.45	0.0050	25 (**78**)	0.05	0.0049	0.0040	0.33*	1.35**	22 (**76**)
dfy	Default Yield Spread	192701–200512	–0.07	0.0011	10 (**96**)	–0.05	0.0011	12 (**72**)	–0.26	–0.0049	–0.0024	–0.84	–0.81	9 (**65**)
dfr	Default Return Spread	192701–200512	–0.02	0.0023	14 (**97**)	–0.17	0.0023	16 (**74**)	–0.47	–0.0071	–0.0068	–1.21	–2.31	14 (**74**)
infl	Inflation	192701–200512	–0.00	0.0029	16 (**97**)	0.11	0.0029	18 (**74**)	–0.04	0.0026	0.0021	0.34*	0.70*	15 (**71**)
all	Kitchen Sink	192701–200512	1.98***	0.0881	— (—)	1.50	0.0881	— (—)	–13.71	–0.2251	–0.2406	–3.81	–75.54	— (—)
ms	Model Selection	192701–200512	—	—	— (—)	—	—	— (—)	–2.01	–0.0400	–0.0415	–1.35	–13.96	— (—)

Panel B: Data begin in 192701, Forecasts begin in 196501

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS Performance ΔMAE	Relative OOS Performance ΔRMSE	Relative OOS Performance MSE-T	Relative OOS Performance MSE-F	Relative OOS Performance Power
d/p	Dividend Price Ratio	192701–200512	0.15	0.0070	39 (**96**)	–0.05	0.0070	41 (**75**)	–0.15	–0.0369	0.0013	0.06	0.28	29 (**56**)
d/y	Dividend Yield	192701–200512	0.25*	0.0100	40 (**98**)	–0.09	0.0100	39 (**73**)	–0.39	–0.0538	–0.0041	–0.15	–0.92	34 (**71**)
e/p	Earning Price Ratio	192701–200512	0.54**	0.0181	83 (**99**)	–0.48	0.0181	75 (**85**)	–1.20	–0.0576	–0.0217	–0.66	–4.85	56 (**64**)
d/e	Dividend Payout Ratio	192701–200512	0.01	0.0032	17 (**98**)	–0.30	0.0032	18 (**69**)	–2.01	–0.0291	–0.0392	–2.64	–8.72	15 (**69**)
svar	Stock Variance	192701–200512	–0.08	0.0006	7 (**96**)	–0.08	0.0006	11 (**60**)	–0.34	–0.0014	–0.0029	–1.48	–0.66	7 (**53**)
csp	Cross-Sectional Prem	193705–200212	0.92***	0.0244	77 (**99**)	0.46	0.0244	69 (**83**)	0.71	0.0091	0.0208	0.72**	4.26***	65 (**80**)
b/m	Book to Market	192701–200512	0.40**	0.0143	67 (**98**)	–1.09	0.0143	62 (**80**)	–2.44	–0.0927	–0.0484	–1.39	–10.74	49 (**65**)
ntis	Net Equity Expansion	192701–200512	0.75***	0.0239	73 (**99**)	0.52	0.0239	64 (**79**)	–0.27	0.0001	–0.0015	–0.07	–0.33	59 (**76**)
tbl	T-Bill Rate	192701–200512	0.11	0.0060	23 (**98**)	0.13	0.0060	25 (**71**)	–0.18	0.0105	0.0006	0.02	0.14	19 (**68**)
lty	Long Term Yield	192701–200512	–0.01	0.0027	9 (**96**)	–0.26	0.0027	13 (**69**)	–1.14	–0.0014	–0.0204	–0.49	–4.58	9 (**69**)
ltr	Long Term Return	192701–200512	0.04	0.0041	21 (**96**)	0.66	0.0041	25 (**67**)	–0.48	–0.0274	–0.0061	–0.37	–1.36	18 (**62**)
tms	Term Spread	192701–200512	0.07	0.0050	25 (**98**)	0.60	0.0050	27 (**70**)	0.10	0.0087	0.0065	0.40	1.47*	21 (**66**)
dfy	Default Yield Spread	192701–200512	–0.07	0.0011	10 (**96**)	0.03	0.0011	14 (**67**)	–0.14	–0.0029	0.0014	0.55*	0.31	9 (**60**)
dfr	Default Return Spread	192701–200512	–0.02	0.0023	14 (**97**)	–0.10	0.0023	18 (**65**)	–0.30	–0.0029	–0.0020	–0.30	–0.45	13 (**61**)
infl	Inflation	192701–200512	–0.00	0.0029	16 (**97**)	–0.08	0.0029	20 (**67**)	–0.07	0.0047	0.0030	0.38	0.67	15 (**62**)
all	Kitchen Sink	192701–200512	1.98***	0.0881	— (—)	0.71	0.0881	— (—)	–8.82	–0.1622	–0.1372	–2.12	–29.53	— (—)
ms	Model Selection	192701–200512	—	—	— (—)	—	—	— (—)	–1.41	–0.0144	–0.0307	–0.84	–6.85	— (—)

Table 3: Forecasts at Quarterly Frequency

This table presents statistics on forecast errors (*in-sample* and *out-of-sample*) for excess stock return forecasts at the quarterly frequency (both in the forecasting equation and forecast). Variables are explained in Section 1. Stock return in price changes, *excluding* dividends, of S&P500. Panel A uses the full sample period for each variable and constructs first forecast 20 years after the first data observation. Panel B uses the full sample period for each variable and constructs first forecast in the first quarter of 1965 (or 20 years after the first data observation, whichever comes later). Panel C uses only the sample period first quarter of 1927 to fourth quarter of 2005 and constructs first forecast in the first quarter of 1965 (or 20 years after the first data observation, whichever comes later). The data period for **ms** model is first quarter of 1927 to fourth quarter of 2005. All numbers, except $\overline{R}^2$ and power, are in percent per quarter. A star next to IS-$\overline{R}^2$ denotes significance of the in-sample regression (as measured by empirical F-statistic). RMSE is the root mean square error and MAE is the mean absolute error. ΔRMSE (ΔMAE) is the RMSE (MAE) difference between the unconditional forecast and the conditional forecast for the same sample/forecast period (positive numbers signify superior *out-of-sample* conditional forecast). OOS-R^2 is calculated as one minus the ratio of the variance of conditional forecast errors and the variance of the unconditional forecast errors. MSE-T is the Diebold and Mariano (1995) t-statistic modified by Harvey, Leybourne, and Newbold (1998) and MSE-F is F-statistic by McCracken (2004). Both the MSE-T and MSE-F statistics test for equal MSE of the unconditional forecast and the conditional forecast. One-sided critical values of MSE statistics are obtained empirically from bootstrapped distributions, except for **caya** and **all** models where they are obtained from McCracken (2004) (critical values for **ms** model are not calculated). 'Power' is the power of ΔRMSE and is calculated as the fraction of draws where the simulated ΔRMSE is greater than the empirically calculated 95% critical value and is reported in percent. The two numbers under the power column are power for all simulations and simulations that are found to be in-sample *significant* at the 95% level. Significance levels at 90%, 95%, and 99% are denoted by one, two, and three stars, respectively.

Panel A: Full data, Forecasts begin 20 years after the first sample date

	Variable	Data	In-Sample			In-Sample for OOS Period			Relative OOS Performance					
			$\overline{R}^2$	ΔRMSE	Power	$\overline{R}^2$	ΔRMSE	Power	$\overline{R}^2$	ΔMAE	ΔRMSE	MSE-T	MSE-F	Power
d/p	Dividend Price Ratio	18712–20054	–0.14	0.0022	11 (**95**)	–0.06	0.0022	12 (**82**)	–1.97	–0.0796	–0.0848	–1.03	–7.88	10 (**65**)
d/y	Dividend Yield	18712–20054	–0.14	0.0020	7 (**95**)	–0.08	0.0020	9 (**80**)	–1.29	–0.0774	–0.0522	–1.61	–4.87	7 (**73**)
e/p	Earning Price Ratio	18712–20054	0.38*	0.0262	46 (**97**)	0.35	0.0262	46 (**87**)	–0.31	–0.0665	–0.0045	–0.12	–0.42	39 (**72**)
d/e	Dividend Payout Ratio	18712–20054	0.23	0.0196	32 (**97**)	–0.22	0.0196	32 (**84**)	–1.72	0.0004	–0.0730	–0.79	–6.79	30 (**81**)
svar	Stock Variance	18851–20054	–0.15	0.0027	8 (**93**)	–0.19	0.0027	9 (**78**)	–4.85	–0.0460	–0.2284	–1.28	–17.74	9 (**61**)
b/m	Book to Market	19211–20054	1.06**	0.0717	66 (**97**)	–1.36	0.0717	63 (**86**)	–4.88	–0.2275	–0.1712	–1.25	–11.14	51 (**70**)
ntis	Net Equity Expansion	19271–20054	3.42***	0.2029	90 (**99**)	–0.48	0.2029	85 (**92**)	–0.85	0.1201	–0.0161	–0.15	–0.99	83 (**90**)
tbl	T-Bill Rate	19201–20054	0.17	0.0242	20 (**95**)	1.00	0.0242	21 (**78**)	–0.57	–0.0410	–0.0072	–0.07	–0.48	19 (**76**)
lty	Long Term Yield	19191–20054	–0.13	0.0083	8 (**92**)	0.05	0.0083	9 (**71**)	–2.69	–0.0979	–0.0906	–0.71	–6.04	7 (**70**)
ltr	Long Term Return	19261–20054	0.43	0.0399	34 (**96**)	1.62	0.0399	34 (**79**)	0.18	0.0611	0.0234	0.36*	1.45**	32 (**76**)
tms	Term Spread	19201–20054	0.24	0.0278	25 (**95**)	1.17	0.0278	26 (**79**)	0.23	0.0440	0.0240	0.38*	1.63**	24 (**77**)
dfy	Default Yield Spread	19191–20054	–0.20	0.0049	10 (**94**)	–0.48	0.0049	12 (**75**)	–2.03	–0.0840	–0.0650	–2.33	–4.35	9 (**64**)
dfr	Default Return Spread	19261–20054	–0.20	0.0061	9 (**92**)	–1.35	0.0061	11 (**71**)	–6.32	–0.1484	–0.2246	–2.69	–13.32	9 (**70**)
infl	Inflation	19192–20054	–0.16	0.0069	10 (**95**)	0.32	0.0069	12 (**74**)	–0.33	–0.0090	0.0017	0.12	0.11	10 (**68**)
i/k	Invstmnt Capital Ratio	19471–20054	2.29**	0.1048	57 (**98**)	0.19	0.1048	52 (**80**)	–0.27	–0.0637	0.0157	0.11	0.59*	51 (**82**)
cayp	Cnsmptn, Wlth, Incme	19514–20054	4.81***	0.2088	96 (**100**)	4.81	0.2088	90 (**93**)	3.73	0.1957	0.1870	0.92**	6.36***	84 (**87**)
caya	Cnsmptn, Wlth, Incme	19514–20054	—	—	— (—)	—	—	— (—)	–5.73	–0.1527	–0.2042	–0.81	–6.47	— (—)
all	Kitchen Sink	19271–20054	4.79***	0.4476	— (—)	0.72	0.4476	— (—)	–44.20	–1.1251	–1.3273	–4.36	–64.30	— (—)
ms	Model Selection	19271–20054	—	—	— (—)	—	—	— (—)	0.58	0.0581	0.0225	0.35	1.38	— (—)

Panel B: Full data, Forecasts begin in 19651

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS Performance ΔMAE	Relative OOS Performance ΔRMSE	Relative OOS Performance MSE-T	Relative OOS Performance MSE-F	Relative OOS Performance Power
d/p	Dividend Price Ratio	18712–20054	–0.14	0.0022	11 (**95**)	–0.43	0.0022	17 (**63**)	–1.38	–0.1021	–0.0308	–0.79	–1.23	9 (**48**)
d/y	Dividend Yield	18712–20054	–0.14	0.0020	7 (**95**)	–0.39	0.0020	15 (**60**)	–1.41	–0.1148	–0.0322	–0.78	–1.29	7 (**50**)
e/p	Earning Price Ratio	18712–20054	0.38*	0.0262	46 (**97**)	–0.68	0.0262	46 (**69**)	–1.96	–0.1241	–0.0544	–0.58	–2.17	33 (**56**)
d/e	Dividend Payout Ratio	18712–20054	0.23	0.0196	32 (**97**)	–0.93	0.0196	34 (**65**)	–2.26	0.0151	–0.0664	–0.98	–2.64	24 (**59**)
svar	Stock Variance	18851–20054	–0.15	0.0027	8 (**93**)	–0.18	0.0027	14 (**55**)	–0.44	0.0043	0.0073	1.24**	0.30	8 (**47**)
b/m	Book to Market	19211–20054	1.06**	0.0717	66 (**97**)	–3.86	0.0717	60 (**77**)	–8.78	–0.3940	–0.3259	–1.78	–12.31	48 (**65**)
ntis	Net Equity Expansion	19271–20054	3.42***	0.2029	90 (**99**)	0.94	0.2029	80 (**86**)	–1.67	0.1520	–0.0428	–0.30	–1.70	76 (**82**)
tbl	T-Bill Rate	19201–20054	0.17	0.0242	20 (**95**)	0.29	0.0242	23 (**68**)	–1.04	–0.0505	–0.0174	–0.11	–0.69	18 (**66**)
lty	Long Term Yield	19191–20054	–0.13	0.0083	8 (**92**)	–0.67	0.0083	12 (**66**)	–3.40	–0.1257	–0.1124	–0.59	–4.42	8 (**64**)
ltr	Long Term Return	19261–20054	0.43	0.0399	34 (**96**)	2.23	0.0399	35 (**70**)	0.46	0.0850	0.0441	0.50*	1.78**	29 (**67**)
tms	Term Spread	19201–20054	0.24	0.0278	25 (**95**)	1.55	0.0278	28 (**66**)	0.31	0.0770	0.0376	0.39	1.52**	22 (**63**)
dfy	Default Yield Spread	19191–20054	–0.20	0.0049	10 (**94**)	–0.27	0.0049	14 (**64**)	–0.45	–0.0192	0.0068	0.38	0.27	9 (**55**)
dfr	Default Return Spread	19261–20054	–0.20	0.0061	9 (**92**)	–1.54	0.0061	13 (**63**)	–4.92	–0.0824	–0.1731	–1.80	–6.72	8 (**58**)
infl	Inflation	19192–20054	–0.16	0.0069	10 (**95**)	–0.13	0.0069	15 (**63**)	–0.38	–0.0048	0.0096	0.47	0.39	9 (**59**)
i/k	Invstmnt Capital Ratio	19471–20054	2.29**	0.1048	57 (**98**)	0.19	0.1048	52 (**80**)	–0.27	–0.0637	0.0157	0.11	0.59*	51 (**82**)
cayp	Cnsmptn, Wlth, Incme	19514–20054	4.81***	0.2088	96 (**100**)	4.81	0.2088	90 (**93**)	3.73	0.1957	0.1870	0.92**	6.36***	84 (**87**)
caya	Cnsmptn, Wlth, Incme	19514–20054	—	—	— (—)	—	—	— (—)	–5.73	–0.1527	–0.2042	–0.81	–6.47	— (—)
all	Kitchen Sink	19271–20054	4.79***	0.4476	— (—)	–2.29	0.4476	— (—)	–32.77	–0.9506	–0.9222	–3.05	–31.54	— (—)
ms	Model Selection	19271–20054	—	—	— (—)	—	—	— (—)	1.06	0.0823	0.0436	0.51	1.76	— (—)

Panel C: Data begin in 19271, Forecasts begin in 19651

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS Performance ΔMAE	Relative OOS Performance ΔRMSE	Relative OOS Performance MSE-T	Relative OOS Performance MSE-F	Relative OOS Performance Power
d/p	Dividend Price Ratio	19271–20054	0.16	0.0256	25 (**93**)	–0.51	0.0256	28 (**71**)	–1.58	–0.2179	–0.0390	–0.37	–1.55	21 (**57**)
d/y	Dividend Yield	19271–20054	0.00	0.0172	15 (**95**)	–0.31	0.0172	18 (**66**)	–1.10	–0.1853	–0.0196	–0.22	–0.78	14 (**66**)
e/p	Earning Price Ratio	19271–20054	1.01*	0.0717	59 (**96**)	–1.74	0.0717	55 (**77**)	–4.52	–0.2281	–0.1571	–0.96	–6.12	44 (**64**)
d/e	Dividend Payout Ratio	19271–20054	–0.03	0.0154	16 (**94**)	–0.91	0.0154	19 (**68**)	–4.44	–0.0943	–0.1538	–2.02	–6.00	15 (**66**)
svar	Stock Variance	19271–20054	–0.27	0.0026	7 (**93**)	–0.23	0.0026	11 (**63**)	–0.57	–0.0009	0.0020	0.37	0.08	7 (**54**)
b/m	Book to Market	19271–20054	1.16**	0.0800	67 (**97**)	–4.10	0.0800	60 (**77**)	–10.43	–0.4813	–0.3897	–1.95	–14.57	49 (**64**)
ntis	Net Equity Expansion	19271–20054	3.42***	0.2029	90 (**99**)	0.94	0.2029	80 (**86**)	–1.67	0.1520	–0.0428	–0.30	–1.70	76 (**82**)
tbl	T-Bill Rate	19271–20054	0.04	0.0191	16 (**93**)	0.25	0.0191	19 (**66**)	–1.29	–0.0588	–0.0274	–0.19	–1.09	13 (**62**)
lty	Long Term Yield	19271–20054	–0.20	0.0067	7 (**94**)	–0.65	0.0067	10 (**67**)	–3.59	–0.1268	–0.1202	–0.63	–4.71	6 (**64**)
ltr	Long Term Return	19271–20054	0.42	0.0396	32 (**95**)	2.23	0.0396	33 (**68**)	0.44	0.0829	0.0432	0.50*	1.75**	27 (**64**)
tms	Term Spread	19271–20054	0.11	0.0229	20 (**95**)	1.46	0.0229	23 (**67**)	–0.12	0.0513	0.0202	0.24	0.81*	17 (**63**)
dfy	Default Yield Spread	19271–20054	–0.19	0.0071	12 (**94**)	–0.21	0.0071	15 (**65**)	–0.38	–0.0161	0.0096	0.44	0.39	9 (**54**)
dfr	Default Return Spread	19271–20054	–0.21	0.0058	9 (**93**)	–1.51	0.0058	13 (**62**)	–4.85	–0.0827	–0.1704	–1.80	–6.62	8 (**56**)
infl	Inflation	19271–20054	–0.17	0.0080	10 (**91**)	–0.03	0.0080	15 (**65**)	–0.41	–0.0070	0.0084	0.33	0.34	9 (**59**)
i/k	Invstmnt Capital Ratio	19471–20054	2.29**	0.1048	57 (**98**)	0.19	0.1048	52 (**80**)	–0.27	–0.0637	0.0157	0.11	0.59*	51 (**82**)
cayp	Cnsmptn, Wlth, Incme	19514–20054	4.81***	0.2088	96 (**100**)	4.81	0.2088	90 (**93**)	3.73	0.1957	0.1870	0.92**	6.36***	84 (**87**)
caya	Cnsmptn, Wlth, Incme	19514–20054	—	—	— (—)	—	—	— (—)	–5.73	–0.1527	–0.2042	–0.81	–6.47	— (—)
all	Kitchen Sink	19271–20054	4.79***	0.4476	— (—)	–2.29	0.4476	— (—)	–32.77	–0.9506	–0.9222	–3.05	–31.54	— (—)
ms	Model Selection	19271–20054	—	—	— (—)	—	—	— (—)	1.06	0.0823	0.0436	0.51	1.76	— (—)

Table 4: Forecasts at Annual Frequency

This table presents statistics on forecast errors (*in-sample* and *out-of-sample*) for excess stock return forecasts at the annual frequency (both in the forecasting equation and forecast). Variables are explained in Section 1. Stock return is price changes, *including* dividends, of S&P500. Panel A uses the full sample period for each variable and constructs first forecast 20 years after the first data observation. Panel B uses the full sample period for each variable and constructs first forecast in 1965 (or 20 years after the first data observation, whichever comes later). Panel C uses only the sample period 1927 to 2005 and constructs first forecast in 1965 (or 20 years after the first data observation, whichever comes later). The data period for **ms** model is 1927 to 2005. All numbers, except $\overline{R}^2$ and power, are in percent per year. A star next to IS-$\overline{R}^2$ denotes significance of the in-sample regression (as measured by empirical F-statistic). RMSE is the root mean square error and MAE is the mean absolute error. ΔRMSE (ΔMAE) is the RMSE (MAE) difference between the unconditional forecast and the conditional forecast for the same sample/forecast period (positive numbers signify superior *out-of-sample* conditional forecast). OOS-R^2 is calculated as one minus the ratio of the variance of conditional forecast errors and the variance of the unconditional forecast errors. MSE-T is the Diebold and Mariano (1995) t-statistic modified by Harvey, Leybourne, and Newbold (1998) and MSE-F is F-statistic by McCracken (2004). Both the MSE-T and MSE-F statistics test for equal MSE of the unconditional forecast and the conditional forecast. One-sided critical values of MSE statistics are obtained empirically from bootstrapped distributions, except for **caya** and **all** models where they are obtained from McCracken (2004) (critical values for **ms** model are not calculated). 'Power' is the power of ΔRMSE and is calculated as the fraction of draws where the simulated ΔRMSE is greater than the empirically calculated 95% critical value and is reported in percent. The two numbers under the power column are power for all simulations and simulations that are found to be in-sample *significant* at the 95% level. Significance levels at 90%, 95%, and 99% are denoted by one, two, and three stars, respectively.

Panel A: Full data, Forecasts begin 20 years after the first sample date

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	ΔMAE	ΔRMSE	MSE-T	MSE-F	Power
d/p	Dividend Price Ratio	1872–2005	0.49	0.1109	31 (**96**)	1.35	0.1109	32 (**85**)	–2.06	–0.1673	–0.1072	–0.50	–1.31	24 (**66**)
d/y	Dividend Yield	1872–2005	0.91	0.1480	31 (**98**)	1.74	0.1480	30 (**83**)	–1.93	–0.1440	–0.0952	–0.26	–1.16	27 (**79**)
e/p	Earning Price Ratio	1872–2005	1.08	0.1633	36 (**98**)	1.17	0.1633	37 (**85**)	–1.78	–0.1863	–0.0812	–0.41	–0.99	30 (**72**)
d/e	Dividend Payout Ratio	1872–2005	–0.75	0.0016	5 (**92**)	–1.00	0.0016	6 (**74**)	–4.33	–0.2895	–0.3131	–2.26	–3.75	5 (**67**)
svar	Stock Variance	1885–2005	–0.76	0.0080	7 (**94**)	–1.01	0.0080	8 (**78**)	–27.14	–0.8861	–2.3320	–1.34	–20.76	6 (**61**)
b/m	Book to Market	1921–2005	3.20*	0.4126	58 (**97**)	1.13	0.4126	57 (**85**)	–1.72	0.2569	–0.0106	–0.02	–0.09	42 (**67**)
ntis	Net Equity Expansion	1927–2005	8.15***	0.9090	68 (**98**)	–4.21	0.9090	64 (**86**)	–5.07	0.3811	–0.2560	–0.55	–1.86	57 (**78**)
eqis	Pct Equity Issuing	1927–2005	9.15***	1.0081	82 (**99**)	2.81	1.0081	77 (**89**)	2.04	0.2238	0.2981	0.45*	2.29**	72 (**85**)
tbl	T-Bill Rate	1920–2005	0.34	0.1425	18 (**95**)	1.49	0.1425	19 (**75**)	–3.37	–0.4373	–0.1409	–0.22	–1.16	16 (**73**)
lty	Long Term Yield	1919–2005	–0.63	0.0524	7 (**93**)	–0.27	0.0524	8 (**68**)	–7.72	–0.9805	–0.4731	–0.57	–3.84	6 (**66**)
ltr	Long Term Return	1926–2005	0.99	0.2164	25 (**95**)	–0.03	0.2164	27 (**77**)	–11.79	–0.8295	–0.7616	–0.91	–5.40	24 (**74**)
tms	Term Spread	1920–2005	0.16	0.1259	18 (**95**)	0.39	0.1259	19 (**76**)	–2.42	–0.0912	–0.0672	–0.17	–0.56	16 (**72**)
dfy	Default Yield Spread	1919–2005	–1.18	0.0009	5 (**93**)	–1.54	0.0009	7 (**73**)	–3.29	–0.1415	–0.1354	–1.40	–1.14	5 (**61**)
dfr	Default Return Spread	1926–2005	0.40	0.1604	22 (**97**)	0.46	0.1604	23 (**78**)	–2.16	0.0225	–0.0334	–0.09	–0.25	19 (**73**)
infl	Inflation	1919–2005	–1.00	0.0181	6 (**91**)	–1.57	0.0181	8 (**70**)	–4.07	–0.2484	–0.1953	–1.41	–1.63	6 (**65**)
i/k	Invstmnt Capital Ratio	1947–2005	6.63**	0.6637	56 (**97**)	–0.25	0.6637	52 (**79**)	–1.77	–0.7913	0.0740	0.07	0.36	47 (**77**)
cayp	Cnsmptn, Wlth, Incme	1945–2005	15.72***	1.3986	82 (**98**)	20.70	1.3986	76 (**86**)	16.78	1.1907	1.6076	1.98***	9.53***	69 (**80**)
caya	Cnsmptn, Wlth, Incme	1945–2005	—	—	— (—)	—	—	— (—)	–4.33	0.2449	–0.1391	–0.15	–0.70	— (—)
all	Kitchen Sink	1927–2005	13.81**	2.7934	— (—)	2.62	2.7934	— (—)	–139.03	–5.0444	–5.9666	–2.88	–27.88	— (—)
ms	Model Selection	1927–2005	—	—	— (—)	—	—	— (—)	–22.50	–1.2532	–1.6858	–1.50	–10.84	— (—)

Panel B: Full data, Forecasts begin in 1965

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	ΔMAE	ΔRMSE	MSE-T	MSE-F	Power
d/p	Dividend Price Ratio	1872–2005	0.49	0.1109	31 (**96**)	0.12	0.1109	35 (**66**)	–3.69	–0.5251	–0.0854	–0.14	–0.45	21 (**51**)
d/y	Dividend Yield	1872–2005	0.91	0.1480	31 (**98**)	0.32	0.1480	33 (**65**)	–6.68	–0.6355	–0.3101	–0.33	–1.58	21 (**56**)
e/p	Earning Price Ratio	1872–2005	1.08	0.1633	36 (**98**)	0.33	0.1633	38 (**65**)	–1.10	–0.0935	0.1119	0.20	0.59	25 (**53**)
d/e	Dividend Payout Ratio	1872–2005	–0.75	0.0016	5 (**92**)	–2.55	0.0016	13 (**59**)	–4.99	–0.1148	–0.1832	–1.84	–0.95	5 (**49**)
svar	Stock Variance	1885–2005	–0.76	0.0080	7 (**94**)	–2.26	0.0080	13 (**59**)	–2.44	0.0303	0.0098	0.28	0.05	6 (**49**)
b/m	Book to Market	1921–2005	3.20*	0.4126	58 (**97**)	–7.29	0.4126	54 (**76**)	–12.71	–0.4630	–0.7744	–0.85	–3.69	40 (**61**)
ntis	Net Equity Expansion	1927–2005	8.15***	0.9090	68 (**98**)	0.96	0.9090	59 (**76**)	–6.79	0.6687	–0.3233	–0.50	–1.62	53 (**72**)
eqis	Pct Equity Issuing	1927–2005	9.15***	1.0081	82 (**99**)	3.64	1.0081	72 (**82**)	–1.00	0.1190	0.1210	0.13	0.63	66 (**77**)
tbl	T-Bill Rate	1920–2005	0.34	0.1425	18 (**95**)	–3.24	0.1425	21 (**66**)	–4.90	–0.6469	–0.1818	–0.18	–0.91	15 (**62**)
lty	Long Term Yield	1919–2005	–0.63	0.0524	7 (**93**)	–4.72	0.0524	11 (**65**)	–12.57	–1.4361	–0.7588	–0.57	–3.65	7 (**64**)
ltr	Long Term Return	1926–2005	0.99	0.2164	25 (**95**)	0.20	0.2164	28 (**69**)	–18.38	–1.1642	–1.1838	–1.12	–5.48	22 (**64**)
tms	Term Spread	1920–2005	0.16	0.1259	18 (**95**)	1.84	0.1259	22 (**65**)	–2.96	–0.1121	–0.0307	–0.05	–0.16	15 (**60**)
dfy	Default Yield Spread	1919–2005	–1.18	0.0009	5 (**93**)	–2.34	0.0009	10 (**59**)	–4.15	–0.1144	–0.1227	–1.86	–0.62	5 (**51**)
dfr	Default Return Spread	1926–2005	0.40	0.1604	22 (**97**)	0.29	0.1604	25 (**70**)	–2.82	0.0415	–0.0197	–0.04	–0.10	19 (**66**)
infl	Inflation	1919–2005	–1.00	0.0181	6 (**91**)	–2.58	0.0181	11 (**59**)	–3.56	–0.1756	–0.0770	–0.53	–0.39	6 (**52**)
i/k	Invstmnt Capital Ratio	1947–2005	6.63**	0.6637	56 (**97**)	–0.25	0.6637	52 (**79**)	–1.77	–0.7913	0.0740	0.07	0.36	47 (**77**)
cayp	Cnsmptn, Wlth, Incme	1945–2005	15.72***	1.3986	82 (**98**)	20.70	1.3986	76 (**86**)	16.78	1.1907	1.6076	1.98***	9.53***	69 (**80**)
caya	Cnsmptn, Wlth, Incme	1945–2005	—	—	— (—)	—	—	— (—)	–4.33	0.2449	–0.1391	–0.15	–0.70	— (—)
all	Kitchen Sink	1927–2005	13.81**	2.7934	— (—)	–20.91	2.7934	— (—)	–176.18	–5.1451	–6.1901	–2.63	–19.79	— (—)
ms	Model Selection	1927–2005	—	—	— (—)	—	—	— (—)	–23.71	–1.0134	–1.7868	–1.52	–7.86	— (—)

Panel C: Data begin in 1927, Forecasts begin in 1965

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	ΔMAE	ΔRMSE	MSE-T	MSE-F	Power
d/p	Dividend Price Ratio	1927–2005	1.67	0.2820	39 (**95**)	0.08	0.2820	40 (**75**)	–1.68	–0.4667	0.0683	0.08	0.36	29 (**58**)
d/y	Dividend Yield	1927–2005	2.71*	0.3815	35 (**96**)	–0.35	0.3815	35 (**73**)	–6.44	–0.5922	–0.2968	–0.23	–1.49	30 (**71**)
e/p	Earning Price Ratio	1927–2005	3.20*	0.4283	51 (**96**)	–0.94	0.4283	48 (**74**)	–3.15	–0.3517	–0.0454	–0.05	–0.23	39 (**64**)
d/e	Dividend Payout Ratio	1927–2005	–1.24	0.0074	5 (**92**)	–2.56	0.0074	9 (**60**)	–9.99	–0.2583	–0.5641	–1.98	–2.77	5 (**58**)
svar	Stock Variance	1927–2005	–1.32	0.0000	5 (**92**)	–2.58	0.0000	9 (**60**)	–3.49	–0.0726	–0.0712	–1.88	–0.37	5 (**53**)
b/m	Book to Market	1927–2005	4.14*	0.5191	62 (**97**)	–8.65	0.5191	57 (**77**)	–19.46	–1.0001	–1.2562	–1.15	–5.80	45 (**64**)
ntis	Net Equity Expansion	1927–2005	8.15***	0.9090	68 (**98**)	0.96	0.9090	59 (**76**)	–6.79	0.6687	–0.3233	–0.50	–1.62	53 (**72**)
eqis	Pct Equity Issuing	1927–2005	9.15***	1.0081	82 (**99**)	3.64	1.0081	72 (**82**)	–1.00	0.1190	0.1210	0.13	0.63	66 (**77**)
tbl	T-Bill Rate	1927–2005	0.15	0.1380	16 (**95**)	–3.13	0.1380	20 (**70**)	–10.31	–1.1735	–0.5876	–0.43	–2.88	14 (**65**)
lty	Long Term Yield	1927–2005	–0.94	0.0352	6 (**92**)	–4.17	0.0352	10 (**67**)	–16.04	–1.7690	–1.0097	–0.71	–4.76	6 (**65**)
ltr	Long Term Return	1927–2005	0.92	0.2106	26 (**96**)	0.25	0.2106	29 (**69**)	–16.23	–1.0015	–1.0234	–1.05	–4.82	22 (**64**)
tms	Term Spread	1927–2005	0.89	0.2081	25 (**95**)	1.97	0.2081	28 (**70**)	–2.65	–0.0373	–0.0063	–0.01	–0.03	21 (**66**)
dfy	Default Yield Spread	1927–2005	–1.31	0.0010	5 (**89**)	–2.32	0.0010	9 (**61**)	–3.83	–0.0888	–0.0972	–1.78	–0.50	5 (**52**)
dfr	Default Return Spread	1927–2005	0.32	0.1537	20 (**96**)	0.29	0.1537	23 (**68**)	–2.70	0.0179	–0.0103	–0.02	–0.05	17 (**64**)
infl	Inflation	1927–2005	–0.99	0.0305	8 (**93**)	–2.96	0.0305	12 (**61**)	–7.81	–0.0541	–0.4005	–1.32	–2.00	8 (**56**)
i/k	Invstmnt Capital Ratio	1947–2005	6.63**	0.6637	56 (**97**)	–0.25	0.6637	52 (**79**)	–1.77	–0.7913	0.0740	0.07	0.36	47 (**77**)
cayp	Cnsmptn, Wlth, Incme	1945–2005	15.72***	1.3986	82 (**98**)	20.70	1.3986	76 (**86**)	16.78	1.1907	1.6076	1.98***	9.53***	69 (**80**)
caya	Cnsmptn, Wlth, Incme	1945–2005	—	—	— (—)	—	—	— (—)	–4.33	0.2449	–0.1391	–0.15	–0.70	— (—)
all	Kitchen Sink	1927–2005	13.81**	2.7934	— (—)	–20.91	2.7934	— (—)	–176.18	–5.1451	–6.1901	–2.63	–19.79	— (—)
ms	Model Selection	1927–2005	—	—	— (—)	—	—	— (—)	–23.71	–1.0134	–1.7868	–1.52	–7.86	— (—)

Table 5: Forecasts at 3-year Frequency

This table presents statistics on forecast errors (*in-sample* and *out-of-sample*) for excess stock return forecasts at the 3-year frequency (both in the forecasting equation and forecast). Variables are explained in Section 1. Stock return is price changes, *including* dividends, of S&P500. Panel A uses the full sample period for each variable and constructs first forecast 20 years after the first data observation. Panel B uses the full sample period for each variable and constructs first forecast in 1965 (or 20 years after the first data observation, whichever comes later). Panel C uses only the sample period 1927 to 2005 and constructs first forecast in 1965 (or 20 years after the first data observation, whichever comes later). The data period for **ms** model is 1927 to 2005. All numbers, except $\overline{R}^2$ and power, are in percent per 3-year. A star next to IS-$\overline{R}^2$ denotes significance of the in-sample regression (as measured by empirical F-statistic). RMSE is the root mean square error and MAE is the mean absolute error. ΔRMSE (ΔMAE) is the RMSE (MAE) difference between the unconditional forecast and the conditional forecast for the same sample/forecast period (positive numbers signify superior *out-of-sample* conditional forecast). OOS-R^2 is calculated as one minus the ratio of the variance of conditional forecast errors and the variance of the unconditional forecast errors. MSE-T is the Diebold and Mariano (1995) t-statistic modified by Harvey, Leybourne, and Newbold (1998) and MSE-F is F-statistic by McCracken (2004). Both the MSE-T and MSE-F statistics test for equal MSE of the unconditional forecast and the conditional forecast. One-sided critical values of MSE statistics are obtained empirically from bootstrapped distributions, except for **caya** and **all** models where they are obtained from McCracken (2004) (critical values for **ms** model are not calculated). 'Power' is the power of ΔRMSE and is calculated as the fraction of draws where the simulated ΔRMSE is greater than the empirically calculated 95% critical value and is reported in percent. The two numbers under the power column are power for all simulations and simulations that are found to be in-sample *significant* at the 95% level. Significance levels at 90%, 95%, and 99% are denoted by one, two, and three stars, respectively.

Panel A: Full data, Forecasts begin 20 years after the first sample date

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS Performance ΔMAE	Relative OOS Performance ΔRMSE	Relative OOS Performance MSE-T	Relative OOS Performance MSE-F	Relative OOS Performance Power
d/p	Dividend Price Ratio	1872–2005	3.95	0.7026	30 (**88**)	6.60	0.7026	31 (**81**)	–1.97	–0.7396	–0.1637	–0.14*	–1.18*	23 (**66**)
d/y	Dividend Yield	1872–2005	2.65	0.5068	28 (**90**)	4.67	0.5068	27 (**80**)	–4.84	–1.4113	–0.5980	–0.52	–4.21	23 (**78**)
e/p	Earning Price Ratio	1872–2005	4.81*	0.8318	28 (**85**)	5.62	0.8318	28 (**77**)	0.41	–0.3566	0.2007	0.25*	1.47*	24 (**74**)
d/e	Dividend Payout Ratio	1872–2005	–0.77	0.0000	5 (**73**)	–0.93	0.0000	6 (**66**)	–5.38	–0.5840	–0.6795	–3.18	–4.77	5 (**72**)
svar	Stock Variance	1885–2005	–0.40	0.0685	6 (**69**)	–0.77	0.0685	8 (**64**)	–83.42	–3.6171	–11.0747	–1.35	–44.48	6 (**57**)
b/m	Book to Market	1921–2005	7.87	1.5162	55 (**91**)	–0.87	1.5162	54 (**85**)	–16.89	–2.1200	–1.9921	–0.64	–8.25	40 (**69**)
ntis	Net Equity Expansion	1927–2005	13.57**	2.5030	43 (**89**)	–11.75	2.5030	41 (**79**)	–11.17	–1.6522	–1.2292	–1.37	–4.83	35 (**76**)
eqis	Pct Equity Issuing	1927–2005	14.21	2.6148	54 (**91**)	–9.62	2.6148	51 (**82**)	–14.71	–1.5422	–1.6786	–0.88	–6.44	48 (**82**)
tbl	T-Bill Rate	1920–2005	1.79	0.4914	16 (**82**)	6.08	0.4914	17 (**73**)	–7.99	–1.5508	–0.8466	–0.56	–3.81	14 (**70**)
lty	Long Term Yield	1919–2005	–0.27	0.1524	7 (**76**)	1.77	0.1524	8 (**65**)	–23.20	–3.0063	–2.7722	–1.19	–11.43	6 (**68**)
ltr	Long Term Return	1926–2005	–1.00	0.0533	10 (**73**)	–1.89	0.0533	12 (**66**)	–11.73	–1.2294	–1.3028	–2.31	–5.19	11 (**70**)
tms	Term Spread	1920–2005	2.39	0.5907	13 (**76**)	0.08	0.5907	15 (**67**)	–13.85	–0.3958	–1.5964	–1.05	–6.91	12 (**69**)
dfy	Default Yield Spread	1919–2005	0.06	0.2060	5 (**69**)	–4.17	0.2060	7 (**61**)	–22.70	–2.1886	–2.7111	–1.89	–11.21	5 (**57**)
dfr	Default Return Spread	1926–2005	–1.26	0.0113	10 (**74**)	–1.77	0.0113	12 (**65**)	–2.79	–0.0207	–0.1414	–0.88	–0.60	9 (**66**)
infl	Inflation	1919–2005	–1.21	0.0021	6 (**70**)	–1.70	0.0021	8 (**65**)	–6.54	–0.2964	–0.6646	–1.30	–3.05	6 (**69**)
i/k	Invstmnt Capital Ratio	1947–2005	19.96**	2.9601	38 (**90**)	10.85	2.9601	37 (**78**)	14.16	1.8714	2.5820	1.08**	7.27**	34 (**82**)
cayp	Cnsmptn, Wlth, Incme	1945–2005	41.19***	6.1774	60 (**90**)	60.58	6.1774	56 (**80**)	39.64	4.7737	6.7979	2.36***	27.26***	51 (**80**)
caya	Cnsmptn, Wlth, Incme	1945–2005	—	—	— (—)	—	—	— (—)	8.40	0.1632	1.6044	0.49*	4.67***	— (—)
all	Kitchen Sink	1927–2005	35.13***	8.5613	— (—)	4.54	8.5613	— (—)	–220.04	–12.9710	–16.1219	–2.05	–34.54	— (—)
ms	Model Selection	1927–2005	—	—	— (—)	—	—	— (—)	–98.65	–10.7388	–10.8458	–2.86	–28.31	— (—)

Panel B: Full data, Forecasts begin in 1965

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	ΔMAE	ΔRMSE	MSE-T	MSE-F	Power
d/p	Dividend Price Ratio	1872–2005	3.95	0.7026	30 (**88**)	4.14	0.7026	35 (**66**)	–13.55	–1.0561	–1.3380	–0.37	–3.77	21 (**50**)
d/y	Dividend Yield	1872–2005	2.65	0.5068	28 (**90**)	1.23	0.5068	30 (**64**)	–19.50	–2.1576	–2.0353	–0.64	–5.53	20 (**57**)
e/p	Earning Price Ratio	1872–2005	4.81*	0.8318	28 (**85**)	0.18	0.8318	33 (**63**)	–4.37	–0.8891	–0.2244	–0.10	–0.67	22 (**54**)
d/e	Dividend Payout Ratio	1872–2005	–0.77	0.0000	5 (**73**)	–2.72	0.0000	13 (**57**)	–8.45	–0.4666	–0.7257	–1.41	–2.12	5 (**44**)
svar	Stock Variance	1885–2005	–0.40	0.0685	6 (**69**)	–3.01	0.0685	14 (**55**)	–2.84	0.0413	–0.0352	–0.12	–0.11	6 (**45**)
b/m	Book to Market	1921–2005	7.87	1.5162	55 (**91**)	–24.01	1.5162	52 (**76**)	–53.72	–6.6924	–6.1864	–1.57	–12.98	40 (**64**)
ntis	Net Equity Expansion	1927–2005	13.57**	2.5030	43 (**89**)	–2.06	2.5030	40 (**71**)	–19.88	–2.5650	–2.1569	–1.95	–5.63	34 (**71**)
eqis	Pct Equity Issuing	1927–2005	14.21	2.6148	54 (**91**)	–6.52	2.6148	50 (**75**)	–20.25	–1.7121	–2.2012	–0.80	–5.74	44 (**74**)
tbl	T-Bill Rate	1920–2005	1.79	0.4914	16 (**82**)	–8.48	0.4914	20 (**66**)	–5.55	–1.7851	–0.3984	–0.19	–1.10	14 (**65**)
lty	Long Term Yield	1919–2005	–0.27	0.1524	7 (**76**)	–8.79	0.1524	11 (**65**)	–18.54	–3.6660	–2.0633	–0.73	–5.26	6 (**67**)
ltr	Long Term Return	1926–2005	–1.00	0.0533	10 (**73**)	0.03	0.0533	15 (**60**)	–7.58	–0.6001	–0.6458	–1.21	–1.82	10 (**62**)
tms	Term Spread	1920–2005	2.39	0.5907	13 (**76**)	3.72	0.5907	18 (**63**)	–0.47	1.6525	0.2836	0.26	0.81	11 (**60**)
dfy	Default Yield Spread	1919–2005	0.06	0.2060	5 (**69**)	–2.23	0.2060	10 (**56**)	–1.09	0.1635	0.1984	0.39	0.57	5 (**48**)
dfr	Default Return Spread	1926–2005	–1.26	0.0113	10 (**74**)	–2.26	0.0113	15 (**60**)	–3.73	0.0101	–0.1513	–0.63	–0.44	9 (**59**)
infl	Inflation	1919–2005	–1.21	0.0021	6 (**70**)	–2.69	0.0021	11 (**56**)	–5.20	–0.3492	–0.3512	–2.22	–0.98	6 (**56**)
i/k	Invstmnt Capital Ratio	1947–2005	19.96**	2.9601	38 (**90**)	10.85	2.9601	37 (**78**)	14.16	1.8714	2.5820	1.08**	7.27**	34 (**82**)
cayp	Cnsmptn, Wlth, Incme	1945–2005	41.19***	6.1774	60 (**90**)	60.58	6.1774	56 (**80**)	39.64	4.7737	6.7979	2.36***	27.26***	51 (**80**)
caya	Cnsmptn, Wlth, Incme	1945–2005	—	—	— (—)	—	—	— (—)	8.40	0.1632	1.6044	0.49*	4.67***	— (—)
all	Kitchen Sink	1927–2005	35.13***	8.5613	— (—)	–31.78	8.5613	— (—)	–407.36	–20.2846	–23.5181	–2.50	–28.02	— (—)
ms	Model Selection	1927–2005	—	—	— (—)	—	—	— (—)	–149.42	–16.4743	–15.7564	–4.24	–23.36	— (—)

Panel C: Data begin in 1927, Forecasts begin in 1965

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	ΔMAE	ΔRMSE	MSE-T	MSE-F	Power
d/p	Dividend Price Ratio	1927–2005	9.78*	1.8476	39 (**87**)	1.83	1.8476	40 (**73**)	–18.43	–1.4594	–1.9823	–0.36	–5.22	29 (**60**)
d/y	Dividend Yield	1927–2005	6.98*	1.3735	31 (**88**)	–1.76	1.3735	32 (**73**)	–33.20	–3.3976	–3.7116	–0.76	–8.97	26 (**72**)
e/p	Earning Price Ratio	1927–2005	8.36*	1.6056	43 (**89**)	–3.62	1.6056	43 (**72**)	–15.13	–2.8316	–1.5823	–0.48	–4.26	33 (**64**)
d/e	Dividend Payout Ratio	1927–2005	–0.80	0.0893	5 (**67**)	–1.95	0.0893	9 (**54**)	–7.44	–0.4931	–0.6249	–2.05	–1.77	5 (**58**)
svar	Stock Variance	1927–2005	–1.09	0.0427	5 (**66**)	–2.88	0.0427	9 (**57**)	–2.89	–0.0375	–0.0419	–0.16	–0.12	5 (**55**)
b/m	Book to Market	1927–2005	11.86	2.2050	60 (**92**)	–31.28	2.2050	55 (**77**)	–92.07	–10.1155	–9.7963	–1.93	–18.17	43 (**65**)
ntis	Net Equity Expansion	1927–2005	13.57**	2.5030	43 (**89**)	–2.06	2.5030	40 (**71**)	–19.88	–2.5650	–2.1569	–1.95	–5.63	34 (**71**)
eqis	Pct Equity Issuing	1927–2005	14.21	2.6148	54 (**91**)	–6.52	2.6148	50 (**75**)	–20.25	–1.7121	–2.2012	–0.80	–5.74	44 (**74**)
tbl	T-Bill Rate	1927–2005	1.61	0.4808	14 (**83**)	–8.01	0.4808	17 (**66**)	–42.07	–5.8506	–4.7049	–1.35	–10.85	12 (**67**)
lty	Long Term Yield	1927–2005	–0.90	0.0735	6 (**71**)	–6.54	0.0735	9 (**60**)	–39.66	–5.4565	–4.4374	–1.19	–10.36	6 (**62**)
ltr	Long Term Return	1927–2005	–1.05	0.0494	10 (**72**)	–0.05	0.0494	15 (**59**)	–8.35	–0.7764	–0.7393	–1.42	–2.08	10 (**61**)
tms	Term Spread	1927–2005	5.19	1.0719	17 (**79**)	1.80	1.0719	21 (**64**)	–7.50	0.6501	–0.6320	–0.43	–1.79	14 (**62**)
dfy	Default Yield Spread	1927–2005	–0.66	0.1120	5 (**67**)	–2.21	0.1120	9 (**55**)	–2.38	0.1228	0.0244	0.07	0.07	5 (**52**)
dfr	Default Return Spread	1927–2005	–1.29	0.0091	10 (**75**)	–2.29	0.0091	14 (**60**)	–3.78	0.0250	–0.1574	–0.71	–0.46	9 (**57**)
infl	Inflation	1927–2005	–0.91	0.0718	7 (**66**)	–3.21	0.0718	11 (**57**)	–10.25	–1.1112	–0.9781	–2.32	–2.72	7 (**58**)
i/k	Invstmnt Capital Ratio	1947–2005	19.96**	2.9601	38 (**90**)	10.85	2.9601	37 (**78**)	14.16	1.8714	2.5820	1.08**	7.27**	34 (**82**)
cayp	Cnsmptn, Wlth, Incme	1945–2005	41.19***	6.1774	60 (**90**)	60.58	6.1774	56 (**80**)	39.64	4.7737	6.7979	2.36***	27.26***	51 (**80**)
caya	Cnsmptn, Wlth, Incme	1945–2005	—	—	— (—)	—	—	— (—)	8.40	0.1632	1.6044	0.49*	4.67***	— (—)
all	Kitchen Sink	1927–2005	35.13***	8.5613	— (—)	–31.78	8.5613	— (—)	–407.36	–20.2846	–23.5181	–2.50	–28.02	— (—)
ms	Model Selection	1927–2005	—	—	— (—)	—	—	— (—)	–149.42	–16.4743	–15.7564	–4.24	–23.36	— (—)

Table 6: Forecasts at 5-year Frequency

This table presents statistics on forecast errors (*in-sample* and *out-of-sample*) for excess stock return forecasts at the 5-year frequency (both in the forecasting equation and forecast). Variables are explained in Section 1. Stock return is price changes, *including* dividends, of S&P500. Panel A uses the full sample period for each variable and constructs first forecast 20 years after the first data observation. Panel B uses the full sample period for each variable and constructs first forecast in 1965 (or 20 years after the first data observation, whichever comes later). Panel C uses only the sample period 1927 to 2005 and constructs first forecast in 1965 (or 20 years after the first data observation, whichever comes later). The data period for **ms** model is 1927 to 2005. All numbers, except $\overline{R}^2$ and power, are in percent per 5-years. A star next to IS-$\overline{R}^2$ denotes significance of the in-sample regression (as measured by empirical F-statistic). RMSE is the root mean square error and MAE is the mean absolute error. ΔRMSE (ΔMAE) is the RMSE (MAE) difference between the unconditional forecast and the conditional forecast for the same sample/forecast period (positive numbers signify superior *out-of-sample* conditional forecast). OOS-R^2 is calculated as one minus the ratio of the variance of conditional forecast errors and the variance of the unconditional forecast errors. MSE-T is the Diebold and Mariano (1995) t-statistic modified by Harvey, Leybourne, and Newbold (1998) and MSE-F is F-statistic by McCracken (2004). Both the MSE-T and MSE-F statistics test for equal MSE of the unconditional forecast and the conditional forecast. One-sided critical values of MSE statistics are obtained empirically from bootstrapped distributions, except for **caya** and **all** models where they are obtained from McCracken (2004) (critical values for **ms** model are not calculated). 'Power' is the power of ΔRMSE and is calculated as the fraction of draws where the simulated ΔRMSE is greater than the empirically calculated 95% critical value and is reported in percent. The two numbers under the power column are power for all simulations and simulations that are found to be in-sample *significant* at the 95% level. Significance levels at 90%, 95%, and 99% are denoted by one, two, and three stars, respectively.

Panel A: Full data, Forecasts begin 20 years after the first sample date

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	ΔMAE	ΔRMSE	MSE-T	MSE-F	Power
d/p	Dividend Price Ratio	1872–2005	10.24*	2.0714	28 (**86**)	14.35	2.0714	28 (**80**)	–1.19	–0.2475	–0.0576	–0.02*	–0.32*	21 (**69**)
d/y	Dividend Yield	1872–2005	6.04	1.2675	25 (**90**)	9.06	1.2675	25 (**81**)	–4.45	–0.3147	–0.6837	–0.29	–3.74	20 (**74**)
e/p	Earning Price Ratio	1872–2005	6.24	1.3054	23 (**83**)	6.21	1.3054	24 (**76**)	–1.04	0.0387	–0.0292	–0.02	–0.16	19 (**72**)
d/e	Dividend Payout Ratio	1872–2005	0.66	0.2649	5 (**70**)	2.32	0.2649	6 (**66**)	–4.87	–0.6046	–0.7643	–0.62	–4.17	5 (**67**)
svar	Stock Variance	1885–2005	0.33	0.2255	6 (**66**)	–0.41	0.2255	7 (**63**)	–79.33	–4.9675	–13.3089	–1.22	–42.36	6 (**54**)
b/m	Book to Market	1921–2005	10.78	2.4793	49 (**88**)	1.40	2.4793	48 (**81**)	–13.06	–2.2323	–2.0261	–0.41	–6.19	37 (**70**)
ntis	Net Equity Expansion	1927–2005	6.59*	1.5677	25 (**80**)	–8.28	1.5677	25 (**72**)	–3.46	–0.4040	–0.3210	–0.27	–0.91	21 (**70**)
eqis	Pct Equity Issuing	1927–2005	9.50	2.1571	34 (**85**)	–4.19	2.1571	34 (**76**)	–2.35	0.0030	–0.1129	–0.06	–0.32	31 (**78**)
tbl	T-Bill Rate	1920–2005	3.83	1.0280	14 (**81**)	13.22	1.0280	15 (**68**)	–17.66	–3.7357	–2.7846	–0.53	–8.48	11 (**67**)
lty	Long Term Yield	1919–2005	–0.15	0.2194	6 (**74**)	3.49	0.2194	7 (**63**)	–122.13	–15.9586	–17.4124	–2.18	–34.20	6 (**61**)
ltr	Long Term Return	1926–2005	–1.36	0.0024	8 (**72**)	–1.90	0.0024	10 (**62**)	–7.40	–2.8722	–1.1004	–0.77	–2.96	8 (**66**)
tms	Term Spread	1920–2005	7.84	1.8558	10 (**74**)	11.29	1.8558	12 (**63**)	–26.52	–2.3812	–4.2361	–0.77	–12.23	9 (**66**)
dfy	Default Yield Spread	1919–2005	3.54	0.9609	5 (**63**)	–3.95	0.9609	7 (**60**)	–59.33	–6.8479	–9.1829	–1.60	–22.85	5 (**56**)
dfr	Default Return Spread	1926–2005	–1.36	0.0025	9 (**74**)	–1.79	0.0025	11 (**64**)	–5.71	–0.3873	–0.7747	–1.50	–2.11	8 (**60**)
infl	Inflation	1919–2005	–1.21	0.0085	5 (**63**)	–1.77	0.0085	7 (**56**)	–11.25	–1.2989	–1.6988	–1.74	–5.50	5 (**61**)
i/k	Invstmnt Capital Ratio	1947–2005	33.99***	6.7675	27 (**86**)	27.42	6.7675	28 (**75**)	12.99	3.4967	3.3879	0.83*	6.31**	22 (**78**)
cayp	Cnsmptn, Wlth, Incme	1945–2005	36.05**	7.1469	39 (**80**)	63.11	7.1469	38 (**70**)	30.35	6.4403	7.5012	2.66***	17.49***	35 (**74**)
caya	Cnsmptn, Wlth, Incme	1945–2005	—	—	— (—)	—	—	— (—)	9.10	3.5109	2.4970	0.68**	4.75***	— (—)
all	Kitchen Sink	1927–2005	41.48***	11.7414	— (—)	43.29	11.7414	— (—)	–499.83	–34.6212	–45.4717	–2.20	–43.44	— (—)
ms	Model Selection	1927–2005	—	—	— (—)	—	—	— (—)	–14465.67	–77.9036	–408.0557	–0.94	–54.62	— (—)

Panel B: Full data, Forecasts begin in 1965

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	ΔMAE	ΔRMSE	MSE-T	MSE-F	Power
d/p	Dividend Price Ratio	1872–2005	10.24*	2.0714	28 (**86**)	8.30	2.0714	32 (**64**)	–26.09	–0.3979	–3.5437	–0.46	–6.90	20 (**51**)
d/y	Dividend Yield	1872–2005	6.04	1.2675	25 (**90**)	8.52	1.2675	28 (**63**)	–16.84	0.5655	–2.1937	–0.33	–4.52	19 (**59**)
e/p	Earning Price Ratio	1872–2005	6.24	1.3054	23 (**83**)	2.27	1.3054	29 (**62**)	–3.03	0.0342	–0.0745	–0.02	–0.17	18 (**54**)
d/e	Dividend Payout Ratio	1872–2005	0.66	0.2649	5 (**70**)	–0.06	0.2649	12 (**55**)	–0.64	–0.1116	0.3067	0.30	0.71	5 (**47**)
svar	Stock Variance	1885–2005	0.33	0.2255	6 (**66**)	–3.04	0.2255	13 (**54**)	–2.37	0.3542	0.0315	0.04	0.07	6 (**45**)
b/m	Book to Market	1921–2005	10.78	2.4793	49 (**88**)	–22.22	2.4793	47 (**72**)	–46.34	–7.5936	–7.1673	–1.08	–11.07	35 (**62**)
ntis	Net Equity Expansion	1927–2005	6.59*	1.5677	25 (**80**)	1.49	1.5677	26 (**64**)	–13.77	–1.9018	–1.9188	–1.63	–3.64	21 (**67**)
eqis	Pct Equity Issuing	1927–2005	9.50	2.1571	34 (**85**)	1.34	2.1571	34 (**68**)	–5.75	–0.5645	–0.5560	–0.19	–1.11	30 (**73**)
tbl	T-Bill Rate	1920–2005	3.83	1.0280	14 (**81**)	–11.17	1.0280	18 (**63**)	–30.19	–5.8778	–4.7008	–0.56	–7.85	12 (**65**)
lty	Long Term Yield	1919–2005	–0.15	0.2194	6 (**74**)	–13.18	0.2194	11 (**64**)	–72.47	–11.3706	–10.9639	–1.07	–15.00	6 (**64**)
ltr	Long Term Return	1926–2005	–1.36	0.0024	8 (**72**)	–3.55	0.0024	13 (**59**)	–18.92	–3.4839	–2.7189	–1.83	–5.09	9 (**63**)
tms	Term Spread	1920–2005	7.84	1.8558	10 (**74**)	23.18	1.8558	15 (**58**)	10.46	1.9601	2.4360	0.95*	5.38**	9 (**60**)
dfy	Default Yield Spread	1919–2005	3.54	0.9609	5 (**63**)	2.19	0.9609	10 (**54**)	4.97	1.4206	1.3835	0.98*	2.93*	5 (**49**)
dfr	Default Return Spread	1926–2005	–1.36	0.0025	9 (**74**)	–2.82	0.0025	13 (**60**)	–4.01	0.0391	–0.2495	–0.57	–0.52	8 (**56**)
infl	Inflation	1919–2005	–1.21	0.0085	5 (**63**)	–2.92	0.0085	11 (**57**)	–7.34	–0.6685	–0.8506	–1.44	–1.65	5 (**56**)
i/k	Invstmnt Capital Ratio	1947–2005	33.99***	6.7675	27 (**86**)	27.42	6.7675	28 (**75**)	12.99	3.4967	3.3879	0.83*	6.31**	22 (**78**)
cayp	Cnsmptn, Wlth, Incme	1945–2005	36.05**	7.1469	39 (**80**)	63.11	7.1469	38 (**70**)	30.35	6.4403	7.5012	2.66***	17.49***	35 (**74**)
caya	Cnsmptn, Wlth, Incme	1945–2005	—	—	— (—)	—	—	— (—)	9.10	3.5109	2.4970	0.68**	4.75***	— (—)
all	Kitchen Sink	1927–2005	41.48***	11.7414	— (—)	19.75	11.7414	— (—)	–442.08	–29.3762	–34.1924	–2.02	–27.25	— (—)
ms	Model Selection	1927–2005	—	—	— (—)	—	—	— (—)	–122.89	–16.0331	–18.0320	–2.31	–20.40	— (—)

Panel C: Data begin in 1927, Forecasts begin in 1965

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS Performance ΔMAE	Relative OOS Performance ΔRMSE	Relative OOS Performance MSE-T	Relative OOS Performance MSE-F	Relative OOS Performance Power
d/p	Dividend Price Ratio	1927–2005	21.24**	4.6330	38 (**84**)	4.28	4.6330	38 (**70**)	–12.69	–0.1487	–1.7393	–0.19	–3.33	29 (**61**)
d/y	Dividend Yield	1927–2005	14.99*	3.2929	28 (**88**)	6.16	3.2929	29 (**72**)	–9.47	0.9385	–1.1942	–0.14	–2.33	22 (**72**)
e/p	Earning Price Ratio	1927–2005	14.96*	3.2873	36 (**85**)	–4.04	3.2873	36 (**69**)	–15.33	–2.4563	–2.1788	–0.33	–4.10	28 (**65**)
d/e	Dividend Payout Ratio	1927–2005	1.64	0.5875	5 (**63**)	0.89	0.5875	9 (**57**)	–1.59	0.1327	0.1713	0.18	0.35	5 (**59**)
svar	Stock Variance	1927–2005	–0.84	0.1061	5 (**63**)	–2.88	0.1061	9 (**57**)	–3.83	0.0210	–0.2214	–0.51	–0.45	5 (**59**)
b/m	Book to Market	1927–2005	13.93	3.0697	55 (**89**)	–25.02	3.0697	51 (**74**)	–59.97	–8.8198	–8.9765	–1.17	–13.28	40 (**64**)
ntis	Net Equity Expansion	1927–2005	6.59*	1.5677	25 (**80**)	1.49	1.5677	26 (**64**)	–13.77	–1.9018	–1.9188	–1.63	–3.64	21 (**67**)
eqis	Pct Equity Issuing	1927–2005	9.50	2.1571	34 (**85**)	1.34	2.1571	34 (**68**)	–5.75	–0.5645	–0.5560	–0.19	–1.11	30 (**73**)
tbl	T-Bill Rate	1927–2005	4.91	1.2319	12 (**79**)	–11.62	1.2319	16 (**64**)	–65.00	–7.0592	–9.6796	–0.70	–14.00	12 (**70**)
lty	Long Term Yield	1927–2005	–0.30	0.2099	6 (**69**)	–12.32	0.2099	9 (**59**)	–127.26	–14.3223	–17.6214	–1.17	–20.30	6 (**63**)
ltr	Long Term Return	1927–2005	–1.39	0.0007	8 (**69**)	–3.23	0.0007	13 (**59**)	–13.63	–2.6881	–1.8955	–1.70	–3.60	8 (**64**)
tms	Term Spread	1927–2005	12.47*	2.7659	11 (**74**)	23.24	2.7659	16 (**60**)	12.59	2.5660	2.7706	0.65	6.41**	11 (**65**)
dfy	Default Yield Spread	1927–2005	0.94	0.4502	5 (**64**)	1.09	0.4502	9 (**55**)	0.56	0.8537	0.5530	0.72	1.16	5 (**52**)
dfr	Default Return Spread	1927–2005	–1.36	0.0054	8 (**69**)	–2.81	0.0054	13 (**59**)	–4.15	0.1428	–0.2782	–0.55	–0.56	7 (**58**)
infl	Inflation	1927–2005	–1.21	0.0351	6 (**64**)	–2.91	0.0351	11 (**55**)	–13.18	–1.6986	–1.8207	–1.47	–3.47	6 (**58**)
i/k	Invstmnt Capital Ratio	1947–2005	33.99***	6.7675	27 (**86**)	27.42	6.7675	28 (**75**)	12.99	3.4967	3.3879	0.83*	6.31**	22 (**78**)
cayp	Cnsmptn, Wlth, Incme	1945–2005	36.05**	7.1469	39 (**80**)	63.11	7.1469	38 (**70**)	30.35	6.4403	7.5012	2.66***	17.49***	35 (**74**)
caya	Cnsmptn, Wlth, Incme	1945–2005	—	—	— (—)	—	—	— (—)	9.10	3.5109	2.4970	0.68**	4.75***	— (—)
all	Kitchen Sink	1927–2005	41.48***	11.7414	— (—)	19.75	11.7414	— (—)	–442.08	–29.3762	–34.1924	–2.02	–27.25	— (—)
ms	Model Selection	1927–2005	—	—	— (—)	—	—	— (—)	–122.89	–16.0331	–18.0320	–2.31	–20.40	— (—)

Table 7: Forecasts Using Various d/p, e/p, and d/e Ratios

This table presents statistics on forecast errors (*in-sample* and *out-of-sample*) for excess stock return forecasts at various frequencies. Variables are explained in Section 1. Stock return is price changes, *including* dividends, of S&P500 (monthly panel uses CRSP data for calculation of stock returns). All numbers, except $\overline{R}^2$ and power, are in percent per frequency corresponding to the panel. A star next to IS-$\overline{R}^2$ denotes significance of the in-sample regression (as measured by empirical F-statistic). RMSE is the root mean square error and MAE is the mean absolute error. ΔRMSE (ΔMAE) is the RMSE (MAE) difference between the unconditional forecast and the conditional forecast for the same sample/forecast period (positive numbers signify superior *out-of-sample* conditional forecast). OOS-R^2 is calculated as one minus the ratio of the variance of conditional forecast errors and the variance of the unconditional forecast errors. MSE-T is the Diebold and Mariano (1995) t-statistic modified by Harvey, Leybourne, and Newbold (1998) and MSE-F is F-statistic by McCracken (2004). Both the MSE-T and MSE-F statistics test for equal MSE of the unconditional forecast and the conditional forecast. One-sided critical values of MSE statistics are obtained empirically from bootstrapped distributions. 'Power' is the power of ΔRMSE and is calculated as the fraction of draws where the simulated ΔRMSE is greater than the empirically calculated 95% critical value and is reported in percent. The two numbers under the power column are power for all simulations and simulations that are found to be in-sample *significant* at the 95% level. Significance levels at 90%, 95%, and 99% are denoted by one, two, and three stars, respectively.

Panel A: Forecasting monthly return with total returns

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS ΔMAE	Relative OOS ΔRMSE	Relative OOS MSE-T	Relative OOS MSE-F	Relative OOS Power
e/p	Earning(1Y) Price Ratio	192701–200512	0.54**	0.0181	83 (**99**)	–0.48	0.0181	75 (**85**)	–1.20	–0.0576	–0.0217	–0.66	–4.85	56 (**64**)
e/p	Earning(3Y) Price Ratio	192701–200512	0.24	0.0098	53 (**97**)	–0.26	0.0098	52 (**78**)	–0.37	–0.0412	–0.0036	–0.17	–0.80	37 (**57**)
e/p	Earning(5Y) Price Ratio	192701–200512	0.32*	0.0120	67 (**98**)	–0.36	0.0120	63 (**81**)	–0.60	–0.0526	–0.0086	–0.35	–1.93	45 (**59**)
e/p	Earning(10Y) Price Ratio	192701–200512	0.49**	0.0167	85 (**99**)	–0.32	0.0167	78 (**86**)	–0.83	–0.0676	–0.0137	–0.45	–3.08	55 (**62**)
d/p	Dividend(1Y) Price Ratio	192701–200512	0.15	0.0070	39 (**96**)	–0.05	0.0070	41 (**75**)	–0.15	–0.0369	0.0013	0.06	0.28	29 (**56**)
d/p	Dividend(3Y) Price Ratio	192701–200512	0.22	0.0091	52 (**97**)	–0.07	0.0091	53 (**80**)	–0.12	–0.0374	0.0019	0.09	0.43	37 (**57**)
d/p	Dividend(5Y) Price Ratio	192701–200512	0.30	0.0115	68 (**98**)	–0.09	0.0115	65 (**83**)	–0.23	–0.0452	–0.0005	–0.02	–0.10	45 (**59**)
d/p	Dividend(10Y) Price Ratio	192701–200512	0.25	0.0100	55 (**98**)	–0.09	0.0100	55 (**80**)	–0.17	–0.0417	0.0008	0.04	0.18	38 (**58**)
d/e	Dividend(1Y) Earning(1Y) Ratio	192701–200512	0.01	0.0032	17 (**98**)	–0.30	0.0032	18 (**69**)	–2.01	–0.0291	–0.0392	–2.64	–8.72	15 (**69**)
d/e	Dividend(1Y) Earning(3Y) Ratio	192701–200512	–0.10	0.0001	5 (**96**)	–0.24	0.0001	8 (**59**)	–1.24	–0.0170	–0.0226	–2.15	–5.05	5 (**60**)
d/e	Dividend(1Y) Earning(5Y) Ratio	192701–200512	–0.08	0.0006	6 (**96**)	–0.34	0.0006	9 (**63**)	–1.50	–0.0197	–0.0282	–2.31	–6.30	6 (**61**)
d/e	Dividend(1Y) Earning(10Y) Ratio	192701–200512	0.05	0.0043	15 (**97**)	–0.47	0.0043	17 (**68**)	–1.45	–0.0160	–0.0270	–1.91	–6.03	13 (**67**)
d/e	Dividend(3Y) Earning(3Y) Ratio	192701–200512	–0.08	0.0007	6 (**95**)	–0.17	0.0007	9 (**65**)	–0.37	–0.0054	–0.0036	–1.11	–0.81	6 (**65**)
d/e	Dividend(5Y) Earning(5Y) Ratio	192701–200512	–0.05	0.0017	9 (**94**)	–0.11	0.0017	11 (**69**)	–0.23	–0.0052	–0.0007	–0.11	–0.15	8 (**67**)
d/e	Dividend(10Y) Earning(10Y) Ratio	192701–200512	–0.10	0.0000	— (—)	–0.20	0.0000	— (—)	–0.93	–0.0112	–0.0159	–2.98	–3.56	— (—)

Panel B: Forecasting 1 year return - Forecast begins 1902

Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS Performance ΔMAE	Relative OOS Performance ΔRMSE	Relative OOS Performance MSE-T	Relative OOS Performance MSE-F	Relative OOS Performance Power
e/p Earning(1Y) Price Ratio	1882–2005	1.24	0.1853	38 (**97**)	1.11	0.1853	39 (**85**)	–3.38	–0.2480	–0.2258	–0.84	–2.42	33 (**74**)
e/p Earning(3Y) Price Ratio	1882–2005	2.53**	0.3026	61 (**97**)	2.63	0.3026	60 (**89**)	–1.05	0.1980	–0.0065	–0.02*	–0.07*	49 (**73**)
e/p Earning(5Y) Price Ratio	1882–2005	2.88**	0.3342	72 (**98**)	3.15	0.3342	71 (**91**)	–0.52	0.0198	0.0432	0.11*	0.47*	56 (**72**)
e/p Earning(10Y) Price Ratio	1882–2005	4.89**	0.5185	94 (**99**)	5.86	0.5185	92 (**96**)	2.12	0.1161	0.2956	0.54**	3.30**	74 (**77**)
d/p Dividend(1Y) Price Ratio	1882–2005	1.33	0.1935	47 (**97**)	1.80	0.1935	47 (**87**)	–1.71	–0.0829	–0.0692	–0.19	–0.75	36 (**67**)
d/p Dividend(3Y) Price Ratio	1882–2005	1.85*	0.2411	59 (**97**)	2.60	0.2411	60 (**89**)	–1.53	–0.1298	–0.0519	–0.12	–0.56	44 (**66**)
d/p Dividend(5Y) Price Ratio	1882–2005	2.48*	0.2974	74 (**98**)	3.32	0.2974	74 (**92**)	–0.54	–0.2415	0.0418	0.08*	0.46*	52 (**67**)
d/p Dividend(10Y) Price Ratio	1882–2005	2.11*	0.2640	68 (**97**)	3.23	0.2640	68 (**90**)	–1.07	–0.3798	–0.0084	–0.02*	–0.09*	47 (**64**)
d/e Dividend(1Y) Earning(1Y) Ratio	1882–2005	–0.78	0.0042	6 (**95**)	–0.79	0.0042	7 (**74**)	–3.63	–0.3320	–0.2485	–1.04	–2.65	6 (**65**)
d/e Dividend(1Y) Earning(3Y) Ratio	1882–2005	–0.75	0.0067	6 (**93**)	–1.06	0.0067	7 (**77**)	–4.77	–0.0621	–0.3547	–1.88	–3.76	6 (**70**)
d/e Dividend(1Y) Earning(5Y) Ratio	1882–2005	–0.65	0.0162	7 (**93**)	–1.00	0.0162	8 (**76**)	–5.92	–0.3316	–0.4615	–1.56	–4.85	7 (**67**)
d/e Dividend(1Y) Earning(10Y) Ratio	1882–2005	1.36	0.1968	35 (**97**)	1.37	0.1968	35 (**84**)	–1.75	0.0601	–0.0728	–0.13	–0.79	31 (**78**)
d/e Dividend(3Y) Earning(3Y) Ratio	1882–2005	–0.80	0.0021	5 (**95**)	–0.84	0.0021	6 (**77**)	–4.50	–0.3708	–0.3299	–3.13	–3.50	5 (**69**)
d/e Dividend(5Y) Earning(5Y) Ratio	1882–2005	–0.58	0.0222	9 (**94**)	–0.34	0.0222	10 (**77**)	–4.24	–0.4392	–0.3059	–1.25	–3.25	8 (**66**)
d/e Dividend(10Y) Earning(10Y) Ratio	1882–2005	–0.64	0.0163	— (—)	–1.02	0.0163	— (—)	–6.04	–0.2389	–0.4723	–1.95	–4.96	— (—)

Panel C: Forecasting 1 year return - Forecast begins 1965

Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS ΔMAE	Relative OOS ΔRMSE	Relative OOS MSE-T	Relative OOS MSE-F	Relative OOS Power
e/p Earning(1Y) Price Ratio	1882–2005	1.24	0.1853	38 (**97**)	0.29	0.1853	39 (**66**)	–0.96	–0.0737	0.1225	0.21	0.65	27 (**56**)
e/p Earning(3Y) Price Ratio	1882–2005	2.53**	0.3026	61 (**97**)	–1.28	0.3026	54 (**71**)	–3.41	–0.4024	–0.0643	–0.09	–0.33	40 (**57**)
e/p Earning(5Y) Price Ratio	1882–2005	2.88**	0.3342	72 (**98**)	–1.84	0.3342	62 (**73**)	–5.01	–0.5409	–0.1852	–0.23	–0.95	47 (**58**)
e/p Earning(10Y) Price Ratio	1882–2005	4.89**	0.5185	94 (**99**)	–1.92	0.5185	78 (**81**)	–11.45	–0.9387	–0.6629	–0.57	–3.27	62 (**65**)
d/p Dividend(1Y) Price Ratio	1882–2005	1.33	0.1935	47 (**97**)	0.20	0.1935	46 (**68**)	–5.11	–0.6848	–0.1930	–0.23	–0.99	31 (**52**)
d/p Dividend(3Y) Price Ratio	1882–2005	1.85*	0.2411	59 (**97**)	0.04	0.2411	54 (**71**)	–6.55	–0.8028	–0.3006	–0.31	–1.53	39 (**55**)
d/p Dividend(5Y) Price Ratio	1882–2005	2.48*	0.2974	74 (**98**)	–0.18	0.2974	64 (**75**)	–8.79	–1.0220	–0.4677	–0.45	–2.35	47 (**58**)
d/p Dividend(10Y) Price Ratio	1882–2005	2.11*	0.2640	68 (**97**)	–0.13	0.2640	60 (**74**)	–8.32	–1.0738	–0.4324	–0.45	–2.18	42 (**54**)
d/e Dividend(1Y) Earning(1Y) Ratio	1882–2005	–0.78	0.0042	6 (**95**)	–2.64	0.0042	14 (**58**)	–4.32	–0.2283	–0.1336	–0.87	–0.69	5 (**47**)
d/e Dividend(1Y) Earning(3Y) Ratio	1882–2005	–0.75	0.0067	6 (**93**)	–2.98	0.0067	13 (**61**)	–10.29	–0.0089	–0.5778	–1.50	–2.87	6 (**52**)
d/e Dividend(1Y) Earning(5Y) Ratio	1882–2005	–0.65	0.0162	7 (**93**)	–3.67	0.0162	15 (**60**)	–13.83	–0.0036	–0.8362	–1.65	–4.06	7 (**51**)
d/e Dividend(1Y) Earning(10Y) Ratio	1882–2005	1.36	0.1968	35 (**97**)	–6.17	0.1968	36 (**64**)	–17.13	0.1837	–1.0734	–1.37	–5.10	25 (**57**)
d/e Dividend(3Y) Earning(3Y) Ratio	1882–2005	–0.80	0.0021	5 (**95**)	–2.46	0.0021	13 (**60**)	–4.99	–0.1529	–0.1840	–2.24	–0.95	5 (**50**)
d/e Dividend(5Y) Earning(5Y) Ratio	1882–2005	–0.58	0.0222	9 (**94**)	–2.11	0.0222	15 (**59**)	–3.90	–0.2622	–0.1014	–0.52	–0.53	8 (**49**)
d/e Dividend(10Y) Earning(10Y) Ratio	1882–2005	–0.64	0.0163	— (—)	–2.57	0.0163	— (—)	–10.30	–0.0424	–0.5790	–1.66	–2.88	— (—)

Panel D: Forecasting 3 year return - Forecast begins 1902

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS ΔMAE	Relative OOS ΔRMSE	Relative OOS MSE-T	Relative OOS MSE-F	Relative OOS Power
e/p	Earning(1Y) Price Ratio	1882–2005	6.09*	1.0268	31 (**86**)	6.17	1.0268	31 (**80**)	1.11	–0.4302	0.3283	0.35*	2.16*	26 (**74**)
e/p	Earning(3Y) Price Ratio	1882–2005	7.19*	1.1923	56 (**93**)	7.89	1.1923	55 (**87**)	2.50	–0.1425	0.5471	0.47**	3.64**	44 (**73**)
e/p	Earning(5Y) Price Ratio	1882–2005	9.42*	1.5331	69 (**95**)	10.56	1.5331	68 (**90**)	4.13	0.0163	0.8077	0.53**	5.44**	51 (**73**)
e/p	Earning(10Y) Price Ratio	1882–2005	12.58*	2.0222	93 (**98**)	14.89	2.0222	92 (**97**)	3.07	–0.4448	0.6380	0.29**	4.26**	72 (**79**)
d/p	Dividend(1Y) Price Ratio	1882–2005	6.12*	1.0310	45 (**90**)	7.96	1.0310	44 (**84**)	–0.47	–0.9196	0.0801	0.05*	0.52*	33 (**67**)
d/p	Dividend(3Y) Price Ratio	1882–2005	7.15*	1.1872	58 (**92**)	9.35	1.1872	58 (**88**)	–0.15	–1.0140	0.1295	0.07*	0.84*	41 (**68**)
d/p	Dividend(5Y) Price Ratio	1882–2005	8.16*	1.3398	75 (**95**)	10.73	1.3398	75 (**92**)	–0.68	–0.8918	0.0461	0.02*	0.30*	50 (**69**)
d/p	Dividend(10Y) Price Ratio	1882–2005	6.33	1.0630	69 (**95**)	9.33	1.0630	70 (**91**)	–6.22	–2.0079	–0.8067	–0.39	–5.03	43 (**66**)
d/e	Dividend(1Y) Earning(1Y) Ratio	1882–2005	–0.80	0.0053	6 (**74**)	–0.76	0.0053	7 (**69**)	–7.27	–0.7329	–0.9669	–2.31	–5.98	6 (**68**)
d/e	Dividend(1Y) Earning(3Y) Ratio	1882–2005	–0.77	0.0096	6 (**70**)	–0.67	0.0096	7 (**65**)	–12.66	–0.9360	–1.7719	–1.48	–10.57	6 (**66**)
d/e	Dividend(1Y) Earning(5Y) Ratio	1882–2005	–0.70	0.0210	7 (**73**)	–1.18	0.0210	8 (**67**)	–6.95	–0.7069	–0.9188	–1.26	–5.70	6 (**64**)
d/e	Dividend(1Y) Earning(10Y) Ratio	1882–2005	1.45	0.3347	29 (**87**)	1.03	0.3347	29 (**79**)	–6.04	–0.5649	–0.7802	–0.49	–4.87	24 (**76**)
d/e	Dividend(3Y) Earning(3Y) Ratio	1882–2005	–0.38	0.0675	5 (**71**)	0.21	0.0675	6 (**68**)	–10.90	–1.2222	–1.5109	–1.69	–9.12	5 (**66**)
d/e	Dividend(5Y) Earning(5Y) Ratio	1882–2005	–0.38	0.0665	9 (**79**)	0.25	0.0665	10 (**66**)	–7.31	–1.0206	–0.9720	–1.66	–6.01	8 (**65**)
d/e	Dividend(10Y) Earning(10Y) Ratio	1882–2005	–0.45	0.0573	— (—)	–1.19	0.0573	— (—)	–6.46	–0.5078	–0.8430	–1.73	–5.25	— (—)

Panel E: Forecasting 3 year return - Forecast begins 1965

Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS Performance ΔMAE	Relative OOS Performance ΔRMSE	Relative OOS Performance MSE-T	Relative OOS Performance MSE-F	Relative OOS Performance Power
e/p Earning(1Y) Price Ratio	1882–2005	6.09*	1.0268	31 (**86**)	–0.52	1.0268	33 (**63**)	–4.80	–1.1245	–0.2791	–0.12	–0.83	23 (**54**)
e/p Earning(3Y) Price Ratio	1882–2005	7.19*	1.1923	56 (**93**)	–1.40	1.1923	51 (**69**)	–9.39	–1.1782	–0.8430	–0.27	–2.43	37 (**56**)
e/p Earning(5Y) Price Ratio	1882–2005	9.42*	1.5331	69 (**95**)	–3.94	1.5331	60 (**73**)	–17.74	–1.7064	–1.8402	–0.46	–5.03	44 (**57**)
e/p Earning(10Y) Price Ratio	1882–2005	12.58*	2.0222	93 (**98**)	–1.18	2.0222	78 (**82**)	–27.11	–2.2237	–2.9167	–0.56	–7.53	61 (**65**)
d/p Dividend(1Y) Price Ratio	1882–2005	6.12*	1.0310	45 (**90**)	3.75	1.0310	44 (**68**)	–17.24	–1.4397	–1.7816	–0.40	–4.88	29 (**52**)
d/p Dividend(3Y) Price Ratio	1882–2005	7.15*	1.1872	58 (**92**)	3.11	1.1872	53 (**71**)	–20.05	–1.7982	–2.1087	–0.47	–5.68	37 (**55**)
d/p Dividend(5Y) Price Ratio	1882–2005	8.16*	1.3398	75 (**95**)	3.43	1.3398	64 (**75**)	–22.40	–2.0472	–2.3801	–0.52	–6.32	46 (**58**)
d/p Dividend(10Y) Price Ratio	1882–2005	6.33	1.0630	69 (**95**)	2.80	1.0630	60 (**75**)	–20.11	–2.1371	–2.1157	–0.53	–5.70	43 (**56**)
d/e Dividend(1Y) Earning(1Y) Ratio	1882–2005	–0.80	0.0053	6 (**74**)	–2.46	0.0053	13 (**55**)	–7.67	–0.4311	–0.6334	–1.74	–1.85	5 (**46**)
d/e Dividend(1Y) Earning(3Y) Ratio	1882–2005	–0.77	0.0096	6 (**70**)	–1.88	0.0096	13 (**57**)	–12.84	–0.9613	–1.2590	–1.93	–3.55	6 (**52**)
d/e Dividend(1Y) Earning(5Y) Ratio	1882–2005	–0.70	0.0210	7 (**73**)	–4.58	0.0210	15 (**54**)	–29.44	–2.0148	–3.1786	–1.81	–8.10	6 (**47**)
d/e Dividend(1Y) Earning(10Y) Ratio	1882–2005	1.45	0.3347	29 (**87**)	–7.04	0.3347	31 (**61**)	–22.66	–0.8237	–2.4106	–1.32	–6.39	21 (**57**)
d/e Dividend(3Y) Earning(3Y) Ratio	1882–2005	–0.38	0.0675	5 (**71**)	–1.55	0.0675	13 (**59**)	–4.38	–0.2371	–0.2267	–0.95	–0.68	5 (**51**)
d/e Dividend(5Y) Earning(5Y) Ratio	1882–2005	–0.38	0.0665	9 (**79**)	–0.93	0.0665	16 (**55**)	–5.02	–0.3470	–0.3066	–1.74	–0.91	8 (**48**)
d/e Dividend(10Y) Earning(10Y) Ratio	1882–2005	–0.45	0.0573	— (—)	–2.32	0.0573	— (—)	–19.04	–1.4737	–1.9911	–1.78	–5.40	— (—)

Panel F: Forecasting 5 year return - Forecast begins 1902

Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS Performance ΔMAE	Relative OOS Performance ΔRMSE	Relative OOS Performance MSE-T	Relative OOS Performance MSE-F	Relative OOS Performance Power
e/p Earning(1Y) Price Ratio	1882–2005	7.43	1.5574	23 (**83**)	7.60	1.5574	24 (**77**)	2.04	0.0977	0.6055	0.42*	3.09*	20 (**73**)
e/p Earning(3Y) Price Ratio	1882–2005	11.35*	2.3189	50 (**91**)	12.55	2.3189	49 (**85**)	3.46	0.3186	0.8927	0.39**	4.60**	38 (**72**)
e/p Earning(5Y) Price Ratio	1882–2005	16.16**	3.2763	63 (**92**)	18.18	3.2763	63 (**88**)	4.76	0.8143	1.1579	0.41**	6.03**	48 (**73**)
e/p Earning(10Y) Price Ratio	1882–2005	16.47**	3.3378	91 (**97**)	20.18	3.3378	90 (**95**)	–2.85	–0.2493	–0.3697	–0.11*	–1.82*	72 (**80**)
d/p Dividend(1Y) Price Ratio	1882–2005	12.30*	2.5054	40 (**88**)	15.40	2.5054	41 (**83**)	–0.66	–0.7940	0.0632	0.02*	0.32*	31 (**70**)
d/p Dividend(3Y) Price Ratio	1882–2005	13.11*	2.6666	57 (**92**)	17.19	2.6666	57 (**88**)	–2.02	–0.5189	–0.2061	–0.06*	–1.02*	40 (**70**)
d/p Dividend(5Y) Price Ratio	1882–2005	13.75*	2.7941	73 (**94**)	18.33	2.7941	73 (**91**)	–3.85	–0.4180	–0.5662	–0.16*	–2.76*	51 (**71**)
d/p Dividend(10Y) Price Ratio	1882–2005	9.30	1.9190	68 (**93**)	14.10	1.9190	69 (**90**)	–16.68	–2.3815	–3.0069	–0.76	–13.46	44 (**67**)
d/e Dividend(1Y) Earning(1Y) Ratio	1882–2005	0.62	0.2730	6 (**70**)	2.22	0.2730	7 (**63**)	–9.34	–1.4062	–1.6283	–1.09	–7.65	6 (**65**)
d/e Dividend(1Y) Earning(3Y) Ratio	1882–2005	–0.15	0.1291	6 (**69**)	0.75	0.1291	7 (**65**)	–22.45	–3.3762	–4.0589	–1.51	–17.53	5 (**63**)
d/e Dividend(1Y) Earning(5Y) Ratio	1882–2005	–0.78	0.0129	7 (**71**)	–1.20	0.0129	8 (**61**)	–8.64	–0.9554	–1.4938	–1.23	–7.05	6 (**61**)
d/e Dividend(1Y) Earning(10Y) Ratio	1882–2005	–0.58	0.0506	23 (**87**)	–0.71	0.0506	23 (**77**)	–10.99	–0.8912	–1.9418	–1.24	–9.02	19 (**73**)
d/e Dividend(3Y) Earning(3Y) Ratio	1882–2005	0.41	0.2337	5 (**68**)	1.99	0.2337	7 (**65**)	–13.84	–2.0464	–2.4784	–1.41	–11.30	5 (**63**)
d/e Dividend(5Y) Earning(5Y) Ratio	1882–2005	–0.44	0.0769	9 (**77**)	0.41	0.0769	10 (**68**)	–12.90	–2.0896	–2.3015	–2.20	–10.56	8 (**66**)
d/e Dividend(10Y) Earning(10Y) Ratio	1882–2005	–0.64	0.0395	— (—)	–1.40	0.0395	— (—)	–17.07	–2.6024	–3.0790	–2.79	–13.75	— (—)

Panel G: Forecasting 5 year return - Forecast begins 1965

Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS Performance ΔMAE	Relative OOS Performance ΔRMSE	Relative OOS Performance MSE-T	Relative OOS Performance MSE-F	Relative OOS Performance Power
e/p Earning(1Y) Price Ratio	1882–2005	7.43	1.5574	23 (**83**)	1.75	1.5574	28 (**61**)	–3.28	–0.1141	–0.1147	–0.03	–0.26	18 (**53**)
e/p Earning(3Y) Price Ratio	1882–2005	11.35*	2.3189	50 (**91**)	–1.62	2.3189	47 (**68**)	–12.55	–0.3206	–1.5612	–0.27	–3.28	34 (**56**)
e/p Earning(5Y) Price Ratio	1882–2005	16.16**	3.2763	63 (**92**)	–2.90	3.2763	56 (**71**)	–21.16	–0.1642	–2.8520	–0.41	–5.68	41 (**57**)
e/p Earning(10Y) Price Ratio	1882–2005	16.47**	3.3378	91 (**97**)	2.92	3.3378	75 (**80**)	–25.65	–0.1626	–3.5069	–0.42	–6.80	59 (**64**)
d/p Dividend(1Y) Price Ratio	1882–2005	12.30*	2.5054	40 (**88**)	7.64	2.5054	41 (**67**)	–29.33	–1.1208	–4.0342	–0.49	–7.66	27 (**52**)
d/p Dividend(3Y) Price Ratio	1882–2005	13.11*	2.6666	57 (**92**)	8.40	2.6666	52 (**70**)	–28.11	–0.9106	–3.8609	–0.49	–7.38	36 (**55**)
d/p Dividend(5Y) Price Ratio	1882–2005	13.75*	2.7941	73 (**94**)	8.23	2.7941	63 (**74**)	–30.71	–1.4863	–4.2313	–0.53	–7.97	46 (**58**)
d/p Dividend(10Y) Price Ratio	1882–2005	9.30	1.9190	68 (**93**)	6.00	1.9190	60 (**74**)	–23.19	–1.0140	–3.1495	–0.43	–6.20	43 (**56**)
d/e Dividend(1Y) Earning(1Y) Ratio	1882–2005	0.62	0.2730	6 (**70**)	–0.04	0.2730	13 (**56**)	–0.41	0.0115	0.3466	0.38	0.79	6 (**48**)
d/e Dividend(1Y) Earning(3Y) Ratio	1882–2005	–0.15	0.1291	6 (**69**)	0.77	0.1291	13 (**56**)	–7.89	–0.8735	–0.8417	–1.87	–1.83	5 (**51**)
d/e Dividend(1Y) Earning(5Y) Ratio	1882–2005	–0.78	0.0129	7 (**71**)	–4.11	0.0129	14 (**50**)	–30.18	–2.9863	–4.1551	–1.73	–7.85	6 (**47**)
d/e Dividend(1Y) Earning(10Y) Ratio	1882–2005	–0.58	0.0506	23 (**87**)	–3.91	0.0506	27 (**62**)	–11.11	–0.6142	–1.3397	–1.24	–2.84	18 (**59**)
d/e Dividend(3Y) Earning(3Y) Ratio	1882–2005	0.41	0.2337	5 (**68**)	0.83	0.2337	12 (**56**)	–1.80	–0.3001	0.1225	0.18	0.28	5 (**52**)
d/e Dividend(5Y) Earning(5Y) Ratio	1882–2005	–0.44	0.0769	9 (**77**)	–1.09	0.0769	16 (**59**)	–8.61	–0.9608	–0.9533	–2.53	–2.06	8 (**53**)
d/e Dividend(10Y) Earning(10Y) Ratio	1882–2005	–0.64	0.0395	— (—)	–2.14	0.0395	— (—)	–21.41	–2.2341	–2.8883	–1.78	–5.74	— (—)

Panel H: Forecasting 10 year return - Forecast begins 1902

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS Performance ΔMAE	Relative OOS Performance ΔRMSE	Relative OOS Performance MSE-T	Relative OOS Performance MSE-F	Relative OOS Performance Power
e/p	Earning(1Y) Price Ratio	1882–2005	17.82**	4.6134	14 (**73**)	19.22	4.6134	15 (**68**)	–14.04	–3.0821	–3.4527	–0.63	–10.88	13 (**57**)
e/p	Earning(3Y) Price Ratio	1882–2005	17.46**	4.5217	36 (**80**)	19.75	4.5217	37 (**75**)	–11.36	–2.3308	–2.7614	–0.50	–8.86	30 (**63**)
e/p	Earning(5Y) Price Ratio	1882–2005	15.77*	4.0863	51 (**84**)	18.42	4.0863	51 (**80**)	–6.62	–1.1609	–1.5172	–0.32	–5.03	41 (**67**)
e/p	Earning(10Y) Price Ratio	1882–2005	13.26	3.4464	83 (**92**)	17.07	3.4464	82 (**90**)	–2.50	–0.6937	–0.4134	–0.12*	–1.41*	67 (**75**)
d/p	Dividend(1Y) Price Ratio	1882–2005	11.70	3.0527	33 (**79**)	16.60	3.0527	35 (**76**)	–1.74	–0.9099	–0.2061	–0.05*	–0.71*	28 (**64**)
d/p	Dividend(3Y) Price Ratio	1882–2005	9.37	2.4715	51 (**85**)	14.63	2.4715	52 (**80**)	–2.94	–0.9540	–0.5315	–0.13*	–1.81*	39 (**65**)
d/p	Dividend(5Y) Price Ratio	1882–2005	8.21	2.1867	68 (**89**)	13.50	2.1867	68 (**85**)	–2.72	–1.1290	–0.4712	–0.12*	–1.61*	51 (**68**)
d/p	Dividend(10Y) Price Ratio	1882–2005	6.90	1.8641	66 (**88**)	12.48	1.8641	67 (**84**)	–10.94	–2.8055	–2.6516	–0.53	–8.53	48 (**67**)
d/e	Dividend(1Y) Earning(1Y) Ratio	1882–2005	1.02	0.4513	5 (**66**)	–0.73	0.4513	7 (**59**)	–8.86	–1.7852	–2.1071	–1.74	–6.87	5 (**47**)
d/e	Dividend(1Y) Earning(3Y) Ratio	1882–2005	1.64	0.5983	6 (**69**)	–0.55	0.5983	7 (**65**)	–15.89	–4.3634	–3.9247	–1.63	–12.22	5 (**46**)
d/e	Dividend(1Y) Earning(5Y) Ratio	1882–2005	0.65	0.3622	6 (**66**)	–1.18	0.3622	7 (**59**)	–10.41	–1.7217	–2.5120	–1.18	–8.11	5 (**44**)
d/e	Dividend(1Y) Earning(10Y) Ratio	1882–2005	–0.77	0.0300	15 (**83**)	–1.14	0.0300	16 (**75**)	–4.23	0.5395	–0.8797	–0.66	–2.96	11 (**55**)
d/e	Dividend(3Y) Earning(3Y) Ratio	1882–2005	1.28	0.5114	5 (**66**)	–0.89	0.5114	7 (**64**)	–12.00	–3.0156	–2.9254	–1.93	–9.35	5 (**48**)
d/e	Dividend(5Y) Earning(5Y) Ratio	1882–2005	0.74	0.3847	9 (**73**)	–1.55	0.3847	9 (**64**)	–16.54	–3.6396	–4.0903	–3.04	–12.69	8 (**50**)
d/e	Dividend(10Y) Earning(10Y) Ratio	1882–2005	–0.47	0.0985	— (—)	–1.88	0.0985	— (—)	–77.74	–16.6692	–17.9848	–1.78	–41.03	— (—)

Panel I: Forecasting 10 year return - Forecast begins 1965

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS Performance ΔMAE	Relative OOS Performance ΔRMSE	Relative OOS Performance MSE-T	Relative OOS Performance MSE-F	Relative OOS Performance Power
e/p	Earning(1Y) Price Ratio	1882–2005	17.82**	4.6134	14 (**73**)	5.98	4.6134	20 (**56**)	7.98	–0.3387	2.3780	0.31	3.66*	12 (**53**)
e/p	Earning(3Y) Price Ratio	1882–2005	17.46**	4.5217	36 (**80**)	8.61	4.5217	37 (**60**)	10.24	0.3726	2.9063	0.31	4.56*	26 (**52**)
e/p	Earning(5Y) Price Ratio	1882–2005	15.77*	4.0863	51 (**84**)	10.23	4.0863	47 (**64**)	9.87	1.3348	2.8200	0.27	4.42	35 (**55**)
e/p	Earning(10Y) Price Ratio	1882–2005	13.26	3.4464	83 (**92**)	13.95	3.4464	66 (**72**)	7.83	1.1866	2.3447	0.20	3.61	54 (**60**)
d/p	Dividend(1Y) Price Ratio	1882–2005	11.70	3.0527	33 (**79**)	9.50	3.0527	35 (**60**)	–4.70	–0.9163	–0.4664	–0.03	–0.65	24 (**51**)
d/p	Dividend(3Y) Price Ratio	1882–2005	9.37	2.4715	51 (**85**)	6.90	2.4715	47 (**65**)	–7.18	–1.6726	–1.0018	–0.07	–1.38	34 (**54**)
d/p	Dividend(5Y) Price Ratio	1882–2005	8.21	2.1867	68 (**89**)	5.06	2.1867	56 (**67**)	–10.74	–2.7324	–1.7621	–0.13	–2.36	43 (**56**)
d/p	Dividend(10Y) Price Ratio	1882–2005	6.90	1.8641	66 (**88**)	2.11	1.8641	56 (**68**)	–25.25	–6.3391	–4.7356	–0.32	–5.80	41 (**54**)
d/e	Dividend(1Y) Earning(1Y) Ratio	1882–2005	1.02	0.4513	5 (**66**)	–1.06	0.4513	13 (**53**)	–18.44	–2.8543	–3.3617	–0.92	–4.29	5 (**47**)
d/e	Dividend(1Y) Earning(3Y) Ratio	1882–2005	1.64	0.5983	6 (**69**)	1.34	0.5983	13 (**52**)	–28.97	–4.8585	–5.4693	–0.97	–6.55	5 (**54**)
d/e	Dividend(1Y) Earning(5Y) Ratio	1882–2005	0.65	0.3622	6 (**66**)	0.87	0.3622	13 (**50**)	–17.51	–2.9599	–3.1716	–0.93	–4.07	5 (**48**)
d/e	Dividend(1Y) Earning(10Y) Ratio	1882–2005	–0.77	0.0300	15 (**83**)	–1.90	0.0300	21 (**55**)	–4.32	–0.2619	–0.3849	–1.41	–0.54	12 (**60**)
d/e	Dividend(3Y) Earning(3Y) Ratio	1882–2005	1.28	0.5114	5 (**66**)	1.78	0.5114	12 (**53**)	–20.92	–3.3967	–3.8662	–0.94	–4.86	5 (**54**)
d/e	Dividend(5Y) Earning(5Y) Ratio	1882–2005	0.74	0.3847	9 (**73**)	2.83	0.3847	16 (**54**)	–21.62	–3.7281	–4.0085	–1.14	–5.01	7 (**53**)
d/e	Dividend(10Y) Earning(10Y) Ratio	1882–2005	–0.47	0.0985	— (—)	1.73	0.0985	— (—)	–33.00	–6.7311	–6.2513	–3.00	–7.32	— (—)

Table 8: Forecasts at Monthly Frequency with Alternative Procedures

This table presents statistics on forecast errors (*in-sample* and *out-of-sample*) for excess stock return forecasts at the monthly frequency (both in the forecasting equation and forecast). Variables are explained in Section 1. Stock return is price changes, *excluding* dividends, of S&P500. Panel A uses the unadjusted betas (and is the same as Panel A of Table 1), Panel B corrects betas following Stambaugh (1999), and Panel C corrects betas following Lewellen (2004). All numbers, except $\overline{R}^2$ and power, are in percent per month. A star next to IS-$\overline{R}^2$ denotes significance of the in-sample regression (as measured by empirical F-statistic). RMSE is the root mean square error and MAE is the mean absolute error. ΔRMSE (ΔMAE) is the RMSE (MAE) difference between the unconditional forecast and the conditional forecast for the same sample/forecast period (positive numbers signify superior *out-of-sample* conditional forecast). OOS-R^2 is calculated as one minus the ratio of the variance of conditional forecast errors and the variance of the unconditional forecast errors. MSE-T is the Diebold and Mariano (1995) t-statistic modified by Harvey, Leybourne, and Newbold (1998) and MSE-F is F-statistic by McCracken (2004). Both the MSE-T and MSE-F statistics test for equal MSE of the unconditional forecast and the conditional forecast. One-sided critical values of MSE statistics are obtained empirically from bootstrapped distributions. 'Power' is the power of ΔRMSE and is calculated as the fraction of draws where the simulated ΔRMSE is greater than the empirically calculated 95% critical value and is reported in percent. The two numbers under the power column are power for all simulations and simulations that are found to be in-sample *significant* at the 95% level. Significance levels at 90%, 95%, and 99% are denoted by one, two, and three stars, respectively.

Panel A: Unadjusted betas

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS Performance ΔMAE	Relative OOS Performance ΔRMSE	Relative OOS Performance MSE-T	Relative OOS Performance MSE-F	Relative OOS Performance Power
d/p	Dividend Price Ratio	187102–200512	–0.06	0.0000	5 (**96**)	–0.07	0.0000	6 (**81**)	–0.57	–0.0062	–0.0125	–0.89	–6.87	5 (**60**)
d/y	Dividend Yield	187102–200512	–0.04	0.0005	9 (**97**)	–0.01	0.0005	10 (**77**)	–0.53	–0.0150	–0.0114	–1.25	–6.23	8 (**71**)
e/p	Earning Price Ratio	187102–200512	0.08	0.0033	37 (**98**)	0.07	0.0033	37 (**86**)	–0.14	–0.0124	–0.0017	–0.29**	–0.96	28 (**65**)
d/e	Dividend Payout Ratio	187112–200512	0.17*	0.0056	44 (**99**)	–0.04	0.0056	42 (**84**)	–0.56	0.0003	–0.0123	–0.70	–6.69	40 (**84**)
svar	Stock Variance	188502–200512	–0.05	0.0005	8 (**96**)	–0.06	0.0005	9 (**75**)	–1.45	–0.0040	–0.0353	–0.75*	–16.30	8 (**61**)
csp	Cross-Sectional Prem	193705–200212	0.66**	0.0185	66 (**99**)	0.37	0.0185	61 (**84**)	–1.27	–0.0595	–0.0233	–0.77	–5.86	57 (**82**)
b/m	Book to Market	192103–200512	0.15	0.0067	40 (**98**)	–0.25	0.0067	40 (**82**)	–0.89	–0.0372	–0.0157	–0.82	–5.84	33 (**66**)
ntis	Net Equity Expansion	192701–200512	0.70***	0.0225	71 (**99**)	0.18	0.0225	66 (**87**)	0.19	0.0113	0.0069	0.45**	2.35**	63 (**85**)
tbl	T-Bill Rate	192002–200512	0.14	0.0065	27 (**97**)	0.54	0.0065	27 (**79**)	0.01	0.0057	0.0030	0.16*	1.11**	24 (**78**)
lty	Long Term Yield	191901–200512	–0.00	0.0026	10 (**96**)	0.10	0.0026	11 (**71**)	–0.78	–0.0052	–0.0141	–0.59	–5.21	10 (**74**)
ltr	Long Term Return	192601–200512	0.04	0.0040	22 (**96**)	0.59	0.0040	23 (**75**)	–1.48	–0.0382	–0.0279	–2.00	–9.52	20 (**72**)
tms	Term Spread	192002–200512	0.13	0.0061	32 (**98**)	0.47	0.0061	32 (**80**)	0.18	0.0079	0.0066	0.59**	2.46**	28 (**75**)
dfy	Default Yield Spread	191901–200512	–0.09	0.0002	6 (**94**)	–0.12	0.0002	8 (**73**)	–0.36	–0.0068	–0.0052	–2.11	–1.92	6 (**67**)
dfr	Default Return Spread	192601–200512	–0.01	0.0025	16 (**97**)	–0.23	0.0025	18 (**76**)	–0.62	–0.0070	–0.0101	–1.63	–3.47	14 (**71**)
infl	Inflation	191902–200512	–0.01	0.0023	14 (**96**)	0.26	0.0023	15 (**74**)	–0.14	0.0014	–0.0003	–0.09	–0.13	14 (**71**)

Panel B: Betas adjusted for Stambaugh correction

	Variable	Data	In-Sample			In-Sample for OOS Period			Relative OOS Performance					
			$\overline{R}^2$	ΔRMSE	Power	$\overline{R}^2$	ΔRMSE	Power	$\overline{R}^2$	ΔMAE	ΔRMSE	MSE-T	MSE-F	Power
d/p	Dividend Price Ratio	187102–200512	–0.10	–0.0009	5 (**97**)	–0.17	–0.0009	5 (**84**)	–0.94	–0.0086	–0.0217	–1.13	–11.83	5 (**71**)
d/y	Dividend Yield	187102–200512	–0.04	0.0005	9 (**98**)	–0.02	0.0005	10 (**78**)	–0.59	–0.0152	–0.0129	–1.30	–7.05	8 (**71**)
e/p	Earning Price Ratio	187102–200512	0.06	0.0028	36 (**98**)	0.05	0.0028	37 (**90**)	–0.20	–0.0094	–0.0033	–0.76	–1.80	28 (**73**)
d/e	Dividend Payout Ratio	187112–200512	0.17*	0.0056	44 (**99**)	–0.05	0.0056	42 (**84**)	–0.66	–0.0022	–0.0149	–0.79	–8.05	40 (**83**)
svar	Stock Variance	188502–200512	–0.05	0.0005	8 (**96**)	–0.06	0.0005	9 (**75**)	–1.47	–0.0038	–0.0359	–0.75*	–16.55	8 (**61**)
csp	Cross-Sectional Prem	193705–200212	0.66**	0.0185	66 (**99**)	0.36	0.0185	61 (**84**)	–1.21	–0.0579	–0.0221	–0.74	–5.58	57 (**82**)
b/m	Book to Market	192103–200512	0.11	0.0058	40 (**98**)	–0.11	0.0058	39 (**85**)	–0.57	–0.0263	–0.0092	–0.67	–3.45	31 (**75**)
ntis	Net Equity Expansion	192701–200512	0.70***	0.0225	71 (**99**)	0.18	0.0225	66 (**86**)	0.18	0.0113	0.0067	0.44**	2.30**	63 (**85**)
tbl	T-Bill Rate	192002–200512	0.14	0.0064	27 (**97**)	0.55	0.0064	27 (**78**)	–0.07	0.0044	0.0012	0.06*	0.46*	25 (**78**)
lty	Long Term Yield	191901–200512	–0.01	0.0024	10 (**95**)	0.10	0.0024	11 (**70**)	–1.13	–0.0085	–0.0218	–0.79	–8.00	10 (**72**)
ltr	Long Term Return	192601–200512	0.04	0.0040	22 (**96**)	0.59	0.0040	23 (**75**)	–1.47	–0.0381	–0.0277	–1.98	–9.46	20 (**72**)
tms	Term Spread	192002–200512	0.13	0.0061	32 (**98**)	0.47	0.0061	32 (**80**)	0.16	0.0070	0.0060	0.54**	2.25**	28 (**75**)
dfy	Default Yield Spread	191901–200512	–0.09	0.0001	6 (**95**)	–0.12	0.0001	8 (**74**)	–0.26	–0.0022	–0.0028	–1.06	–1.05	6 (**69**)
dfr	Default Return Spread	192601–200512	–0.01	0.0025	16 (**97**)	–0.23	0.0025	18 (**76**)	–0.63	–0.0070	–0.0101	–1.63	–3.48	14 (**71**)
infl	Inflation	191902–200512	–0.01	0.0023	14 (**96**)	0.26	0.0023	15 (**73**)	–0.14	0.0014	–0.0003	–0.07	–0.11	14 (**71**)

Panel C: Betas adjusted for Lewellen correction

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS Performance ΔMAE	Relative OOS Performance ΔRMSE	Relative OOS Performance MSE-T	Relative OOS Performance MSE-F	Relative OOS Performance Power
d/p	Dividend Price Ratio	187102–200512	–0.30**	–0.0056	5 (**5**)	–0.45	–0.0056	6 (**6**)	–1.80	–0.0127	–0.0431	–1.83	–23.37	5 (**5**)
d/y	Dividend Yield	187102–200512	–0.05	0.0004	9 (**97**)	–0.03	0.0004	10 (**79**)	–0.51	–0.0113	–0.0110	–1.15	–6.05	8 (**70**)
e/p	Earning Price Ratio	187102–200512	–0.36***	–0.0070	24 (**24**)	–0.37	–0.0070	25 (**25**)	–0.66	–0.0066	–0.0148	–2.60	–8.10	12 (**12**)
d/e	Dividend Payout Ratio	187112–200512	0.17*	0.0056	44 (**99**)	–0.04	0.0056	42 (**84**)	–0.55	0.0016	–0.0119	–0.67	–6.45	40 (**83**)
svar	Stock Variance	188502–200512	–2.07***	–0.0490	5 (**5**)	–2.09	–0.0490	7 (**7**)	–5.52	–0.0335	–0.1393	–1.33	–62.42	6 (**6**)
csp	Cross-Sectional Prem	193705–200212	0.66**	0.0185	66 (**99**)	0.36	0.0185	61 (**84**)	–1.01	–0.0520	–0.0178	–0.63	–4.50	58 (**83**)
b/m	Book to Market	192103–200512	–0.39**	–0.0078	38 (**38**)	–0.35	–0.0078	40 (**40**)	–0.40	0.0029	–0.0057	–0.99	–2.14	14 (**14**)
ntis	Net Equity Expansion	192701–200512	0.69***	0.0222	71 (**99**)	0.14	0.0222	66 (**86**)	0.13	0.0106	0.0056	0.34*	1.93**	62 (**82**)
tbl	T-Bill Rate	192002–200512	0.14	0.0064	27 (**98**)	0.56	0.0064	28 (**78**)	–0.07	0.0044	0.0012	0.06*	0.45*	25 (**77**)
lty	Long Term Yield	191901–200512	–0.01	0.0025	10 (**96**)	0.10	0.0025	11 (**70**)	–0.73	–0.0070	–0.0131	–0.58	–4.85	11 (**73**)
ltr	Long Term Return	192601–200512	–1.54***	–0.0399	9 (**9**)	–1.56	–0.0399	14 (**14**)	–4.21	–0.1099	–0.0839	–1.67	–28.09	11 (**11**)
tms	Term Spread	192002–200512	0.13	0.0061	32 (**98**)	0.47	0.0061	32 (**80**)	0.13	0.0063	0.0055	0.49**	2.06**	28 (**75**)
dfy	Default Yield Spread	191901–200512	–0.17	–0.0020	6 (**97**)	–0.16	–0.0020	7 (**79**)	–0.24	0.0037	–0.0025	–0.38	–0.93	5 (**58**)
dfr	Default Return Spread	192601–200512	–1.20*	–0.0304	11 (**99**)	–2.97	–0.0304	13 (**76**)	–3.86	–0.0582	–0.0769	–2.49	–25.81	9 (**32**)
infl	Inflation	191902–200512	–0.07	0.0006	14 (**98**)	0.47	0.0006	18 (**72**)	–0.03	0.0037	0.0021	0.36*	0.78*	14 (**59**)

Table 9: Forecasts at Monthly Frequency with Alternative Procedures and Total Returns

This table presents statistics on forecast errors (*in-sample* and *out-of-sample*) for excess stock return forecasts at the monthly frequency (both in the forecasting equation and forecast). Variables are explained in Section 1. Stock return is price changes, *including* dividends, of S&P500 calculated using CRSP data. Panel A uses the unadjusted betas (and is the same as Panel A of Table 2), Panel B corrects betas following Stambaugh (1999), and Panel C corrects betas following Lewellen (2004). The sample period is January 1927 to December 2005 and the first forecast is constructed in January 1965. All numbers, except $\overline{R}^2$ and power, are in percent per month. A star next to IS-$\overline{R}^2$ denotes significance of the in-sample regression (as measured by empirical F-statistic). RMSE is the root mean square error and MAE is the mean absolute error. ΔRMSE (ΔMAE) is the RMSE (MAE) difference between the unconditional forecast and the conditional forecast for the same sample/forecast period (positive numbers signify superior *out-of-sample* conditional forecast). OOS-R^2 is calculated as one minus the ratio of the variance of conditional forecast errors and the variance of the unconditional forecast errors. MSE-T is the Diebold and Mariano (1995) t-statistic modified by Harvey, Leybourne, and Newbold (1998) and MSE-F is F-statistic by McCracken (2004). Both the MSE-T and MSE-F statistics test for equal MSE of the unconditional forecast and the conditional forecast. One-sided critical values of MSE statistics are obtained empirically from bootstrapped distributions. 'Power' is the power of ΔRMSE and is calculated as the fraction of draws where the simulated ΔRMSE is greater than the empirically calculated 95% critical value and is reported in percent. The two numbers under the power column are power for all simulations and simulations that are found to be in-sample *significant* at the 95% level. Significance levels at 90%, 95%, and 99% are denoted by one, two, and three stars, respectively.

Panel A: Unadjusted betas

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS Performance ΔMAE	Relative OOS Performance ΔRMSE	Relative OOS Performance MSE-T	Relative OOS Performance MSE-F	Relative OOS Performance Power
d/p	Dividend Price Ratio	192701–200512	0.15	0.0070	39 (**96**)	–0.05	0.0070	41 (**75**)	–0.15	–0.0369	0.0012	0.06*	0.26	29 (**56**)
d/y	Dividend Yield	192701–200512	0.25*	0.0100	40 (**98**)	–0.09	0.0100	39 (**73**)	–0.40	–0.0538	–0.0042	–0.16	–0.94	33 (**71**)
e/p	Earning Price Ratio	192701–200512	0.54**	0.0181	83 (**99**)	–0.48	0.0181	75 (**85**)	–1.21	–0.0576	–0.0218	–0.67	–4.87	56 (**64**)
d/e	Dividend Payout Ratio	192701–200512	0.01	0.0032	17 (**98**)	–0.30	0.0032	18 (**69**)	–2.02	–0.0291	–0.0393	–2.63	–8.74	15 (**70**)
svar	Stock Variance	192701–200512	–0.08	0.0006	7 (**96**)	–0.08	0.0006	11 (**60**)	–0.34	–0.0014	–0.0030	–1.52	–0.68	7 (**53**)
csp	Cross-Sectional Prem	193705–200212	0.92***	0.0244	77 (**99**)	0.46	0.0244	69 (**83**)	0.70	0.0090	0.0206	0.71**	4.22***	65 (**80**)
b/m	Book to Market	192701–200512	0.40**	0.0143	67 (**98**)	–1.09	0.0143	62 (**80**)	–2.45	–0.0927	–0.0485	–1.39	–10.77	48 (**65**)
ntis	Net Equity Expansion	192701–200512	0.75***	0.0239	73 (**99**)	0.52	0.0239	64 (**79**)	–0.28	0.0001	–0.0016	–0.07	–0.36	59 (**76**)
tbl	T-Bill Rate	192701–200512	0.11	0.0060	23 (**98**)	0.13	0.0060	25 (**71**)	–0.18	0.0104	0.0005	0.02	0.12	19 (**69**)
lty	Long Term Yield	192701–200512	–0.01	0.0027	9 (**96**)	–0.26	0.0027	13 (**69**)	–1.15	–0.0014	–0.0205	–0.49	–4.60	9 (**68**)
ltr	Long Term Return	192701–200512	0.04	0.0041	21 (**96**)	0.66	0.0041	25 (**67**)	–0.49	–0.0274	–0.0062	–0.37	–1.39	18 (**62**)
tms	Term Spread	192701–200512	0.07	0.0050	25 (**98**)	0.60	0.0050	27 (**70**)	0.09	0.0086	0.0064	0.39	1.45*	21 (**66**)
dfy	Default Yield Spread	192701–200512	–0.07	0.0011	10 (**96**)	0.03	0.0011	14 (**67**)	–0.14	–0.0029	0.0013	0.52*	0.29	9 (**59**)
dfr	Default Return Spread	192701–200512	–0.02	0.0023	14 (**97**)	–0.10	0.0023	18 (**65**)	–0.30	–0.0029	–0.0021	–0.32	–0.47	12 (**61**)
infl	Inflation	192701–200512	–0.00	0.0029	16 (**97**)	–0.08	0.0029	20 (**67**)	–0.07	0.0047	0.0029	0.37	0.65	14 (**62**)

Panel B: Betas adjusted for Stambaugh correction

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS Performance ΔMAE	Relative OOS Performance ΔRMSE	Relative OOS Performance MSE-T	Relative OOS Performance MSE-F	Relative OOS Performance Power
d/p	Dividend Price Ratio	192701–200512	0.05	0.0042	36 (**96**)	–0.06	0.0042	35 (**82**)	–0.31	–0.0215	–0.0022	–0.24	–0.50	26 (**69**)
d/y	Dividend Yield	192701–200512	0.25*	0.0100	40 (**98**)	–0.07	0.0100	38 (**73**)	–0.36	–0.0517	–0.0033	–0.13	–0.75	33 (**71**)
e/p	Earning Price Ratio	192701–200512	0.48**	0.0163	79 (**99**)	–0.12	0.0163	76 (**90**)	–0.54	–0.0348	–0.0073	–0.32	–1.64	59 (**73**)
d/e	Dividend Payout Ratio	192701–200512	0.01	0.0032	16 (**98**)	–0.31	0.0032	18 (**68**)	–2.11	–0.0309	–0.0413	–2.68	–9.18	15 (**69**)
svar	Stock Variance	192701–200512	–0.08	0.0006	7 (**96**)	–0.07	0.0006	11 (**60**)	–0.34	–0.0015	–0.0029	–1.68	–0.64	7 (**53**)
csp	Cross-Sectional Prem	193705–200212	0.92***	0.0244	77 (**99**)	0.46	0.0244	69 (**83**)	0.70	0.0091	0.0207	0.72**	4.24***	65 (**80**)
b/m	Book to Market	192701–200512	0.36**	0.0132	66 (**99**)	–0.65	0.0132	62 (**85**)	–1.61	–0.0673	–0.0306	–1.11	–6.82	48 (**71**)
ntis	Net Equity Expansion	192701–200512	0.75***	0.0239	73 (**99**)	0.52	0.0239	64 (**79**)	–0.29	–0.0004	–0.0019	–0.09	–0.44	59 (**76**)
tbl	T-Bill Rate	192701–200512	0.11	0.0060	23 (**98**)	0.13	0.0060	25 (**70**)	–0.33	0.0084	–0.0027	–0.08	–0.61	20 (**69**)
lty	Long Term Yield	192701–200512	–0.01	0.0026	9 (**96**)	–0.31	0.0026	13 (**68**)	–1.71	–0.0104	–0.0327	–0.71	–7.30	9 (**68**)
ltr	Long Term Return	192701–200512	0.04	0.0041	21 (**96**)	0.66	0.0041	25 (**67**)	–0.48	–0.0274	–0.0061	–0.37	–1.37	18 (**62**)
tms	Term Spread	192701–200512	0.07	0.0050	25 (**98**)	0.60	0.0050	27 (**70**)	0.07	0.0079	0.0059	0.36	1.33*	20 (**65**)
dfy	Default Yield Spread	192701–200512	–0.07	0.0010	10 (**96**)	–0.03	0.0010	14 (**68**)	–0.33	–0.0054	–0.0026	–1.45	–0.60	8 (**59**)
dfr	Default Return Spread	192701–200512	–0.02	0.0023	14 (**97**)	–0.10	0.0023	18 (**65**)	–0.30	–0.0029	–0.0021	–0.32	–0.47	12 (**61**)
infl	Inflation	192701–200512	–0.00	0.0029	16 (**97**)	–0.08	0.0029	20 (**67**)	–0.07	0.0047	0.0029	0.37	0.65	14 (**62**)

Panel C: Betas adjusted for Lewellen correction

	Variable	Data	In-Sample			In-Sample for OOS Period			Relative OOS Performance					
			$\overline{R}^2$	ΔRMSE	Power	$\overline{R}^2$	ΔRMSE	Power	$\overline{R}^2$	ΔMAE	ΔRMSE	MSE-T	MSE-F	Power
d/p	Dividend Price Ratio	192701–200512	–0.15**	–0.0011	76 (**76**)	–0.25	–0.0011	76 (**76**)	–1.03	–0.0085	–0.0179	–1.98	–4.01	3 (**3**)
d/y	Dividend Yield	192701–200512	0.25*	0.0099	40 (**98**)	–0.06	0.0099	38 (**74**)	–0.26	–0.0469	–0.0012	–0.05	–0.26	32 (**72**)
e/p	Earning Price Ratio	192701–200512	0.02***	0.0034	94 (**94**)	–0.12	0.0034	95 (**95**)	–0.01	0.0018	0.0043	0.79**	0.97**	41 (**41**)
d/e	Dividend Payout Ratio	192701–200512	0.01	0.0032	17 (**98**)	–0.31	0.0032	18 (**69**)	–2.05	–0.0297	–0.0399	–2.65	–8.88	15 (**69**)
svar	Stock Variance	192701–200512	–1.66**	–0.0435	6 (**6**)	–0.24	–0.0435	14 (**14**)	–0.63	–0.0129	–0.0093	–0.40	–2.10	7 (**7**)
csp	Cross-Sectional Prem	193705–200212	0.91***	0.0244	77 (**99**)	0.45	0.0244	69 (**83**)	0.71	0.0094	0.0208	0.75**	4.27***	65 (**81**)
b/m	Book to Market	192701–200512	–0.14**	–0.0010	75 (**75**)	–0.21	–0.0010	77 (**77**)	–0.31	0.0004	–0.0022	–0.73	–0.50	19 (**19**)
ntis	Net Equity Expansion	192701–200512	0.74***	0.0237	73 (**99**)	0.51	0.0237	64 (**78**)	–0.38	–0.0025	–0.0039	–0.17	–0.88	58 (**74**)
tbl	T-Bill Rate	192701–200512	0.11	0.0060	23 (**98**)	0.13	0.0060	25 (**70**)	–0.27	0.0096	–0.0015	–0.05	–0.34	20 (**68**)
lty	Long Term Yield	192701–200512	–0.01	0.0026	9 (**96**)	–0.30	0.0026	13 (**68**)	–1.05	–0.0041	–0.0184	–0.47	–4.11	10 (**67**)
ltr	Long Term Return	192701–200512	–1.55***	–0.0403	9 (**9**)	–2.14	–0.0403	20 (**20**)	–6.41	–0.1813	–0.1330	–1.88	–28.68	12 (**12**)
tms	Term Spread	192701–200512	0.07	0.0050	24 (**98**)	0.59	0.0050	27 (**71**)	0.06	0.0070	0.0057	0.34	1.30*	20 (**65**)
dfy	Default Yield Spread	192701–200512	–0.15	–0.0014	10 (**96**)	–0.34	–0.0014	13 (**72**)	–0.71	–0.0085	–0.0109	–3.38	–2.45	5 (**43**)
dfr	Default Return Spread	192701–200512	–1.32*	–0.0338	9 (**100**)	–2.49	–0.0338	16 (**70**)	–2.64	–0.0469	–0.0528	–1.30	–11.69	10 (**38**)
infl	Inflation	192701–200512	–0.03	0.0020	16 (**96**)	–0.07	0.0020	23 (**65**)	–0.13	0.0044	0.0016	0.17	0.36	15 (**56**)

Table 10: Forecasts at Monthly Frequency with Alternative Procedures and Total Returns 1946–2005

This table presents statistics on forecast errors (*in-sample* and *out-of-sample*) for excess stock return forecasts at the monthly frequency (both in the forecasting equation and forecast). Variables are explained in Section 1. Stock return is price changes, *including* dividends, of S&P500 calculated using CRSP data. Panel A uses the unadjusted betas (and is the same as Panel A of Table 2), Panel B corrects betas following Stambaugh (1999), and Panel C corrects betas following Lewellen (2004). The sample period is January 1946 to December 2005 and the first forecast is constructed in January 1965. All numbers, except $\overline{R}^2$ and power, are in percent per month. A star next to IS-$\overline{R}^2$ denotes significance of the in-sample regression (as measured by empirical F-statistic). RMSE is the root mean square error and MAE is the mean absolute error. ΔRMSE (ΔMAE) is the RMSE (MAE) difference between the unconditional forecast and the conditional forecast for the same sample/forecast period (positive numbers signify superior *out-of-sample* conditional forecast). OOS-R^2 is calculated as one minus the ratio of the variance of conditional forecast errors and the variance of the unconditional forecast errors. MSE-T is the Diebold and Mariano (1995) t-statistic modified by Harvey, Leybourne, and Newbold (1998) and MSE-F is F-statistic by McCracken (2004). Both the MSE-T and MSE-F statistics test for equal MSE of the unconditional forecast and the conditional forecast. One-sided critical values of MSE statistics are obtained empirically from bootstrapped distributions. 'Power' is the power of ΔRMSE and is calculated as the fraction of draws where the simulated ΔRMSE is greater than the empirically calculated 95% critical value and is reported in percent. The two numbers under the power column are power for all simulations and simulations that are found to be in-sample *significant* at the 95% level. Significance levels at 90%, 95%, and 99% are denoted by one, two, and three stars, respectively.

Panel A: Unadjusted betas

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS Performance ΔMAE	Relative OOS Performance ΔRMSE	Relative OOS Performance MSE-T	Relative OOS Performance MSE-F	Relative OOS Performance Power
d/p	Dividend Price Ratio	194601–200512	0.55*	0.0143	74 (**98**)	–0.14	0.0143	73 (**88**)	–0.29	–0.0477	–0.0018	–0.07	–0.40	47 (**59**)
d/y	Dividend Yield	194601–200512	0.58**	0.0149	46 (**99**)	–0.13	0.0149	42 (**79**)	–0.28	–0.0530	–0.0017	–0.06	–0.39	40 (**81**)
e/p	Earning Price Ratio	194601–200512	0.51*	0.0136	58 (**98**)	–0.13	0.0136	58 (**84**)	–0.28	–0.0278	–0.0016	–0.08*	–0.36	40 (**60**)
d/e	Dividend Payout Ratio	194601–200512	–0.13	0.0002	6 (**97**)	–0.21	0.0002	7 (**63**)	–0.78	–0.0119	–0.0126	–1.16	–2.83	5 (**65**)
svar	Stock Variance	194601–200512	0.16	0.0062	28 (**99**)	0.12	0.0062	28 (**75**)	–1.10	–0.0155	–0.0194	–1.61	–4.35	22 (**62**)
csp	Cross-Sectional Prem	194601–200212	0.90***	0.0222	67 (**99**)	0.47	0.0222	62 (**83**)	0.77	0.0106	0.0221	1.01**	4.54***	59 (**83**)
b/m	Book to Market	194601–200512	–0.03	0.0023	15 (**96**)	–0.31	0.0023	16 (**74**)	–1.37	–0.0372	–0.0253	–1.31	–5.66	13 (**61**)
ntis	Net Equity Expansion	194601–200512	0.27*	0.0085	35 (**98**)	0.49	0.0085	35 (**77**)	–0.59	–0.0105	–0.0084	–0.41	–1.88	32 (**77**)
tbl	T-Bill Rate	194601–200512	0.58**	0.0149	40 (**99**)	0.10	0.0149	39 (**78**)	–0.24	0.0150	–0.0008	–0.02	–0.19	36 (**81**)
lty	Long Term Yield	194601–200512	0.13	0.0057	14 (**98**)	–0.31	0.0057	14 (**69**)	–0.75	0.0135	–0.0118	–0.28	–2.65	12 (**75**)
ltr	Long Term Return	194601–200512	0.67**	0.0169	69 (**99**)	0.80	0.0169	63 (**83**)	0.04	–0.0302	0.0053	0.15**	1.21*	58 (**79**)
tms	Term Spread	194601–200512	0.46**	0.0125	52 (**99**)	0.68	0.0125	48 (**80**)	–0.37	–0.0065	–0.0036	–0.10	–0.80	43 (**77**)
dfy	Default Yield Spread	194601–200512	0.05	0.0039	19 (**98**)	0.36	0.0039	20 (**72**)	–0.67	–0.0099	–0.0101	–0.61	–2.27	17 (**71**)
dfr	Default Return Spread	194601–200512	–0.13	0.0003	6 (**97**)	–0.14	0.0003	9 (**70**)	–0.69	0.0039	–0.0106	–0.67	–2.39	6 (**69**)
infl	Inflation	194601–200512	0.84***	0.0205	74 (**99**)	–0.17	0.0205	68 (**84**)	–0.07	0.0112	0.0028	0.13*	0.64*	63 (**81**)

Panel B: Betas adjusted for Stambaugh correction

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS Performance ΔMAE	Relative OOS Performance ΔRMSE	Relative OOS Performance MSE-T	Relative OOS Performance MSE-F	Relative OOS Performance Power
d/p	Dividend Price Ratio	194601–200512	0.25	0.0082	61 (**98**)	–0.04	0.0082	59 (**90**)	–0.39	–0.0283	–0.0041	–0.32	–0.93	39 (**61**)
d/y	Dividend Yield	194601–200512	0.58**	0.0149	46 (**99**)	–0.12	0.0149	42 (**79**)	–0.27	–0.0521	–0.0013	–0.05	–0.30	41 (**81**)
e/p	Earning Price Ratio	194601–200512	0.31	0.0093	52 (**98**)	–0.02	0.0093	50 (**88**)	–0.33	–0.0107	–0.0027	–0.42	–0.62	38 (**69**)
d/e	Dividend Payout Ratio	194601–200512	–0.13	0.0002	6 (**97**)	–0.21	0.0002	7 (**64**)	–0.79	–0.0118	–0.0128	–1.06	–2.87	6 (**64**)
svar	Stock Variance	194601–200512	0.16	0.0062	28 (**99**)	0.12	0.0062	28 (**75**)	–1.07	–0.0156	–0.0189	–1.54	–4.23	22 (**62**)
csp	Cross-Sectional Prem	194601–200212	0.90***	0.0222	67 (**99**)	0.46	0.0222	62 (**83**)	0.76	0.0106	0.0220	1.01**	4.52***	59 (**83**)
b/m	Book to Market	194601–200512	–0.17	–0.0007	14 (**97**)	–0.21	–0.0007	14 (**77**)	–1.04	–0.0119	–0.0182	–1.82	–4.07	12 (**72**)
ntis	Net Equity Expansion	194601–200512	0.27*	0.0085	35 (**99**)	0.50	0.0085	35 (**76**)	–0.67	–0.0126	–0.0102	–0.47	–2.28	32 (**76**)
tbl	T-Bill Rate	194601–200512	0.57**	0.0149	40 (**99**)	0.07	0.0149	39 (**78**)	–0.61	0.0103	–0.0089	–0.18	–1.99	37 (**80**)
lty	Long Term Yield	194601–200512	0.12	0.0054	14 (**98**)	–0.39	0.0054	14 (**68**)	–1.41	0.0047	–0.0263	–0.57	–5.86	13 (**73**)
ltr	Long Term Return	194601–200512	0.67**	0.0169	69 (**99**)	0.80	0.0169	63 (**83**)	0.03	–0.0305	0.0051	0.14**	1.16*	58 (**79**)
tms	Term Spread	194601–200512	0.46**	0.0125	52 (**99**)	0.68	0.0125	48 (**80**)	–0.45	–0.0088	–0.0053	–0.14	–1.20	43 (**77**)
dfy	Default Yield Spread	194601–200512	0.05	0.0039	19 (**98**)	0.37	0.0039	20 (**72**)	–0.67	–0.0102	–0.0101	–0.60	–2.26	17 (**71**)
dfr	Default Return Spread	194601–200512	–0.13	0.0003	6 (**97**)	–0.14	0.0003	9 (**70**)	–0.69	0.0040	–0.0106	–0.67	–2.38	6 (**69**)
infl	Inflation	194601–200512	0.84***	0.0205	74 (**99**)	–0.18	0.0205	68 (**84**)	–0.08	0.0112	0.0028	0.13*	0.63*	63 (**81**)

Panel C: Betas adjusted for Lewellen correction

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS Performance ΔMAE	Relative OOS Performance ΔRMSE	Relative OOS Performance MSE-T	Relative OOS Performance MSE-F	Relative OOS Performance Power
d/p	Dividend Price Ratio	194601–200512	0.44***	0.0120	100 (**100**)	–0.02	0.0120	100 (**100**)	0.54	–0.0092	0.0162	0.89**	3.66***	97 (**97**)
d/y	Dividend Yield	194601–200512	0.58**	0.0149	46 (**99**)	–0.12	0.0149	42 (**79**)	–0.25	–0.0518	–0.0011	–0.04	–0.25	40 (**81**)
e/p	Earning Price Ratio	194601–200512	0.25***	0.0081	91 (**100**)	–0.04	0.0081	91 (**100**)	0.22	0.0016	0.0093	0.83**	2.09**	66 (**72**)
d/e	Dividend Payout Ratio	194601–200512	–0.13	0.0002	6 (**97**)	–0.21	0.0002	7 (**64**)	–0.81	–0.0123	–0.0133	–1.14	–2.98	5 (**64**)
svar	Stock Variance	194601–200512	–5.07**	–0.1012	5 (**5**)	–6.41	–0.1012	11 (**11**)	–5.12	–0.0921	–0.1060	–1.53	–23.02	8 (**8**)
csp	Cross-Sectional Prem	194601–200212	0.90***	0.0222	67 (**99**)	0.46	0.0222	62 (**83**)	0.77	0.0108	0.0221	1.03**	4.53***	59 (**84**)
b/m	Book to Market	194601–200512	–0.19	–0.0010	20 (**99**)	–0.21	–0.0010	19 (**91**)	–0.27	0.0032	–0.0015	–0.17	–0.33	12 (**51**)
ntis	Net Equity Expansion	194601–200512	0.25*	0.0080	36 (**99**)	0.52	0.0080	37 (**75**)	–0.99	–0.0194	–0.0171	–0.67	–3.82	33 (**74**)
tbl	T-Bill Rate	194601–200512	0.56**	0.0146	41 (**99**)	0.04	0.0146	39 (**78**)	–0.45	0.0141	–0.0054	–0.12	–1.21	38 (**79**)
lty	Long Term Yield	194601–200512	0.12	0.0054	14 (**98**)	–0.39	0.0054	15 (**67**)	–0.76	0.0108	–0.0121	–0.30	–2.72	14 (**73**)
ltr	Long Term Return	194601–200512	–1.93***	–0.0371	22 (**22**)	–2.42	–0.0371	28 (**28**)	–8.24	–0.2192	–0.1719	–2.19	–36.53	21 (**21**)
tms	Term Spread	194601–200512	0.46**	0.0124	51 (**99**)	0.69	0.0124	48 (**79**)	–0.74	–0.0181	–0.0118	–0.28	–2.64	43 (**75**)
dfy	Default Yield Spread	194601–200512	0.05	0.0039	19 (**98**)	0.38	0.0039	20 (**72**)	–0.67	–0.0103	–0.0101	–0.60	–2.26	17 (**70**)
dfr	Default Return Spread	194601–200512	–1.77*	–0.0337	5 (**100**)	–1.39	–0.0337	9 (**74**)	–0.66	–0.0159	–0.0099	–0.45	–2.23	6 (**29**)
infl	Inflation	194601–200512	0.47***	0.0126	68 (**100**)	–0.64	0.0126	62 (**77**)	–0.57	0.0051	–0.0080	–0.26	–1.78	50 (**64**)

Table 11: Forecasts at Monthly Frequency with Alternative Procedures and Total Returns 1946–1990

This table presents statistics on forecast errors (*in-sample* and *out-of-sample*) for excess stock return forecasts at the monthly frequency (both in the forecasting equation and forecast). Variables are explained in Section 1. Stock return is price changes, *including* dividends, of S&P500 calculated using CRSP data. Panel A uses the unadjusted betas (and is the same as Panel A of Table 2), Panel B corrects betas following Stambaugh (1999), and Panel C corrects betas following Lewellen (2004). The sample period is January 1946 to December 1990 and the first forecast is constructed in January 1965. All numbers, except $\overline{R}^2$ and power, are in percent per month. A star next to IS-$\overline{R}^2$ denotes significance of the in-sample regression (as measured by empirical F-statistic). RMSE is the root mean square error and MAE is the mean absolute error. ΔRMSE (ΔMAE) is the RMSE (MAE) difference between the unconditional forecast and the conditional forecast for the same sample/forecast period (positive numbers signify superior *out-of-sample* conditional forecast). OOS-R^2 is calculated as one minus the ratio of the variance of conditional forecast errors and the variance of the unconditional forecast errors. MSE-T is the Diebold and Mariano (1995) t-statistic modified by Harvey, Leybourne, and Newbold (1998) and MSE-F is F-statistic by McCracken (2004). Both the MSE-T and MSE-F statistics test for equal MSE of the unconditional forecast and the conditional forecast. One-sided critical values of MSE statistics are obtained empirically from bootstrapped distributions. 'Power' is the power of ΔRMSE and is calculated as the fraction of draws where the simulated ΔRMSE is greater than the empirically calculated 95% critical value and is reported in percent. The two numbers under the power column are power for all simulations and simulations that are found to be in-sample *significant* at the 95% level. Significance levels at 90%, 95%, and 99% are denoted by one, two, and three stars, respectively.

Panel A: Unadjusted betas

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS Performance ΔMAE	Relative OOS Performance ΔRMSE	Relative OOS Performance MSE-T	Relative OOS Performance MSE-F	Relative OOS Performance Power
d/p	Dividend Price Ratio	194601–199012	1.65***	0.0388	99 (**100**)	0.93	0.0388	96 (**97**)	1.38	0.0206	0.0387	1.36***	5.37***	77 (**78**)
d/y	Dividend Yield	194601–199012	1.83***	0.0426	78 (**100**)	1.14	0.0426	70 (**84**)	1.59	0.0185	0.0437	1.48***	6.08***	67 (**83**)
e/p	Earning Price Ratio	194601–199012	0.62*	0.0169	53 (**98**)	–0.01	0.0169	53 (**80**)	–0.27	–0.0086	0.0013	0.05*	0.18	38 (**60**)
d/e	Dividend Payout Ratio	194601–199012	–0.04	0.0031	8 (**97**)	–0.12	0.0031	11 (**63**)	–0.76	–0.0063	–0.0100	–0.63	–1.36	8 (**69**)
svar	Stock Variance	194601–199012	0.40*	0.0122	39 (**99**)	0.46	0.0122	36 (**71**)	–1.26	–0.0115	–0.0212	–1.39	–2.89	27 (**57**)
csp	Cross-Sectional Prem	194601–199012	0.80**	0.0208	51 (**99**)	0.04	0.0208	48 (**77**)	0.61	0.0194	0.0211	0.73**	2.92**	43 (**75**)
b/m	Book to Market	194601–199012	0.18	0.0077	30 (**97**)	–0.00	0.0077	32 (**75**)	–1.45	–0.0257	–0.0256	–0.91	–3.48	24 (**59**)
ntis	Net Equity Expansion	194601–199012	0.50*	0.0145	42 (**99**)	1.23	0.0145	40 (**75**)	–0.60	–0.0087	–0.0063	–0.21	–0.86	35 (**74**)
tbl	T-Bill Rate	194601–199012	1.01***	0.0252	47 (**99**)	0.16	0.0252	44 (**76**)	0.04	0.0243	0.0082	0.12	1.12*	40 (**78**)
lty	Long Term Yield	194601–199012	0.27	0.0097	13 (**98**)	–0.61	0.0097	14 (**67**)	–0.95	0.0269	–0.0142	–0.22	–1.93	12 (**74**)
ltr	Long Term Return	194601–199012	1.34***	0.0322	82 (**99**)	1.84	0.0322	73 (**84**)	0.81	–0.0191	0.0257	0.49***	3.55**	68 (**80**)
tms	Term Spread	194601–199012	1.16***	0.0284	73 (**99**)	1.43	0.0284	64 (**80**)	0.39	–0.0014	0.0161	0.30	2.22**	60 (**77**)
dfy	Default Yield Spread	194601–199012	0.18	0.0077	25 (**98**)	1.14	0.0077	26 (**71**)	–0.79	–0.0043	–0.0106	–0.43	–1.45	21 (**71**)
dfr	Default Return Spread	194601–199012	–0.14	0.0009	7 (**96**)	–0.13	0.0009	11 (**65**)	–0.92	0.0073	–0.0135	–0.57	–1.84	7 (**62**)
infl	Inflation	194601–199012	1.36***	0.0326	80 (**99**)	–0.21	0.0326	70 (**82**)	0.28	0.0149	0.0138	0.44*	1.90**	67 (**80**)

Panel B: Betas adjusted for Stambaugh correction

	Variable	Data	In-Sample			In-Sample for OOS Period			Relative OOS Performance					
			$\overline{R}^2$	ΔRMSE	Power	$\overline{R}^2$	ΔRMSE	Power	$\overline{R}^2$	ΔMAE	ΔRMSE	MSE-T	MSE-F	Power
d/p	Dividend Price Ratio	194601–199012	1.47***	0.0349	99 (**100**)	0.77	0.0349	97 (**98**)	0.54	0.0113	0.0195	1.29***	2.70**	86 (**87**)
d/y	Dividend Yield	194601–199012	1.83***	0.0426	78 (**100**)	1.13	0.0426	70 (**84**)	1.58	0.0186	0.0433	1.49***	6.03***	68 (**84**)
e/p	Earning Price Ratio	194601–199012	0.37	0.0117	47 (**97**)	–0.03	0.0117	46 (**86**)	–0.38	–0.0021	–0.0014	–0.22	–0.19	35 (**71**)
d/e	Dividend Payout Ratio	194601–199012	–0.04	0.0030	8 (**97**)	–0.10	0.0030	11 (**63**)	–0.72	–0.0040	–0.0091	–0.52	–1.24	8 (**69**)
svar	Stock Variance	194601–199012	0.40*	0.0122	39 (**99**)	0.46	0.0122	36 (**71**)	–1.22	–0.0116	–0.0203	–1.30	–2.77	27 (**57**)
csp	Cross-Sectional Prem	194601–199012	0.80**	0.0208	51 (**99**)	0.05	0.0208	48 (**77**)	0.60	0.0194	0.0210	0.73**	2.91**	43 (**76**)
b/m	Book to Market	194601–199012	0.05	0.0049	29 (**98**)	–0.09	0.0049	29 (**79**)	–1.13	–0.0096	–0.0182	–1.35	–2.49	22 (**69**)
ntis	Net Equity Expansion	194601–199012	0.50*	0.0145	42 (**99**)	1.25	0.0145	40 (**74**)	–0.70	–0.0115	–0.0086	–0.27	–1.17	36 (**73**)
tbl	T-Bill Rate	194601–199012	1.01***	0.0251	47 (**99**)	0.15	0.0251	44 (**75**)	–0.46	0.0172	–0.0031	–0.04	–0.42	41 (**76**)
lty	Long Term Yield	194601–199012	0.23	0.0087	13 (**97**)	–0.80	0.0087	15 (**65**)	–1.86	0.0147	–0.0346	–0.49	–4.70	14 (**71**)
ltr	Long Term Return	194601–199012	1.34***	0.0322	82 (**99**)	1.84	0.0322	73 (**83**)	0.80	–0.0194	0.0255	0.48***	3.52**	68 (**80**)
tms	Term Spread	194601–199012	1.16***	0.0284	73 (**99**)	1.43	0.0284	64 (**80**)	0.28	–0.0048	0.0137	0.25	1.88**	60 (**77**)
dfy	Default Yield Spread	194601–199012	0.18	0.0077	25 (**98**)	1.16	0.0077	26 (**71**)	–0.79	–0.0045	–0.0105	–0.42	–1.43	21 (**70**)
dfr	Default Return Spread	194601–199012	–0.14	0.0009	7 (**96**)	–0.13	0.0009	11 (**65**)	–0.92	0.0074	–0.0134	–0.57	–1.83	7 (**62**)
infl	Inflation	194601–199012	1.36***	0.0326	80 (**99**)	–0.21	0.0326	70 (**82**)	0.28	0.0148	0.0137	0.44*	1.89**	67 (**79**)

Panel C: Betas adjusted for Lewellen correction

	Variable	Data	In-Sample			In-Sample for OOS Period			Relative OOS Performance					
			$\overline{R}^2$	ΔRMSE	Power	$\overline{R}^2$	ΔRMSE	Power	$\overline{R}^2$	ΔMAE	ΔRMSE	MSE-T	MSE-F	Power
d/p	Dividend Price Ratio	194601–199012	1.01***	0.0252	100 (**100**)	0.46	0.0252	100 (**100**)	1.06	0.0246	0.0314	1.92***	4.35***	99 (**99**)
d/y	Dividend Yield	194601–199012	1.83***	0.0426	78 (**100**)	1.13	0.0426	70 (**85**)	1.59	0.0187	0.0436	1.49***	6.06***	68 (**84**)
e/p	Earning Price Ratio	194601–199012	0.08**	0.0056	91 (**91**)	–0.18	0.0056	91 (**91**)	–0.11	0.0062	0.0049	0.38**	0.67*	42 (**42**)
d/e	Dividend Payout Ratio	194601–199012	–0.04	0.0030	8 (**97**)	–0.10	0.0030	11 (**63**)	–0.74	–0.0045	–0.0094	–0.57	–1.29	9 (**68**)
svar	Stock Variance	194601–199012	–6.68**	–0.1341	5 (**5**)	–9.16	–0.1341	15 (**15**)	–3.98	–0.0807	–0.0822	–0.91	–10.98	9 (**9**)
csp	Cross-Sectional Prem	194601–199012	0.80**	0.0208	52 (**99**)	0.05	0.0208	48 (**78**)	0.61	0.0196	0.0213	0.75**	2.94**	43 (**76**)
b/m	Book to Market	194601–199012	–0.29**	–0.0022	43 (**43**)	–0.43	–0.0022	45 (**45**)	–0.26	0.0063	0.0014	0.12*	0.20*	15 (**15**)
ntis	Net Equity Expansion	194601–199012	0.49*	0.0143	42 (**98**)	1.31	0.0143	41 (**73**)	–1.10	–0.0210	–0.0176	–0.48	–2.40	36 (**72**)
tbl	T-Bill Rate	194601–199012	0.99***	0.0248	47 (**99**)	0.13	0.0248	44 (**74**)	–0.19	0.0235	0.0031	0.04	0.42	42 (**76**)
lty	Long Term Yield	194601–199012	0.26	0.0093	13 (**96**)	–0.73	0.0093	16 (**65**)	–0.93	0.0238	–0.0136	–0.22	–1.86	15 (**74**)
ltr	Long Term Return	194601–199012	–3.26***	–0.0640	25 (**25**)	–4.23	–0.0640	32 (**32**)	–6.73	–0.2055	–0.1431	–1.32	–18.73	24 (**24**)
tms	Term Spread	194601–199012	1.16***	0.0283	73 (**99**)	1.41	0.0283	64 (**79**)	–0.07	–0.0173	0.0058	0.10	0.80*	59 (**75**)
dfy	Default Yield Spread	194601–199012	0.18	0.0077	25 (**98**)	1.22	0.0077	26 (**71**)	–0.78	–0.0044	–0.0103	–0.41	–1.40	22 (**70**)
dfr	Default Return Spread	194601–199012	–0.86	–0.0141	7 (**99**)	–0.40	–0.0141	15 (**66**)	–0.29	–0.0143	0.0007	0.02	0.10	8 (**32**)
infl	Inflation	194601–199012	0.91***	0.0232	74 (**100**)	–0.66	0.0232	65 (**76**)	–0.03	0.0090	0.0067	0.15	0.92*	53 (**64**)

Table 12: Forecasts at Annual Frequency (ending 1990)

This table presents statistics on forecast errors (*in-sample* and *out-of-sample*) for excess stock return forecasts at the annual frequency (both in the forecasting equation and forecast) *as of 1990*. Variables are explained in Section 1. Stock return is price changes, *including* dividends, of S&P500. Panel A uses the full sample period (but ending in 1990) for each variable and constructs first forecast 20 years after the first data observation. Panel B uses the full sample period (but ending in 1990) for each variable and constructs first forecast in 1965 (or 20 years after the first data observation, whichever comes later). Panel C uses only the sample period 1927 to 1990 and constructs first forecast in 1965 (or 20 years after the first data observation, whichever comes later). The data period for **ms** model is 1927 to 1990. All numbers, except $\overline{R}^2$ are in percent per year. A star next to IS-$\overline{R}^2$ denotes significance of the in-sample regression (as measured by F-statistic). RMSE is the root mean square error and MAE is the mean absolute error. ΔRMSE (ΔMAE) is the RMSE (MAE) difference between the unconditional forecast and the conditional forecast for the same sample/forecast period (positive numbers signify superior *out-of-sample* conditional forecast). OOS-R^2 is calculated as one minus the ratio of the variance of conditional forecast errors and the variance of the unconditional forecast errors. MSE-T is the Diebold and Mariano (1995) t-statistic modified by Harvey, Leybourne, and Newbold (1998) and MSE-F is F-statistic by McCracken (2004). Both the MSE-T and MSE-F statistics test for equal MSE of the unconditional forecast and the conditional forecast. One-sided critical values of MSE statistics are obtained empirically from bootstrapped distributions, except for **caya** and **all** models where they are obtained from McCracken (2004) (critical values for **ms** model are not calculated). 'Power' is the power of ΔRMSE and is calculated as the fraction of draws where the simulated ΔRMSE is greater than the empirically calculated 95% critical value and is reported in percent. The two numbers under the power column are power for all simulations and simulations that are found to be in-sample *significant* at the 95% level. Significance levels at 90%, 95%, and 99% are denoted by one, two, and three stars, respectively.

Panel A: Full data, Forecasts begin 20 years after the first sample date

	Variable	Data	In-Sample			In-Sample for OOS Period			Relative OOS Performance					
			$\overline{R}^2$	ΔRMSE	Power	$\overline{R}^2$	ΔRMSE	Power	$\overline{R}^2$	ΔMAE	ΔRMSE	MSE-T	MSE-F	Power
d/p	Dividend Price Ratio	1872–1990	1.65*	0.2261	47 (**97**)	3.34	0.2261	47 (**86**)	–0.36	0.0756	0.0632	0.37**	0.66*	38 (**72**)
d/y	Dividend Yield	1872–1990	2.53**	0.3053	46 (**98**)	4.18	0.3053	44 (**85**)	0.45	0.1307	0.1392	0.43**	1.47**	41 (**83**)
e/p	Earning Price Ratio	1872–1990	1.19	0.1839	38 (**96**)	1.08	0.1839	38 (**83**)	–1.61	–0.0811	–0.0543	–0.35	–0.57	32 (**73**)
d/e	Dividend Payout Ratio	1872–1990	–0.86	0.0000	5 (**93**)	–1.01	0.0000	7 (**75**)	–4.69	–0.3316	–0.3399	–2.22	–3.46	5 (**67**)
svar	Stock Variance	1885–1990	–0.78	0.0171	8 (**93**)	–1.14	0.0171	10 (**79**)	–30.25	–1.0334	–2.6414	–1.34	–19.19	8 (**64**)
b/m	Book to Market	1921–1990	5.71**	0.6968	72 (**96**)	4.31	0.6968	68 (**85**)	3.55	0.8655	0.4438	0.69**	2.92**	54 (**70**)
ntis	Net Equity Expansion	1927–1990	10.43***	1.2059	69 (**98**)	–3.63	1.2059	63 (**83**)	–4.17	0.4414	–0.1373	–0.25	–0.75	57 (**78**)
eqis	Pct Equity Issuing	1927–1990	11.70***	1.3378	83 (**98**)	7.46	1.3378	77 (**87**)	5.95	0.2387	0.6570	0.93**	3.90***	73 (**84**)
tbl	T-Bill Rate	1920–1990	1.04	0.2382	20 (**94**)	3.63	0.2382	20 (**73**)	–2.73	–0.4648	–0.0538	–0.06	–0.34	18 (**73**)
lty	Long Term Yield	1919–1990	–0.42	0.0981	7 (**91**)	0.44	0.0981	8 (**65**)	–9.09	–1.1928	–0.5385	–0.50	–3.38	7 (**63**)
ltr	Long Term Return	1926–1990	1.64	0.3182	30 (**95**)	0.31	0.3182	31 (**76**)	–13.75	–1.0238	–0.8544	–0.80	–4.52	27 (**75**)
tms	Term Spread	1920–1990	1.14	0.2477	25 (**95**)	2.77	0.2477	26 (**75**)	–0.16	0.2195	0.1473	0.36*	0.96*	22 (**71**)
dfy	Default Yield Spread	1919–1990	–1.41	0.0036	6 (**92**)	–1.98	0.0036	8 (**70**)	–4.10	–0.1728	–0.1613	–1.29	–1.05	6 (**59**)
dfr	Default Return Spread	1926–1990	0.60	0.2163	23 (**95**)	1.23	0.2163	25 (**75**)	–0.90	0.1504	0.1099	0.31*	0.64*	21 (**72**)
infl	Inflation	1919–1990	–1.16	0.0275	7 (**93**)	–1.95	0.0275	9 (**70**)	–5.12	–0.3206	–0.2393	–1.35	–1.54	7 (**66**)
i/k	Invstmnt Capital Ratio	1947–1990	9.12**	0.9133	52 (**96**)	–4.12	0.9133	48 (**75**)	–0.95	–0.5538	0.2849	0.18	0.86*	44 (**75**)
cayp	Cnsmptn, Wlth, Incme	1945–1990	13.81***	1.2756	65 (**97**)	18.59	1.2756	59 (**78**)	14.77	1.2753	1.5625	1.59**	5.78***	51 (**72**)
caya	Cnsmptn, Wlth, Incme	1945–1990	—	—	— (—)	—	—	— (—)	–6.98	0.4995	–0.2198	–0.25	–0.68	— (—)
all	Kitchen Sink	1927–1990	16.85**	3.5659	— (—)	0.76	3.5659	— (—)	–186.30	–5.9167	–6.9044	–2.62	–22.68	— (—)
ms	Model Selection	1927–1990	—	—	— (—)	—	—	— (—)	–17.11	–1.0049	–1.2954	–0.88	–6.43	— (—)

Panel B: Full data, Forecasts begin in 1965

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	ΔMAE	ΔRMSE	MSE-T	MSE-F	Power
d/p	Dividend Price Ratio	1872–1990	1.65*	0.2261	47 (**97**)	5.62	0.2261	47 (**66**)	5.65	0.1932	0.7437	1.44**	2.71***	29 (**50**)
d/y	Dividend Yield	1872–1990	2.53**	0.3053	46 (**98**)	4.63	0.3053	42 (**62**)	4.65	0.1271	0.6666	0.69	2.41**	29 (**53**)
e/p	Earning Price Ratio	1872–1990	1.19	0.1839	38 (**96**)	2.48	0.1839	40 (**63**)	0.61	0.3604	0.3577	0.82	1.25*	24 (**49**)
d/e	Dividend Payout Ratio	1872–1990	–0.86	0.0000	5 (**93**)	–4.16	0.0000	15 (**55**)	–7.29	–0.1743	–0.2289	–2.61	–0.76	5 (**44**)
svar	Stock Variance	1885–1990	–0.78	0.0171	8 (**93**)	–3.09	0.0171	15 (**54**)	–3.30	0.0716	0.0647	1.79**	0.22	7 (**44**)
b/m	Book to Market	1921–1990	5.71**	0.6968	72 (**96**)	1.26	0.6968	61 (**72**)	–9.19	0.2919	–0.3847	–0.37	–1.20	47 (**58**)
ntis	Net Equity Expansion	1927–1990	10.43***	1.2059	69 (**98**)	9.01	1.2059	57 (**71**)	–6.31	0.9367	–0.1623	–0.18	–0.53	51 (**67**)
eqis	Pct Equity Issuing	1927–1990	11.70***	1.3378	83 (**98**)	4.12	1.3378	69 (**77**)	3.83	0.0839	0.6196	0.53	2.16**	63 (**72**)
tbl	T-Bill Rate	1920–1990	1.04	0.2382	20 (**94**)	–6.04	0.2382	24 (**65**)	–4.65	–0.8217	–0.0373	–0.02	–0.12	16 (**59**)
lty	Long Term Yield	1919–1990	–0.42	0.0981	7 (**91**)	–9.51	0.0981	14 (**67**)	–18.26	–2.1235	–1.0458	–0.50	–3.10	7 (**59**)
ltr	Long Term Return	1926–1990	1.64	0.3182	30 (**95**)	0.60	0.3182	33 (**67**)	–25.74	–1.6934	–1.5737	–1.01	–4.46	23 (**61**)
tms	Term Spread	1920–1990	1.14	0.2477	25 (**95**)	5.25	0.2477	28 (**64**)	1.03	0.4852	0.4078	0.53	1.36*	19 (**55**)
dfy	Default Yield Spread	1919–1990	–1.41	0.0036	6 (**92**)	–3.15	0.0036	11 (**57**)	–6.35	–0.1615	–0.1667	–1.65	–0.53	6 (**48**)
dfr	Default Return Spread	1926–1990	0.60	0.2163	23 (**95**)	1.16	0.2163	27 (**65**)	–1.13	0.2737	0.2338	0.48	0.78	19 (**58**)
infl	Inflation	1919–1990	–1.16	0.0275	7 (**93**)	–4.74	0.0275	13 (**59**)	–5.43	–0.2781	–0.0964	–0.42	–0.31	7 (**53**)
i/k	Invstmnt Capital Ratio	1947–1990	9.12**	0.9133	52 (**96**)	–4.12	0.9133	48 (**75**)	–0.95	–0.5538	0.2849	0.18	0.86*	44 (**75**)
cayp	Cnsmptn, Wlth, Incme	1945–1990	13.81***	1.2756	65 (**97**)	18.59	1.2756	59 (**78**)	14.77	1.2753	1.5625	1.59**	5.78***	51 (**72**)
caya	Cnsmptn, Wlth, Incme	1945–1990	—	—	— (—)	—	—	— (—)	–6.98	0.4995	–0.2198	–0.25	–0.68	— (—)
all	Kitchen Sink	1927–1990	16.85**	3.5659	— (—)	–56.64	3.5659	— (—)	–330.64	–6.6796	–7.8588	–2.32	–14.39	— (—)
ms	Model Selection	1927–1990	—	—	— (—)	—	—	— (—)	–15.51	–0.4549	–1.1921	–0.68	–3.49	— (—)

Panel C: Data begin in 1927, Forecasts begin in 1965

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE	In-Sample Power	In-Sample for OOS Period $\overline{R}^2$	In-Sample for OOS Period ΔRMSE	In-Sample for OOS Period Power	Relative OOS Performance $\overline{R}^2$	Relative OOS ΔMAE	Relative OOS ΔRMSE	Relative OOS MSE-T	Relative OOS MSE-F	Relative OOS Power
d/p	Dividend Price Ratio	1927–1990	4.08*	0.5618	55 (**96**)	9.23	0.5618	50 (**72**)	11.16	0.5582	1.2112	1.83**	4.49***	37 (**58**)
d/y	Dividend Yield	1927–1990	6.49**	0.8039	51 (**97**)	5.73	0.8039	47 (**72**)	9.27	0.4366	1.0561	0.77*	3.85***	41 (**69**)
e/p	Earning Price Ratio	1927–1990	3.90*	0.5443	52 (**96**)	3.55	0.5443	47 (**71**)	–1.06	0.2307	0.2379	0.27	0.80	35 (**58**)
d/e	Dividend Payout Ratio	1927–1990	–1.59	0.0044	5 (**90**)	–4.22	0.0044	11 (**60**)	–14.82	–0.4562	–0.7898	–2.10	–2.41	5 (**53**)
svar	Stock Variance	1927–1990	–1.62	0.0020	5 (**89**)	–3.85	0.0020	11 (**62**)	–5.45	–0.0994	–0.0974	–1.67	–0.32	5 (**54**)
b/m	Book to Market	1927–1990	9.24**	1.0837	85 (**97**)	–1.16	1.0837	73 (**79**)	–10.15	0.1062	–0.4482	–0.37	–1.41	59 (**66**)
ntis	Net Equity Expansion	1927–1990	10.43***	1.2059	69 (**98**)	9.01	1.2059	57 (**71**)	–6.31	0.9367	–0.1623	–0.18	–0.53	51 (**67**)
eqis	Pct Equity Issuing	1927–1990	11.70***	1.3378	83 (**98**)	4.12	1.3378	69 (**77**)	3.83	0.0839	0.6196	0.53	2.16**	63 (**72**)
tbl	T-Bill Rate	1927–1990	0.81	0.2386	19 (**95**)	–5.89	0.2386	24 (**65**)	–13.33	–1.7035	–0.6819	–0.32	–2.10	16 (**60**)
lty	Long Term Yield	1927–1990	–0.85	0.0769	6 (**92**)	–8.53	0.0769	11 (**67**)	–24.17	–2.6765	–1.4536	–0.65	–4.19	6 (**60**)
ltr	Long Term Return	1927–1990	1.46	0.3027	29 (**95**)	0.77	0.3027	32 (**67**)	–22.82	–1.4664	–1.3591	–0.95	–3.95	22 (**59**)
tms	Term Spread	1927–1990	2.17	0.3722	33 (**94**)	5.29	0.3722	34 (**67**)	2.38	0.6410	0.5055	0.47	1.74**	26 (**61**)
dfy	Default Yield Spread	1927–1990	–1.59	0.0048	6 (**91**)	–3.01	0.0048	12 (**61**)	–5.83	–0.1209	–0.1261	–1.51	–0.41	5 (**51**)
dfr	Default Return Spread	1927–1990	0.45	0.2038	22 (**95**)	1.11	0.2038	26 (**65**)	–1.17	0.2308	0.2295	0.48	0.77	18 (**59**)
infl	Inflation	1927–1990	–1.33	0.0298	7 (**93**)	–4.01	0.0298	14 (**63**)	–12.80	–0.0675	–0.6430	–1.37	–1.99	6 (**52**)
i/k	Invstmnt Capital Ratio	1947–1990	9.12**	0.9133	52 (**96**)	–4.12	0.9133	48 (**75**)	–0.95	–0.5538	0.2849	0.18	0.86*	44 (**75**)
cayp	Cnsmptn, Wlth, Incme	1945–1990	13.81***	1.2756	65 (**97**)	18.59	1.2756	59 (**78**)	14.77	1.2753	1.5625	1.59**	5.78***	51 (**72**)
caya	Cnsmptn, Wlth, Incme	1945–1990	—	—	— (—)	—	—	— (—)	–6.98	0.4995	–0.2198	–0.25	–0.68	— (—)
all	Kitchen Sink	1927–1990	16.85**	3.5659	— (—)	–56.64	3.5659	— (—)	–330.64	–6.6796	–7.8588	–2.32	–14.39	— (—)
ms	Model Selection	1927–1990	—	—	— (—)	—	—	— (—)	–15.51	–0.4549	–1.1921	–0.68	–3.49	— (—)

Table 13: Encompassing Tests

This table presents statistics on encompassing tests for excess stock return forecasts at various frequencies. Variables are explained in Section 1. All numbers are in percent per frequency corresponding to the panel. λ gives the ex-post weight on the conditional forecast for the optimal forecast that minimizes the MSE. ENC is the test statistic proposed by Clark and McCracken (2001) for a test of forecast encompassing. One-sided critical values of ENC statistic are obtained empirically from bootstrapped distributions, except for **caya**, **cayp**, and **all** models where they are obtained from Clark and McCracken (2001) (critical values for **ms** model are not calculated). Significance levels at 90%, 95%, and 99% are denoted by one, two, and three stars, respectively. ΔRMSE* is the RMSE difference between the unconditional forecast and the optimal forecast for the same sample/forecast period. ΔRMSE^{*r} is the RMSE difference between the unconditional forecast and the optimal forecast for the same sample/forecast period using rolling estimates of λ.

Panel A: Monthly Data

		Estimation:	All Data				All Data				After 192701				
		OOS Forecast:	After 20 years				After 196501				After 196501				
		Data	$\overline{R}^2$	λ	ENC	ΔRMSE*	ΔRMSE*^{r}	λ	ENC	ΔRMSE*	ΔRMSE*^{r}	$\overline{R}^2$	λ	ENC	ΔRMSE*	ΔRMSE*^{r}
d/p	Dividend Price Ratio	187102–200512	–0.06	–0.62	–1.90	0.0022	–0.0118	–2.38	–0.56	0.0059	–0.0151	–0.01	0.30	0.73	0.0010	–0.0163
d/y	Dividend Yield	187102–200512	–0.04	–1.07	–2.11	0.0041	–0.0117	–0.36	–0.33	0.0005	–0.0166	0.06	0.30	1.49*	0.0020	–0.0139
e/p	Earning Price Ratio	187102–200512	0.08	0.35	1.09	0.0007	–0.0067	0.04	0.09	0.0000	–0.0206	0.28*	0.13	0.95	0.0005	–0.0199
d/e	Dividend Payout Ratio	187112–200512	0.17*	0.17	1.64	0.0005	–0.0088	–0.18	–0.50	0.0004	–0.0183	0.04	–0.93	–2.54	0.0107	–0.0048
svar	Stock Variance	188502–200512	–0.05	–0.41	–3.69	0.0033	–0.2705	–12.09	–0.22	0.0119	–0.0499	–0.07	–8.92	–0.24	0.0094	–0.0071
csp	Cross-Sectional Prem	193705–200212	0.66**	0.29	3.95**	0.0045	–0.0196	0.79	4.23***	0.0162	–0.0077	0.66**	0.79	4.23***	0.0162	–0.0077
b/m	Book to Market	192103–200512	0.15	0.21	2.15*	0.0012	–0.0184	–0.13	–0.87	0.0005	–0.0281	0.17	–0.09	–0.78	0.0003	–0.0256
ntis	Net Equity Expansion	192701–200512	0.70***	0.68	4.32**	0.0086	–0.0045	0.54	2.85**	0.0068	–0.0171	0.70***	0.54	2.85**	0.0068	–0.0171
tbl	T-Bill Rate	192002–200512	0.14	0.55	5.10**	0.0075	–0.0459	0.54	4.69***	0.0112	–0.0223	0.09	0.51	3.76**	0.0085	–0.0338
lty	Long Term Yield	191901–200512	–0.00	0.31	4.11**	0.0034	–0.0454	0.35	4.30***	0.0067	–0.0241	–0.03	0.34	3.99**	0.0060	–0.0225
ltr	Long Term Return	192601–200512	0.04	–0.35	–1.97	0.0021	–0.0242	0.25	0.84	0.0010	–0.0235	0.04	0.29	1.01*	0.0013	–0.0230
tms	Term Spread	192002–200512	0.13	0.79	3.09**	0.0066	–0.1120	0.81	3.00**	0.0107	–0.0255	0.08	0.77	2.09**	0.0071	–0.0304
dfy	Default Yield Spread	191901–200512	–0.09	–3.07	–0.83	0.0069	–0.0274	–3.74	–0.17	0.0029	–0.0054	–0.09	–0.93	–0.05	0.0002	–0.0123
dfr	Default Return Spread	192601–200512	–0.01	–1.04	–1.16	0.0035	–0.0255	–0.13	–0.07	0.0000	–0.0206	–0.02	–0.16	–0.08	0.0001	–0.0209
infl	Inflation	191902–200512	–0.01	0.33	0.13	0.0001	–0.2459	1.71	0.45	0.0034	–0.0531	0.02	1.23	0.72	0.0039	–0.0499
all	Kitchen Sink	192701–200512	1.65***	0.04	3.18	0.0004	–0.0161	0.14	5.63**	0.0037	–0.0293	1.65***	0.14	5.63**	0.0037	–0.0293
ms	Model Selection	192701–200512	—	–0.22	–1.32	0.0009	–0.0219	0.29	0.73	0.0009	–0.1502	—	0.29	0.73	0.0009	–0.1502

Panel B: Monthly Data with Total Returns

		OOS Forecast:	After 194701					After 196501			
		Data	$\overline{R}^2$	λ	ENC	ΔRMSE*	ΔRMSE*^{r}	λ	ENC	ΔRMSE*	ΔRMSE*^{r}
d/p	Dividend Price Ratio	192701–200512	0.15	0.53	4.14**	0.0065	–0.0134	0.53	2.67**	0.0063	–0.0109
d/y	Dividend Yield	192701–200512	0.25*	0.43	6.53***	0.0083	–0.0115	0.45	3.90**	0.0078	–0.0084
e/p	Earning Price Ratio	192701–200512	0.54**	0.35	9.27***	0.0097	–0.0135	0.28	3.08**	0.0039	–0.0172
d/e	Dividend Payout Ratio	192701–200512	0.01	–0.02	–0.22	0.0000	–0.0146	–1.12	–3.01	0.0152	0.0003
svar	Stock Variance	192701–200512	–0.08	–12.30	–0.47	0.0172	0.0046	–12.93	–0.32	0.0184	0.0060
csp	Cross-Sectional Prem	193705–200212	0.92***	0.38	6.21***	0.0093	–0.0138	0.82	5.50***	0.0219	–0.0007
b/m	Book to Market	192701–200512	0.40**	0.18	3.04**	0.0016	–0.0416	0.07	0.89	0.0003	–0.0260
ntis	Net Equity Expansion	192701–200512	0.75***	0.60	4.28**	0.0075	–0.0055	0.47	2.77**	0.0058	–0.0180
tbl	T-Bill Rate	192701–200512	0.11	0.50	5.47**	0.0081	–0.0222	0.51	4.86***	0.0110	–0.0218
lty	Long Term Yield	192701–200512	–0.01	0.35	7.57***	0.0079	–0.0084	0.35	5.47***	0.0086	–0.0161
ltr	Long Term Return	192701–200512	0.04	–0.15	–0.77	0.0003	–0.0129	0.30	1.02*	0.0014	–0.0234
tms	Term Spread	192701–200512	0.07	0.68	2.51**	0.0050	–0.0311	0.73	2.37**	0.0076	–0.0538
dfy	Default Yield Spread	192701–200512	–0.07	–1.04	–0.27	0.0008	–0.0070	2.15	0.20	0.0019	–0.0197
dfr	Default Return Spread	192701–200512	–0.02	–0.85	–0.72	0.0018	–0.0134	–0.03	–0.01	0.0000	–0.0221
infl	Inflation	192701–200512	–0.00	1.01	0.69	0.0021	–0.0114	1.19	0.58	0.0030	–0.0541
all	Kitchen Sink	192701–200512	1.98***	0.05	4.39	0.0008	–0.0150	0.14	5.88**	0.0040	–0.0366
ms	Model Selection	192701–200512	—	0.09	1.51	0.0004	–0.0232	0.14	1.39	0.0009	–0.0245

Panel C: Quarterly Data

		Estimation:	All Data					All Data				After 19271				
		OOS Forecast:	After 20 years					After 19651				After 19651				
		Data	$\overline{R}^2$	λ	ENC	ΔRMSE*	ΔRMSE^{*r}	λ	ENC	ΔRMSE*	ΔRMSE^{*r}	$\overline{R}^2$	λ	ENC	ΔRMSE*	ΔRMSE^{*r}
d/p	Dividend Price Ratio	18712–20054	–0.14	–1.47	–2.94	0.0468	–0.1041	–0.40	–0.27	0.0028	–0.0795	0.16	0.33	1.53*	0.0128	–0.0552
d/y	Dividend Yield	18712–20054	–0.14	–1.61	–1.86	0.0321	–0.0284	–0.41	–0.29	0.0030	–0.1040	0.00	0.37	1.11	0.0103	–0.0805
e/p	Earning Price Ratio	18712–20054	0.38*	0.45	1.96*	0.0094	–0.0320	0.15	0.47	0.0018	–0.0923	1.01*	0.17	1.63*	0.0073	–0.0872
d/e	Dividend Payout Ratio	18712–20054	0.23	–0.06	–0.38	0.0003	–0.0630	–0.25	–0.44	0.0028	–0.0955	–0.03	–1.06	–2.04	0.0563	–0.0242
svar	Stock Variance	18851–20054	–0.15	–4.74	–8.02	0.5079	–0.7831	5.08	0.16	0.0207	–0.6787	–0.27	1.87	0.05	0.0025	–0.0423
b/m	Book to Market	19211–20054	1.06**	0.20	3.83**	0.0121	–0.0817	–0.01	–0.07	0.0000	–0.1367	1.16**	0.01	0.10	0.0000	–0.1137
ntis	Net Equity Expansion	19271–20054	3.42***	0.46	5.09***	0.0381	–0.0186	0.40	3.60***	0.0368	–0.0933	3.42***	0.40	3.60***	0.0368	–0.0933
tbl	T-Bill Rate	19201–20054	0.17	0.47	3.76**	0.0262	–0.1561	0.45	3.19**	0.0361	–0.1589	0.04	0.41	2.36**	0.0241	–0.2416
lty	Long Term Yield	19191–20054	–0.13	0.23	2.55*	0.0088	–0.0942	0.27	2.50**	0.0171	–0.1708	–0.20	0.24	2.16**	0.0133	–0.1588
ltr	Long Term Return	19261–20054	0.43	0.72	2.41**	0.0278	–0.1163	0.81	2.34**	0.0467	–0.4696	0.42	0.82	2.23**	0.0454	–0.5181
tms	Term Spread	19201–20054	0.24	0.74	2.54*	0.0275	–0.1202	0.74	2.33**	0.0428	–0.1783	0.11	0.68	1.52*	0.0258	–0.2806
dfy	Default Yield Spread	19191–20054	–0.20	–1.38	–1.60	0.0330	–0.1765	1.55	0.20	0.0078	–0.1865	–0.19	1.60	0.28	0.0112	–0.1561
dfr	Default Return Spread	19261–20054	–0.20	–0.61	–3.65	0.0380	–0.0170	–0.95	–2.20	0.0543	–0.0590	–0.21	–0.96	–2.17	0.0543	–0.0567
infl	Inflation	19192–20054	–0.16	0.86	0.14	0.0017	–0.1996	1.98	0.26	0.0128	–0.5135	–0.17	1.36	0.27	0.0090	–0.7306
i/k	Invstmnt Capital Ratio	19471–20054	2.29**	0.54	3.85**	0.0555	–0.0665	0.54	3.85**	0.0555	–0.0665	2.29**	0.54	3.85**	0.0555	–0.0665
cayp	Cnsmptn, Wlth, Incme	19514–20054	4.81***	0.71	10.61***	0.2232	0.1134	0.71	10.61***	0.2232	0.1134	4.81***	0.71	10.61***	0.2232	0.1134
caya	Cnsmptn, Wlth, Incme	19514–20054	—	0.31	5.28***	0.0525	–0.1741	0.31	5.28***	0.0525	–0.1741	—	0.31	5.28***	0.0525	–0.1741
all	Kitchen Sink	19271–20054	4.79***	–0.03	–2.06	0.0016	–0.0373	–0.02	–0.74	0.0006	–0.2732	4.79***	–0.02	–0.74	0.0006	–0.2732
ms	Model Selection	19271–20054	—	0.72	2.28	0.0266	–0.1302	0.83	2.24	0.0456	–0.5354	—	0.83	2.24	0.0456	–0.5354

Panel D: Annual Data

		Estimation:	All Data					All Data				After 1927				
		OOS Forecast:	After 20 years					After 1965				After 1965				
		Data	$\overline{R}^2$	λ	ENC	ΔRMSE*	ΔRMSE^{*r}	λ	ENC	ΔRMSE*	ΔRMSE^{*r}	$\overline{R}^2$	λ	ENC	ΔRMSE*	ΔRMSE^{*r}
d/p	Dividend Price Ratio	1872–2005	0.49	0.21	0.48	0.0084	–0.2583	0.40	0.87*	0.0664	–0.4989	1.67	0.54	2.19**	0.2297	–0.3539
d/y	Dividend Yield	1872–2005	0.91	0.38	1.94	0.0614	–0.5713	0.30	1.24*	0.0749	–0.5389	2.71*	0.41	3.24**	0.2662	–0.2858
e/p	Earning Price Ratio	1872–2005	1.08	0.22	0.40	0.0074	–0.2266	0.66	1.21**	0.1508	–0.4845	3.20*	0.48	2.51**	0.2346	–0.4049
d/e	Dividend Payout Ratio	1872–2005	–0.75	–1.73	–1.46	0.2135	0.0960	–8.46	–0.45	0.7545	0.2858	–1.24	–4.57	–1.25	1.2308	0.7796
svar	Stock Variance	1885–2005	–0.76	–0.42	–4.74	0.2387	–0.6475	2.07	0.03	0.0134	–0.5937	–1.32	–16.73	–0.18	0.5906	0.4490
b/m	Book to Market	1921–2005	3.20*	0.49	4.16**	0.2532	–0.0575	0.20	1.27*	0.0559	–0.7885	4.14*	0.18	1.67*	0.0689	–0.4821
ntis	Net Equity Expansion	1927–2005	8.15***	0.31	1.46	0.0619	–0.2708	0.31	1.30*	0.0805	–0.9310	8.15***	0.31	1.30*	0.0805	–0.9310
eqis	Pct Equity Issuing	1927–2005	9.15***	0.67	4.45**	0.3917	–0.0564	0.56	3.12**	0.3342	–0.7106	9.15***	0.56	3.12**	0.3342	–0.7106
tbl	T-Bill Rate	1920–2005	0.34	0.39	2.14*	0.1031	–1.2425	0.41	2.16**	0.1790	–1.3058	0.15	0.33	2.72**	0.1863	–0.5619
lty	Long Term Yield	1919–2005	–0.63	0.29	2.67*	0.0971	–0.7012	0.28	2.39**	0.1447	–0.9358	–0.94	0.25	2.39**	0.1317	–0.5682
ltr	Long Term Return	1926–2005	0.99	0.31	4.55**	0.2077	–0.1412	0.24	2.45**	0.1300	–8.4290	0.92	0.25	2.44**	0.1348	–8.7284
tms	Term Spread	1920–2005	0.16	0.38	0.93	0.0433	–1.0292	0.47	1.07*	0.0977	–0.8750	0.89	0.50	1.95**	0.1880	–0.5375
dfy	Default Yield Spread	1919–2005	–1.18	–2.62	–0.48	0.1503	–0.9718	–10.65	–0.30	0.6395	0.4999	–1.31	–11.91	–0.24	0.5677	0.4496
dfr	Default Return Spread	1926–2005	0.40	0.44	0.87	0.0501	–0.3698	0.47	0.78	0.0710	–0.3808	0.32	0.48	0.74	0.0692	–0.3877
infl	Inflation	1919–2005	–1.00	–2.46	–0.68	0.2019	–0.4520	–1.48	–0.15	0.0429	–15.1368	–0.99	–3.12	–0.86	0.5541	–0.4697
i/k	Invstmnt Capital Ratio	1947–2005	6.63**	0.53	3.01**	0.3330	–0.1950	0.53	3.01**	0.3330	–0.1950	6.63**	0.53	3.01**	0.3330	–0.1950
cayp	Cnsmptn, Wlth, Incme	1945–2005	15.72***	1.34	7.62***	1.7225	0.3315	1.34	7.62***	1.7225	0.3315	15.72***	1.34	7.62***	1.7225	0.3315
caya	Cnsmptn, Wlth, Incme	1945–2005	—	0.45	3.39**	0.3117	–0.3185	0.45	3.39**	0.3117	–0.3185	—	0.45	3.39**	0.3117	–0.3185
all	Kitchen Sink	1927–2005	13.81**	0.13	4.86	0.1607	0.0160	–0.07	–1.26	0.0342	–0.4666	13.81**	–0.07	–1.26	0.0342	–0.4666
ms	Model Selection	1927–2005	—	0.24	4.82	0.1870	0.0739	0.07	0.59	0.0094	–1.1268	—	0.07	0.59	0.0094	–1.1268

Panel E: 3-year Data

		Estimation:	All Data					All Data				After 1927				
		OOS Forecast:	After 20 years					After 1965				After 1965				
		Data	$\overline{R}^2$	λ	ENC	ΔRMSE*	ΔRMSE*^{r}	λ	ENC	ΔRMSE*	ΔRMSE*^{r}	$\overline{R}^2$	λ	ENC	ΔRMSE*	ΔRMSE*^{r}
d/p	Dividend Price Ratio	1872–2005	3.95	0.44	4.22	0.2594	–1.0733	0.27	2.25*	0.2238	–0.7471	9.78*	0.36	6.60**	0.9476	0.0191
d/y	Dividend Yield	1872–2005	2.65	0.31	3.36	0.1481	–0.2638	0.15	1.23	0.0726	–0.6803	6.98*	0.27	5.16*	0.6184	–0.0739
e/p	Earning Price Ratio	1872–2005	4.81*	0.61	4.02	0.3368	–0.3329	0.45	2.93**	0.4428	–0.4503	8.36*	0.34	4.71**	0.6274	–0.2886
d/e	Dividend Payout Ratio	1872–2005	–0.77	–7.06	–2.23	2.3535	1.6989	–8.50	–1.00	3.1460	2.1404	–0.80	–4.21	–0.79	1.2190	0.3049
svar	Stock Variance	1885–2005	–0.40	–0.56	–11.78	2.0018	–0.0559	0.09	0.01	0.0003	–1.2761	–1.09	–0.15	–0.01	0.0007	–1.5806
b/m	Book to Market	1921–2005	7.87	0.30	6.03*	0.4525	–0.6156	–0.04	–0.47	0.0097	–1.3949	11.86	–0.01	–0.21	0.0015	–0.8261
ntis	Net Equity Expansion	1927–2005	13.57**	0.20	1.56	0.0799	–0.2854	0.08	0.54	0.0174	–0.4944	13.57**	0.08	0.54	0.0174	–0.4944
eqis	Pct Equity Issuing	1927–2005	14.21	0.15	1.32	0.0520	–0.6121	0.13	1.00	0.0516	–0.8027	14.21	0.13	1.00	0.0516	–0.8027
tbl	T-Bill Rate	1920–2005	1.79	0.38	6.01*	0.5198	–0.4645	0.46	6.51**	1.1162	–0.4818	1.61	0.29	7.57**	1.0621	0.6383
lty	Long Term Yield	1919–2005	–0.27	0.21	4.13	0.2219	–0.9261	0.33	5.23*	0.7176	–2.3273	–0.90	0.30	7.59**	1.0684	0.4099
ltr	Long Term Return	1926–2005	–1.00	–2.47	–2.16	1.4100	1.1929	–1.84	–0.72	0.4781	–7.9952	–1.05	–1.46	–0.78	0.4113	–4.7046
tms	Term Spread	1920–2005	2.39	0.07	0.61	0.0108	–0.6272	0.58	2.97*	0.6033	–0.3205	5.19	0.42	5.02**	0.7725	0.3903
dfy	Default Yield Spread	1919–2005	0.06	–0.87	–3.56	0.7973	–0.3881	1.47	0.43	0.2209	–0.6103	–0.66	0.70	0.12	0.0297	–0.6104
dfr	Default Return Spread	1926–2005	–1.26	–1.64	–0.23	0.0894	–1.1884	–1.09	–0.15	0.0568	–3.4656	–1.29	–1.51	–0.17	0.0899	–4.1742
infl	Inflation	1919–2005	–1.21	–3.00	–1.31	0.8776	–0.0904	–10.11	–0.47	1.7588	0.2907	–0.91	–1.65	–1.04	0.6394	–0.9834
i/k	Invstmnt Capital Ratio	1947–2005	19.96**	1.08	6.75**	2.5980	–0.5953	1.08	6.75**	2.5980	–0.5953	19.96**	1.08	6.75**	2.5980	–0.5953
cayp	Cnsmptn, Wlth, Incme	1945–2005	41.19***	1.78	18.97***	8.7333	6.9753	1.78	18.97***	8.7333	6.9753	41.19***	1.78	18.97***	8.7333	6.9753
caya	Cnsmptn, Wlth, Incme	1945–2005	—	0.73	7.43***	1.8703	0.0992	0.73	7.43***	1.8703	0.0992	—	0.73	7.43***	1.8703	0.0992
all	Kitchen Sink	1927–2005	35.13***	–0.06	–1.90	0.0710	–0.8949	–0.19	–3.91	0.9352	–0.0289	35.13***	–0.19	–3.91	0.9352	–0.0289
ms	Model Selection	1927–2005	—	0.02	0.51	0.0041	–0.5683	–0.25	–3.94	0.8892	–0.1745	—	–0.25	–3.94	0.8892	–0.1745

Panel F: 5-year Data

		Estimation:	All Data					All Data				After 1927				
		OOS Forecast:	After 20 years					After 1965				After 1965				
		Data	$\overline{R}^2$	λ	ENC	ΔRMSE*	ΔRMSE^{*r}	λ	ENC	ΔRMSE*	ΔRMSE^{*r}	$\overline{R}^2$	λ	ENC	ΔRMSE*	ΔRMSE^{*r}
d/p	Dividend Price Ratio	1872–2005	10.24*	0.49	13.60*	1.2184	0.4298	0.33	6.82**	1.2485	0.1240	21.24**	0.45	15.21**	3.8803	2.9553
d/y	Dividend Yield	1872–2005	6.04	0.38	5.90	0.4145	–0.8879	0.35	5.07*	0.8903	–0.3670	14.99*	0.46	13.15**	3.2923	2.1742
e/p	Earning Price Ratio	1872–2005	6.24	0.49	3.44	0.3005	–0.5965	0.49	3.05*	0.6641	–0.2557	14.96*	0.37	5.96*	1.2363	0.2268
d/e	Dividend Payout Ratio	1872–2005	0.66	–0.11	–0.36	0.0072	–0.7639	0.91	0.79	0.3099	–2.2309	1.64	0.80	0.47	0.1832	–1.9467
svar	Stock Variance	1885–2005	0.33	0.14	8.04*	0.4076	–2.3068	0.64	0.16	0.0457	–1.1869	–0.84	–1.73	–0.17	0.1495	–2.5879
b/m	Book to Market	1921–2005	10.78	0.35	7.32*	0.8751	–0.7707	0.07	0.97	0.0512	–2.5305	13.93	0.10	1.75	0.1396	–1.6383
ntis	Net Equity Expansion	1927–2005	6.59*	0.38	1.51	0.2074	–1.2828	–0.07	–0.22	0.0083	–0.9336	6.59*	–0.07	–0.22	0.0083	–0.9336
eqis	Pct Equity Issuing	1927–2005	9.50	0.46	2.05	0.3356	–1.9524	0.36	1.38	0.2487	–1.7162	9.50	0.36	1.38	0.2487	–1.7162
tbl	T-Bill Rate	1920–2005	3.83	0.33	8.38*	0.9606	–0.4546	0.30	5.94*	1.1554	–3.3393	4.91	0.30	10.19**	2.4514	0.9493
lty	Long Term Yield	1919–2005	–0.15	0.02	0.64	0.0073	–0.4975	0.16	3.66	0.5083	–5.7170	–0.30	0.24	9.22*	2.4535	1.3817
ltr	Long Term Return	1926–2005	–1.36	0.11	0.43	0.0182	–5.1152	–0.54	–1.33	0.4017	–0.1529	–1.39	–0.63	–1.00	0.3414	–0.1978
tms	Term Spread	1920–2005	7.84	0.09	1.40	0.0480	–1.0269	0.83	6.78**	2.5489	–0.2356	12.47*	0.71	10.82***	3.3493	1.6266
dfy	Default Yield Spread	1919–2005	3.54	–0.42	–5.18	0.9870	–0.4208	2.19	1.90	1.9771	0.8756	0.94	2.38	0.74	0.8351	–0.7901
dfr	Default Return Spread	1926–2005	–1.36	–3.31	–0.92	1.1418	0.3075	–1.01	–0.17	0.0849	–2.3066	–1.36	–0.69	–0.16	0.0560	–2.0033
infl	Inflation	1919–2005	–1.21	–3.53	–2.41	2.7907	–3.8793	–13.37	–0.79	6.0356	2.8132	–1.21	–4.00	–1.54	3.4868	–0.1955
i/k	Invstmnt Capital Ratio	1947–2005	33.99***	0.84	7.81**	3.5222	–4.5386	0.84	7.81**	3.5222	–4.5386	33.99***	0.84	7.81**	3.5222	–4.5386
cayp	Cnsmptn, Wlth, Incme	1945–2005	36.05**	1.85	11.99***	9.7899	3.3439	1.85	11.99***	9.7899	3.3439	36.05**	1.85	11.99***	9.7899	3.3439
caya	Cnsmptn, Wlth, Incme	1945–2005	—	0.87	5.59***	2.5565	–0.6067	0.87	5.59***	2.5565	–0.6067	—	0.87	5.59***	2.5565	–0.6067
all	Kitchen Sink	1927–2005	41.48***	0.08	4.16	0.5617	0.2612	0.04	1.34	0.1110	–0.4226	41.48***	0.04	1.34	0.1110	–0.4226
ms	Model Selection	1927–2005	—	0.01	0.72	0.4600	0.4585	0.04	0.53	0.0145	–0.4420	—	0.04	0.53	0.0145	–0.4420

Panel G: Price Ratios Data forecasting monthly return

		OOS Forecast:	After 196501				
		Data	$\overline{R}^2$	λ	ENC	ΔRMSE*	ΔRMSE^{*r}
e/p	Earning(1Y) Price Ratio	192701–200512	0.54**	0.28	3.08**	0.0039	–0.0172
e/p	Earning(3Y) Price Ratio	192701–200512	0.24	0.43	2.55**	0.0049	–0.0107
e/p	Earning(5Y) Price Ratio	192701–200512	0.32*	0.38	2.92**	0.0049	–0.0096
e/p	Earning(10Y) Price Ratio	192701–200512	0.49**	0.37	4.54***	0.0076	–0.0065
d/p	Dividend(1Y) Price Ratio	192701–200512	0.15	0.53	2.67**	0.0063	–0.0109
d/p	Dividend(3Y) Price Ratio	192701–200512	0.22	0.54	3.01**	0.0072	–0.0096
d/p	Dividend(5Y) Price Ratio	192701–200512	0.30	0.49	3.62**	0.0079	–0.0079
d/p	Dividend(10Y) Price Ratio	192701–200512	0.25	0.51	3.17**	0.0072	–0.0083
d/e	Dividend(1Y) Earning(1Y) Ratio	192701–200512	0.01	–1.12	–3.01	0.0152	0.0003
d/e	Dividend(1Y) Earning(3Y) Ratio	192701–200512	–0.10	–1.40	–1.86	0.0117	–0.0202
d/e	Dividend(1Y) Earning(5Y) Ratio	192701–200512	–0.08	–1.28	–2.27	0.0131	–0.0120
d/e	Dividend(1Y) Earning(10Y) Ratio	192701–200512	0.05	–0.93	–1.97	0.0082	–0.0280
d/e	Dividend(3Y) Earning(3Y) Ratio	192701–200512	–0.08	–3.42	–0.35	0.0054	–0.0211
d/e	Dividend(5Y) Earning(5Y) Ratio	192701–200512	–0.05	0.31	0.12	0.0002	–0.0581
d/e	Dividend(10Y) Earning(10Y) Ratio	192701–200512	–0.10	–4.02	–1.58	0.0285	0.0175

Panel H: Price Ratios Data forecasting 1-year return

		OOS Forecast:	After 1902					After 1965			
		Data	$\overline{R}^2$	λ	ENC	ΔRMSE*	ΔRMSE^{*r}	λ	ENC	ΔRMSE*	ΔRMSE^{*r}
e/p	Earning(1Y) Price Ratio	1882–2005	1.24	–0.08	–0.16	0.0011	–1.2962	0.67	1.29**	0.1626	–0.5112
e/p	Earning(3Y) Price Ratio	1882–2005	2.53**	0.49	2.59*	0.1178	–0.5668	0.46	1.99**	0.1775	–0.2592
e/p	Earning(5Y) Price Ratio	1882–2005	2.88**	0.54	3.02*	0.1505	–0.8818	0.40	1.92**	0.1509	–0.2418
e/p	Earning(10Y) Price Ratio	1882–2005	4.89**	0.65	7.27***	0.4231	–0.1119	0.32	2.80***	0.1846	–0.1704
d/p	Dividend(1Y) Price Ratio	1882–2005	1.33	0.42	2.07	0.0811	–1.0474	0.38	1.64**	0.1233	–0.3975
d/p	Dividend(3Y) Price Ratio	1882–2005	1.85*	0.46	3.08*	0.1306	–0.5791	0.36	1.89**	0.1342	–0.3630
d/p	Dividend(5Y) Price Ratio	1882–2005	2.48*	0.53	4.64**	0.2244	–0.4075	0.32	2.08**	0.1348	–0.3042
d/p	Dividend(10Y) Price Ratio	1882–2005	2.11*	0.49	4.40**	0.2010	–0.3879	0.32	1.91**	0.1227	–0.2537
d/e	Dividend(1Y) Earning(1Y) Ratio	1882–2005	–0.78	–0.60	–0.72	0.0408	–0.8659	–1.99	–0.28	0.1071	–6.6296
d/e	Dividend(1Y) Earning(3Y) Ratio	1882–2005	–0.75	–1.62	–1.44	0.2231	–0.2999	–1.62	–1.10	0.3685	–0.2404
d/e	Dividend(1Y) Earning(5Y) Ratio	1882–2005	–0.65	–0.68	–1.39	0.0909	–1.4605	–1.24	–1.45	0.3845	–0.4822
d/e	Dividend(1Y) Earning(10Y) Ratio	1882–2005	1.36	0.44	3.05*	0.1254	–1.5427	–0.62	–1.41	0.1907	–1.2434
d/e	Dividend(3Y) Earning(3Y) Ratio	1882–2005	–0.80	–5.77	–1.61	0.9050	0.3786	–9.43	–0.45	0.8518	0.5839
d/e	Dividend(5Y) Earning(5Y) Ratio	1882–2005	–0.58	–0.90	–1.04	0.0892	–0.3199	–0.43	–0.12	0.0100	–2.9405
d/e	Dividend(10Y) Earning(10Y) Ratio	1882–2005	–0.64	–1.29	–1.78	0.2225	0.0673	–1.70	–1.11	0.3917	–0.0150

Panel I: Price Ratios Data forecasting 3-year return

		OOS Forecast:	After 1902					After 1965			
		Data	$\overline{R}^2$	λ	ENC	ΔRMSE*	ΔRMSE^{*r}	λ	ENC	ΔRMSE*	ΔRMSE^{*r}
e/p	Earning(1Y) Price Ratio	1882–2005	6.09*	0.64	4.85*	0.4755	–0.1218	0.44	3.29**	0.4979	–0.4460
e/p	Earning(3Y) Price Ratio	1882–2005	7.19*	0.70	6.36*	0.6710	–0.1808	0.35	2.90*	0.3616	–0.4734
e/p	Earning(5Y) Price Ratio	1882–2005	9.42*	0.70	9.60**	0.9976	–0.1383	0.28	3.09*	0.3254	–0.4702
e/p	Earning(10Y) Price Ratio	1882–2005	12.58*	0.59	14.23**	1.2663	0.3365	0.28	4.94**	0.5795	–0.2989
d/p	Dividend(1Y) Price Ratio	1882–2005	6.12*	0.52	7.81*	0.6267	–0.3676	0.30	3.65**	0.4168	–0.5823
d/p	Dividend(3Y) Price Ratio	1882–2005	7.15*	0.52	9.39*	0.7620	–0.0209	0.29	3.77*	0.4189	–0.5010
d/p	Dividend(5Y) Price Ratio	1882–2005	8.16*	0.51	10.85**	0.8587	0.1682	0.28	4.11**	0.4619	–0.3917
d/p	Dividend(10Y) Price Ratio	1882–2005	6.33	0.38	7.99*	0.4977	–0.1203	0.27	3.23*	0.3344	–0.3829
d/e	Dividend(1Y) Earning(1Y) Ratio	1882–2005	–0.80	–2.61	–2.51	1.0948	0.6820	–13.05	–0.89	4.4049	3.5872
d/e	Dividend(1Y) Earning(3Y) Ratio	1882–2005	–0.77	–0.63	–2.96	0.3247	0.2518	–6.22	–1.64	4.0307	3.3104
d/e	Dividend(1Y) Earning(5Y) Ratio	1882–2005	–0.70	–0.19	–0.78	0.0240	–1.2366	–1.67	–3.12	2.2659	1.1573
d/e	Dividend(1Y) Earning(10Y) Ratio	1882–2005	1.45	0.28	3.22	0.1493	–2.7401	–0.94	–2.09	0.7866	–1.1651
d/e	Dividend(3Y) Earning(3Y) Ratio	1882–2005	–0.38	–0.72	–2.69	0.3307	0.1886	–0.94	–0.22	0.0704	–8.4399
d/e	Dividend(5Y) Earning(5Y) Ratio	1882–2005	–0.38	–0.51	–1.51	0.1264	–0.0056	–1.96	–0.36	0.2413	–0.6128
d/e	Dividend(10Y) Earning(10Y) Ratio	1882–2005	–0.45	–0.42	–1.20	0.0832	–0.1421	–1.38	–1.98	1.0703	0.4499

Panel J: Price Ratios Data forecasting 5-year return

		OOS Forecast:	After 1902					After 1965			
		Data	$\overline{R}^2$	λ	ENC	ΔRMSE*	ΔRMSE*^{r}	λ	ENC	ΔRMSE*	ΔRMSE*^{r}
e/p	Earning(1Y) Price Ratio	1882–2005	7.43	0.73	4.94	0.7050	–0.3439	0.48	3.38*	0.7351	–0.1961
e/p	Earning(3Y) Price Ratio	1882–2005	11.35*	0.66	9.35*	1.2075	0.0399	0.37	4.59*	0.8337	–0.1352
e/p	Earning(5Y) Price Ratio	1882–2005	16.16**	0.63	14.53**	1.7733	0.2301	0.35	6.40**	1.1831	0.2244
e/p	Earning(10Y) Price Ratio	1882–2005	16.47**	0.47	13.75*	1.3403	0.0155	0.35	8.17**	1.6071	0.4737
d/p	Dividend(1Y) Price Ratio	1882–2005	12.30*	0.51	15.22**	1.5684	0.0502	0.34	8.07**	1.5685	0.4508
d/p	Dividend(3Y) Price Ratio	1882–2005	13.11*	0.48	14.72*	1.4681	0.1573	0.34	8.01**	1.5558	0.4682
d/p	Dividend(5Y) Price Ratio	1882–2005	13.75*	0.46	15.72*	1.5193	0.4068	0.33	7.81**	1.4959	0.4567
d/p	Dividend(10Y) Price Ratio	1882–2005	9.30	0.27	7.98	0.5048	–0.4251	0.33	5.77*	1.0147	0.0444
d/e	Dividend(1Y) Earning(1Y) Ratio	1882–2005	0.62	–0.55	–2.00	0.2392	–0.1736	1.05	0.76	0.3474	–2.7266
d/e	Dividend(1Y) Earning(3Y) Ratio	1882–2005	–0.15	–0.35	–3.63	0.3131	0.1877	–6.11	–0.84	2.5047	1.5237
d/e	Dividend(1Y) Earning(5Y) Ratio	1882–2005	–0.78	–0.48	–1.73	0.1809	–0.3602	–1.90	–3.11	3.5053	2.3611
d/e	Dividend(1Y) Earning(10Y) Ratio	1882–2005	–0.58	–0.16	–1.07	0.0366	–10.5391	–2.58	–1.19	1.5151	0.5083
d/e	Dividend(3Y) Earning(3Y) Ratio	1882–2005	0.41	–0.53	–2.91	0.3497	–0.0701	0.77	0.40	0.1345	–5.9291
d/e	Dividend(5Y) Earning(5Y) Ratio	1882–2005	–0.44	–0.79	–3.24	0.5810	–6.0405	–6.25	–0.95	2.9298	1.7596
d/e	Dividend(10Y) Earning(10Y) Ratio	1882–2005	–0.64	–0.63	–3.82	0.5598	–1.7739	–2.29	–2.36	2.9739	1.6908

Panel K: Price Ratios Data forecasting 10-year return

		OOS Forecast:	After 1902					After 1965			
		Data	$\overline{R}^2$	λ	ENC	ΔRMSE*	ΔRMSE*^{r}	λ	ENC	ΔRMSE*	ΔRMSE*^{r}
e/p	Earning(1Y) Price Ratio	1882–2005	17.82**	0.35	12.87**	1.5010	1.3801	0.67	7.25**	3.1763	–1.8730
e/p	Earning(3Y) Price Ratio	1882–2005	17.46**	0.22	3.51	0.2484	–0.5544	0.70	8.08**	3.6137	2.2563
e/p	Earning(5Y) Price Ratio	1882–2005	15.77*	0.31	4.02	0.3794	–1.2182	0.71	7.45*	3.4047	1.8604
e/p	Earning(10Y) Price Ratio	1882–2005	13.26	0.44	4.97	0.6439	–7.2786	0.68	6.76*	3.0195	0.8887
d/p	Dividend(1Y) Price Ratio	1882–2005	11.70	0.47	6.18	0.8594	–1.1515	0.47	6.19*	2.1639	–0.0575
d/p	Dividend(3Y) Price Ratio	1882–2005	9.37	0.42	4.66	0.5801	–1.6457	0.43	4.31	1.3875	–0.8622
d/p	Dividend(5Y) Price Ratio	1882–2005	8.21	0.43	4.77	0.6050	–3.4241	0.37	3.39	0.9671	–1.2529
d/p	Dividend(10Y) Price Ratio	1882–2005	6.90	0.24	3.85	0.2914	–1.6226	0.24	2.61	0.5341	–1.3689
d/e	Dividend(1Y) Earning(1Y) Ratio	1882–2005	1.02	–1.44	–2.55	1.1567	0.8887	–1.96	–1.71	2.8185	–0.4195
d/e	Dividend(1Y) Earning(3Y) Ratio	1882–2005	1.64	–0.38	–2.64	0.3340	–1.8169	–1.14	–2.27	2.3480	–0.2090
d/e	Dividend(1Y) Earning(5Y) Ratio	1882–2005	0.65	–0.34	–1.65	0.1808	–0.8612	–1.52	–1.53	1.9138	–0.2124
d/e	Dividend(1Y) Earning(10Y) Ratio	1882–2005	–0.77	–0.16	–0.35	0.0167	–0.9727	–5.90	–0.25	1.0641	–0.6842
d/e	Dividend(3Y) Earning(3Y) Ratio	1882–2005	1.28	–0.72	–2.76	0.6431	–2.1734	–1.90	–1.92	3.1390	0.1355
d/e	Dividend(5Y) Earning(5Y) Ratio	1882–2005	0.74	–1.97	–5.06	3.4308	3.0319	–3.14	–2.16	6.0917	4.5458
d/e	Dividend(10Y) Earning(10Y) Ratio	1882–2005	–0.47	–0.07	–2.42	0.0826	–0.2336	–2.49	–3.05	7.5629	6.4803

Panel L: Adjusted Betas

				Unadjusted betas					Stambaugh correction					Lewellen correction				
		Data	Forecast	$\overline{R}^2$	λ	ENC	ΔRMSE*	ΔRMSE^{*r}	$\overline{R}^2$	λ	ENC	ΔRMSE*	ΔRMSE^{*r}	$\overline{R}^2$	λ	ENC	ΔRMSE*	ΔRMSE^{*r}
d/p	Dividend Price Ratio	187102–200512	189102–	–0.06	–0.63	–1.92	0.0077	–0.0403	–0.10	–0.27	–2.06	0.0035	–0.0338	–0.30**	–0.11	–2.03	0.0014	–0.0484
d/y	Dividend Yield	187102–200512	189102–	–0.04	–1.08	–2.13	0.0145	–0.0404	–0.04	–1.01	–2.36	0.0151	–0.0264	–0.05	–1.21	–2.14	0.0165	–0.0261
e/p	Earning Price Ratio	187102–200512	189102–	0.08	0.35	1.08	0.0024	–0.0231	0.06	0.00	0.01	0.0000	–0.0261	–0.36***	–1.27	–2.90	0.0233	–0.0091
d/e	Dividend Payout Ratio	187112–200512	189112–	0.17*	0.16	1.61	0.0017	–0.0299	0.17*	0.16	1.84	0.0019	–0.0283	0.17*	0.18	1.86	0.0022	–0.0300
svar	Stock Variance	188502–200512	190502–	–0.05	–0.41	–3.68	0.0114	–0.8011	–0.05	–0.39	–3.65	0.0109	–0.6934	–2.07***	0.12	10.09**	0.0097	–0.0977
csp	Cross-Sectional Prem	193705–200212	195705–	0.66**	0.28	3.88**	0.0152	–0.0714	0.66**	0.29	3.80**	0.0151	–0.0714	0.66**	0.31	3.58**	0.0151	–0.0721
b/m	Book to Market	192103–200512	194103–	0.15	0.21	2.19*	0.0044	–0.0661	0.11	0.17	0.91	0.0015	–0.0743	–0.39**	–0.73	–0.63	0.0043	–0.0704
ntis	Net Equity Expansion	192701–200512	194701–	0.70***	0.68	4.38**	0.0303	–0.0160	0.70***	0.67	4.45**	0.0304	–0.0156	0.69***	0.63	4.76**	0.0303	–0.0166
tbl	T-Bill Rate	192002–200512	194002–	0.14	0.56	5.06**	0.0265	–0.1534	0.14	0.52	5.06**	0.0247	–0.1688	0.14	0.52	4.79**	0.0235	–0.1632
lty	Long Term Yield	191901–200512	193901–	–0.00	0.31	4.10**	0.0118	–0.1643	–0.01	0.28	4.95**	0.0129	–0.1659	–0.01	0.30	3.64**	0.0103	–0.1614
ltr	Long Term Return	192601–200512	194601–	0.04	–0.36	–1.99	0.0073	–0.0945	0.04	–0.35	–1.96	0.0070	–0.0949	–1.54***	0.26	15.67***	0.0433	–0.1198
tms	Term Spread	192002–200512	194001–	0.13	0.81	3.23**	0.0243	–0.7383	0.13	0.78	3.13**	0.0227	–0.3248	0.13	0.75	3.10**	0.0216	–0.2950
dfy	Default Yield Spread	191901–200512	193901–	–0.09	–3.08	–0.83	0.0239	–0.0917	–0.09	–1.00	–0.35	0.0033	–0.1270	–0.17	0.25	0.48	0.0011	–0.1479
dfr	Default Return Spread	192601–200512	194601–	–0.01	–1.05	–1.18	0.0125	–0.0997	–0.01	–1.05	–1.18	0.0125	–0.0997	–1.20*	–0.05	–1.25	0.0007	–0.1320
infl	Inflation	191902–200512	193902–	–0.01	0.33	0.12	0.0004	–0.8290	–0.01	0.35	0.13	0.0004	–0.8258	–0.07	0.93	0.84	0.0073	–0.6199

Panel M: Adjusted Betas with Total Returns

				Unadjusted betas					Stambaugh correction					Lewellen correction				
		Data	Forecast	$\overline{R}^2$	λ	ENC	ΔRMSE*	ΔRMSE^{*r}	$\overline{R}^2$	λ	ENC	ΔRMSE*	ΔRMSE^{*r}	$\overline{R}^2$	λ	ENC	ΔRMSE*	ΔRMSE^{*r}
d/p	Dividend Price Ratio	192701–200512	196501–	0.15	0.53	2.65**	0.0214	–0.0382	0.05	0.28	0.32	0.0014	–0.0955	–0.15**	–1.17	–1.40	0.0254	–0.0074
d/y	Dividend Yield	192701–200512	196501–	0.25*	0.45	3.87**	0.0266	–0.0301	0.25*	0.45	3.67**	0.0257	–0.0315	0.25*	0.48	3.50**	0.0259	–0.0325
e/p	Earning Price Ratio	192701–200512	196501–	0.54**	0.28	3.06**	0.0132	–0.0610	0.48**	0.34	1.82*	0.0097	–0.0640	0.02***	2.20	0.63	0.0211	–0.0610
d/e	Dividend Payout Ratio	192701–200512	196501–	0.01	–1.11	–3.01	0.0522	–0.0000	0.01	–1.09	–3.14	0.0535	0.0014	0.01	–1.10	–3.05	0.0524	0.0005
svar	Stock Variance	192701–200512	196501–	–0.08	–13.10	–0.33	0.0666	0.0203	–0.08	–12.57	–0.31	0.0601	0.0206	–1.66**	0.27	1.22	0.0050	–0.3032
csp	Cross-Sectional Prem	193705–200212	196501–	0.92***	0.82	5.46***	0.0752	–0.0038	0.92***	0.82	5.38***	0.0750	–0.0050	0.91***	0.85	5.16***	0.0744	–0.0072
b/m	Book to Market	192701–200512	196501–	0.40**	0.07	0.87	0.0010	–0.0910	0.36**	0.06	0.48	0.0005	–0.0918	–0.14**	–2.44	–0.21	0.0078	–0.0881
ntis	Net Equity Expansion	192701–200512	196501–	0.75***	0.47	2.77**	0.0200	–0.0631	0.75***	0.46	2.81**	0.0200	–0.0630	0.74***	0.44	2.97**	0.0199	–0.0637
tbl	T-Bill Rate	192701–200512	196501–	0.11	0.51	4.84***	0.0376	–0.0762	0.11	0.47	4.83***	0.0350	–0.0866	0.11	0.48	4.62***	0.0343	–0.0852
lty	Long Term Yield	192701–200512	196501–	–0.01	0.35	5.43***	0.0296	–0.0568	–0.01	0.31	5.93***	0.0286	–0.0589	–0.01	0.35	4.66***	0.0250	–0.0571
ltr	Long Term Return	192701–200512	196501–	0.04	0.30	1.01*	0.0046	–0.0844	0.04	0.30	1.04*	0.0048	–0.0846	–1.55***	0.23	12.53***	0.0477	–0.1006
tms	Term Spread	192701–200512	196501–	0.07	0.72	2.36**	0.0261	–0.1802	0.07	0.70	2.31**	0.0249	–0.1293	0.07	0.69	2.38**	0.0251	–0.1084
dfy	Default Yield Spread	192701–200512	196501–	–0.07	2.04	0.19	0.0061	–0.0661	–0.07	–4.03	–0.27	0.0164	–0.0088	–0.15	–6.49	–1.14	0.1142	0.0911
dfr	Default Return Spread	192701–200512	196501–	–0.02	–0.05	–0.02	0.0000	–0.0749	–0.02	–0.05	–0.02	0.0000	–0.0748	–1.32*	0.13	2.07	0.0043	–0.0678
infl	Inflation	192701–200512	196501–	–0.00	1.18	0.56	0.0102	–0.1837	–0.00	1.17	0.56	0.0101	–0.1840	–0.03	0.74	0.56	0.0063	–0.2078

Table 14: Power at Annual Frequency

This table presents statistics on power of various test statistics for *out-of-sample*) for excess stock return forecasts at the annual frequency (both in the forecasting equation and forecast). Variables are explained in Section 1. Panel A uses the full sample period for each variable and constructs first forecast 20 years after the first data observation. Panel B uses the full sample period for each variable and constructs first forecast in 1965 (or 20 years after the first data observation, whichever comes later). Panel C uses only the sample period 1927 to 2005 and constructs first forecast in 1965 (or 20 years after the first data observation, whichever comes later). All numbers are in percent. RMSE is the root mean square error and MAE is the mean absolute error. ΔRMSE (ΔMAE) is the RMSE (MAE) difference between the unconditional forecast and the conditional forecast for the same sample/forecast period. MSE-T is the Diebold and Mariano (1995) t-statistic modified by Harvey, Leybourne, and Newbold (1998) and MSE-F is F-statistic by McCracken (2004). Both the MSE-T and MSE-F statistics test for equal MSE of the unconditional forecast and the conditional forecast. ENC is the test statistic proposed by Clark and McCracken (2001) for a test of forecast encompassing. One-sided critical values of all statistics are obtained empirically from bootstrapped distributions. The top half of each panel reports power for all simulation draws under the alternative distribution. The bottom half of each panel reports power for only those simulation draws that are found to be in-sample significant at the 95% level.

Panel A: Full data, Forecasts begin 20 years after the first sample date

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE ≥Crt Val	All Simulation Draws OOS Period Forecast	ΔMAE ≥0	ΔRMSE ≥0	ΔMAE ≥Crt Val	ΔRMSE ≥Crt Val	MSE-T ≥Crt Val	MSE-F ≥Crt Val	ENC ≥Crt Val
d/p	Dividend Price Ratio	1872–2005	0.49	31	1892–	36	31	20	24	23	24	28
d/y	Dividend Yield	1872–2005	0.91	31	1892–	32	29	20	27	27	27	24
e/p	Earning Price Ratio	1872–2005	1.08	36	1892–	42	40	25	30	29	31	31
d/e	Dividend Payout Ratio	1872–2005	–0.75	5	1892–	15	9	5	5	5	5	5
svar	Stock Variance	1885–2005	–0.76	7	1905–	16	11	6	6	6	6	6
b/m	Book to Market	1921–2005	3.20*	58	1941–	52	57	31	42	35	42	53
ntis	Net Equity Expansion	1927–2005	8.15***	68	1947–	69	68	52	57	49	57	60
eqis	Pct Equity Issuing	1927–2005	9.15***	82	1947–	79	82	63	72	65	73	78
tbl	T-Bill Rate	1920–2005	0.34	18	1940–	30	24	13	16	15	16	16
lty	Long Term Yield	1919–2005	–0.63	7	1939–	21	10	7	6	6	6	7
ltr	Long Term Return	1926–2005	0.99	25	1946–	39	38	18	24	21	23	24
tms	Term Spread	1920–2005	0.16	18	1940–	33	28	13	16	14	16	17
dfy	Default Yield Spread	1919–2005	–1.18	5	1939–	18	11	5	5	5	5	5
dfr	Default Return Spread	1926–2005	0.40	22	1946–	37	34	15	19	16	18	20
infl	Inflation	1919–2005	–1.00	6	1939–	21	14	6	6	6	6	6
i/k	Invstmnt Capital Ratio	1947–2005	6.63**	56	1967–	57	65	34	47	39	47	52
cayp	Cnsmptn, Wlth, Incme	1945–2005	15.72***	82	1965–	72	82	53	69	57	70	79

	Variable	In-Sample ΔRMSE ≥Crt Val	Conditional on In-sample Significant Simulation Draws OOS Period ΔMAE ≥0	ΔRMSE ≥0	ΔMAE ≥Crt Val	ΔRMSE ≥Crt Val	MSE-T ≥Crt Val	MSE-F ≥Crt Val	ENC ≥Crt Val	ΔMAE ≥Act Val	ΔRMSE ≥Act Val	MSE-T ≥Act Val	MSE-F ≥Act Val	ENC ≥Act Val
d/p	Dividend Price Ratio	96	67	75	48	66	61	66	72	83	84	93	84	100
d/y	Dividend Yield	98	67	82	52	79	78	79	69	83	91	93	91	48
e/p	Earning Price Ratio	98	72	81	54	72	67	73	76	88	88	94	88	100
d/e	Dividend Payout Ratio	92	65	81	42	67	59	68	63	94	97	100	96	100
svar	Stock Variance	94	66	71	43	61	54	61	62	100	100	100	100	99
b/m	Book to Market	97	69	78	48	67	54	66	83	52	79	79	79	99
ntis	Net Equity Expansion	98	84	85	71	78	66	78	84	64	91	95	92	6
eqis	Pct Equity Issuing	99	87	91	74	85	76	85	93	78	81	78	78	28
tbl	T-Bill Rate	95	71	81	48	73	64	73	73	90	88	89	89	99
lty	Long Term Yield	93	67	76	43	66	57	64	62	97	96	96	97	97
ltr	Long Term Return	95	78	86	54	74	62	74	81	98	98	99	99	100
tms	Term Spread	95	76	84	52	72	59	72	81	81	87	90	88	100
dfy	Default Yield Spread	93	69	73	44	61	51	61	61	78	83	100	84	8
dfr	Default Return Spread	97	79	86	55	73	60	72	81	78	87	88	87	99
infl	Inflation	91	73	78	44	65	53	65	67	86	88	100	90	89
i/k	Invstmnt Capital Ratio	97	79	88	57	77	62	77	87	96	86	86	86	56
cayp	Cnsmptn, Wlth, Incme	98	79	89	62	80	65	81	92	23	21	12	23	5

Panel B: Full data, Forecasts begin in 1965

			All Simulation Draws										
			In-Sample		OOS Period								
	Variable	Data	$\overline{R}^2$	ΔRMSE ≥Crt Val	Forecast	ΔMAE	ΔRMSE ≥0	ΔMAE	ΔRMSE	MSE-T ≥Crt Val	MSE-F	ENC
d/p	Dividend Price Ratio	1872–2005	0.49	31	1965–	53	54	19	21	14	21	25
d/y	Dividend Yield	1872–2005	0.91	31	1965–	48	48	19	21	14	21	24
e/p	Earning Price Ratio	1872–2005	1.08	36	1965–	54	54	23	25	16	25	30
d/e	Dividend Payout Ratio	1872–2005	–0.75	5	1965–	31	28	5	5	5	5	5
svar	Stock Variance	1885–2005	–0.76	7	1965–	31	28	6	6	6	6	6
b/m	Book to Market	1921–2005	3.20*	58	1965–	60	66	30	40	25	41	51
ntis	Net Equity Expansion	1927–2005	8.15***	68	1965–	72	71	50	53	37	53	59
eqis	Pct Equity Issuing	1927–2005	9.15***	82	1965–	79	81	58	66	48	66	78
tbl	T-Bill Rate	1920–2005	0.34	18	1965–	39	35	13	15	12	15	16
lty	Long Term Yield	1919–2005	–0.63	7	1965–	30	22	7	7	6	7	7
ltr	Long Term Return	1926–2005	0.99	25	1965–	44	45	17	22	17	22	24
tms	Term Spread	1920–2005	0.16	18	1965–	40	39	13	15	12	15	16
dfy	Default Yield Spread	1919–2005	–1.18	5	1965–	28	22	5	5	5	5	5
dfr	Default Return Spread	1926–2005	0.40	22	1965–	42	42	16	19	15	19	21
infl	Inflation	1919–2005	–1.00	6	1965–	29	24	6	6	6	6	6
i/k	Invstmnt Capital Ratio	1947–2005	6.63**	56	1967–	57	65	34	47	39	47	52
cayp	Cnsmptn, Wlth, Incme	1945–2005	15.72***	82	1965–	72	82	53	69	57	70	79

			Conditional on In-sample Significant Simulation Draws												
		In-Sample	OOS Period												
	Variable	ΔRMSE ≥Crt Val	ΔMAE	ΔRMSE ≥0	ΔMAE	ΔRMSE	MSE-T ≥Crt Val	MSE-F	ENC	ΔMAE	ΔRMSE	MSE-T ≥Act Val	MSE-F	ENC
d/p	Dividend Price Ratio	96	69	74	43	51	23	51	71	91	78	79	79	22
d/y	Dividend Yield	98	70	76	47	56	31	56	67	93	89	86	90	39
e/p	Earning Price Ratio	98	69	74	46	53	28	53	70	75	67	66	66	53
d/e	Dividend Payout Ratio	92	65	74	42	49	26	48	62	74	83	99	83	96
svar	Stock Variance	94	64	71	41	49	25	49	60	62	70	63	70	12
b/m	Book to Market	97	72	80	46	61	35	61	84	87	96	97	96	100
ntis	Net Equity Expansion	98	83	85	67	72	49	72	82	51	91	93	92	12
eqis	Pct Equity Issuing	99	85	87	68	77	55	77	92	81	84	84	84	39
tbl	T-Bill Rate	95	72	80	48	62	40	61	74	92	87	86	87	100
lty	Long Term Yield	93	72	82	45	64	39	62	71	98	97	94	97	94
ltr	Long Term Return	95	76	82	50	64	44	64	79	98	98	98	98	100
tms	Term Spread	95	74	80	49	60	38	60	74	79	81	81	81	100
dfy	Default Yield Spread	93	71	73	40	51	31	51	68	75	79	99	80	100
dfr	Default Return Spread	97	77	81	54	66	43	65	82	75	82	83	82	85
infl	Inflation	91	69	73	41	52	31	51	67	77	78	89	78	98
i/k	Invstmnt Capital Ratio	97	79	88	57	77	62	77	87	96	86	86	86	100
cayp	Cnsmptn, Wlth, Incme	98	79	89	62	80	65	81	92	23	21	12	23	3

Panel C: Data begin in 1948, Forecasts begin in 1965

	Variable	Data	In-Sample $\overline{R}^2$	In-Sample ΔRMSE ≥Crt Val	All Simulation Draws OOS Period Forecast	ΔMAE ≥0	ΔRMSE ≥0	ΔMAE ≥Crt Val	ΔRMSE ≥Crt Val	MSE-T ≥Crt Val	MSE-F ≥Crt Val	ENC ≥Crt Val
d/p	Dividend Price Ratio	1927–2005	1.67	39	1965–	54	57	23	29	19	29	37
d/y	Dividend Yield	1927–2005	2.71*	35	1965–	45	48	21	30	23	30	31
e/p	Earning Price Ratio	1927–2005	3.20*	51	1965–	58	61	30	39	27	38	47
d/e	Dividend Payout Ratio	1927–2005	–1.24	5	1965–	26	19	5	5	5	5	6
svar	Stock Variance	1927–2005	–1.32	5	1965–	27	20	5	5	5	5	5
b/m	Book to Market	1927–2005	4.14*	62	1965–	62	67	33	45	30	45	58
ntis	Net Equity Expansion	1927–2005	8.15***	68	1965–	72	71	50	53	37	53	59
eqis	Pct Equity Issuing	1927–2005	9.15***	82	1965–	79	81	58	66	48	66	78
tbl	T-Bill Rate	1927–2005	0.15	16	1965–	37	32	11	14	12	14	14
lty	Long Term Yield	1927–2005	–0.94	6	1965–	27	19	6	6	5	6	6
ltr	Long Term Return	1927–2005	0.92	26	1965–	43	44	17	22	17	22	24
tms	Term Spread	1927–2005	0.89	25	1965–	43	44	17	21	16	21	24
dfy	Default Yield Spread	1927–2005	–1.31	5	1965–	26	20	5	5	5	5	5
dfr	Default Return Spread	1927–2005	0.32	20	1965–	41	40	14	17	14	17	19
infl	Inflation	1927–2005	–0.99	8	1965–	30	25	7	8	7	7	8
i/k	Invstmnt Capital Ratio	1947–2005	6.63**	56	1967–	57	65	34	47	39	47	52
cayp	Cnsmptn, Wlth, Incme	1945–2005	15.72***	82	1965–	72	82	53	69	57	70	79

	Variable	In-Sample ΔRMSE ≥Crt Val	Conditional on In-sample Significant Simulation Draws OOS Period ΔMAE ≥0	ΔRMSE ≥0	ΔMAE ≥Crt Val	ΔRMSE ≥Crt Val	MSE-T ≥Crt Val	MSE-F ≥Crt Val	ENC ≥Crt Val	ΔMAE ≥Act Val	ΔRMSE ≥Act Val	MSE-T ≥Act Val	MSE-F ≥Act Val	ENC ≥Act Val
d/p	Dividend Price Ratio	95	73	80	44	58	33	58	83	86	78	77	77	40
d/y	Dividend Yield	96	72	85	49	71	52	72	79	90	91	90	92	100
e/p	Earning Price Ratio	96	74	80	49	64	42	64	84	85	82	82	82	92
d/e	Dividend Payout Ratio	92	70	76	45	58	36	58	72	81	93	100	94	99
svar	Stock Variance	92	69	73	44	53	34	54	67	73	76	100	76	98
b/m	Book to Market	97	73	80	48	64	40	64	87	95	98	99	99	82
ntis	Net Equity Expansion	98	83	85	67	72	49	72	82	51	91	93	92	31
eqis	Pct Equity Issuing	99	85	87	68	77	55	77	92	81	84	84	84	87
tbl	T-Bill Rate	95	75	82	48	65	46	65	74	98	95	93	96	100
lty	Long Term Yield	92	77	85	49	65	41	65	70	100	98	97	98	100
ltr	Long Term Return	96	74	82	50	64	44	65	80	97	98	98	98	96
tms	Term Spread	95	76	81	52	66	43	65	81	78	82	82	82	100
dfy	Default Yield Spread	89	70	75	44	52	31	52	64	74	79	100	80	99
dfr	Default Return Spread	96	77	83	51	64	43	64	80	76	83	83	83	100
infl	Inflation	93	72	76	46	56	36	55	72	73	88	98	90	92
i/k	Invstmnt Capital Ratio	97	79	88	57	77	62	77	87	96	86	86	86	64
cayp	Cnsmptn, Wlth, Incme	98	79	89	62	80	65	81	92	23	21	12	23	36

Table 15: Forecasts at Monthly Frequency using Campbell and Thompson (2005) procedure

This table presents statistics on forecast errors in-sample (IS) and out-of-sample (OOS) for excess stock return forecasts at the monthly frequency (both in the forecasting equation and forecast) using the procedure of Campbell and Thompson (2005) (henceforth, CT). Variables are explained in Section 1. Stock return is price changes, *including* dividends, of S&P500. Panel A uses the log returns (as in the rest of the tables) while Panel B uses simple returns (as in CT). The data period is December 1927 to December 2005, except for **csp** (May 1937 to December 2002) and **cay**3 (December 1951 to December 2005). A star next to $\overline{R}^2$ (in percent) denotes significance of the in-sample regression (as measured by empirical F-statistic). Variables are sorted in increasing order of in-sample significance. ΔRMSE is the RMSE (root mean square error) difference between the unconditional forecast and the conditional forecast for the same sample/forecast period (positive numbers signify superior out-of-sample conditional forecast). $\Delta U^{\gamma=3}$ is the utility difference for mean variance utility optimizer with risk aversion coefficient $\gamma = 3$ who trades based on unconditional forecast and conditional forecast. Portfolio weights are denoted by w (a cap $w_{\max} = 150\%$ is imposed on all portfolio weights). ΔRMSE and ΔU are in percent per month while w is in percent. Subscript U is for unconditional forecast, PN is for plain conditional forecast, and CT is the CT conditional forecast. The panel header gives the utility of investing based on unconditional forecast (U_0), buy-and hold market (U_{mkt}), and the riskfree asset (U_{rf}). The column titled $\Delta U_{\text{CT}}^{\gamma=x}$ gives the utility based on risk aversion coefficient $\gamma = x$, where x equalizes the U_{mkt} and U_{rf}. Critical values of all statistics are obtained empirically from bootstrapped distributions, except for **cay**3 model where they are obtained from McCracken (2004). Significance levels at 90%, 95%, and 99% are denoted by one, two, and three stars, respectively.

Panel A: Log Return $U_{\mathbf{U}} = 0.6802\%, U_{\mathbf{mkt}} = 0.6894\%, U_{\mathbf{rf}} = 0.3970\%$

	Variable	IS $\overline{R}^2$	IS $\Delta U_{\text{PN}}^{\gamma=3}$	OOS $\Delta\text{RMSE}_{\text{PN}}$	OOS $\Delta\text{RMSE}_{\text{CT}}$	OOS $\Delta U_{\text{CT}}^{\gamma=3}$	OOS $\Delta U_{\text{CT}}^{\gamma=6.42}$	Frcst= 0	Frcst= U	$w_{\text{CT}} = w_{\max}$	$\Delta w_{\text{CT}} - \Delta w_{\text{U}}$
ntis	Net Equity Expansion	0.94***	0.0094	0.0041**	0.0051**	0.0167	0.0169	4.7	0.0	41.9	5.4
csp	Cross-Sectional Prem	0.92***	0.1872	–0.0163	0.0097**	0.0969	0.0825	51.3	0.0	9.1	4.0
eqis	Pct Equity Issuing	0.82***	0.1693	0.0084**	0.0114***	0.1583	0.0877	10.2	0.0	38.3	2.0
e/p	Earning Price Ratio	0.51**	0.0353	–0.0186	–0.0124	–0.0526	–0.0530	36.9	0.0	26.8	3.0
e/p	Earning(10Y) Price Ratio	0.46**	–0.0490	–0.0301	–0.0070	–0.1414	–0.0632	56.2	0.0	6.5	3.5
b/m	Book to Market	0.45**	–0.1315	–0.0434	–0.0257	–0.1681	–0.1623	48.5	0.0	20.2	3.9
d/y	Dividend Yield	0.22*	0.0407	–0.0092	0.0046**	–0.0618	0.0081	54.4	0.0	9.5	2.9
tms	Term Spread	0.12	0.1767	0.0056**	0.0052**	0.1135	0.0411	4.2	11.6	29.7	5.6
d/p	Dividend Price Ratio	0.12	0.0564	–0.0005	0.0035	–0.0441	–0.0009	23.5	0.0	4.3	2.7
tbl	T-Bill Rate	0.10	0.1669	–0.0039	0.0025*	0.0725	0.0516	26.7	0.0	4.9	2.7
ltr	Long Term Return	0.04	0.1357	–0.0202	0.0039*	0.0290	0.0147	4.9	39.0	31.6	24.9
d/e	Dividend Payout Ratio	0.02	–0.0713	–0.0225	–0.0225	–0.0171	–0.1219	0.0	0.0	57.4	–0.2
infl	Inflation	–0.01	0.0585	0.0017*	0.0028*	0.0325	0.0280	1.6	0.0	24.2	9.6
dfr	Default Return Spread	–0.02	0.0268	–0.0070	–0.0060	–0.0372	–0.0235	1.0	3.2	23.2	20.0
lty	Long Term Yield	–0.03	0.0716	–0.0241	0.0049**	0.0683	0.0499	48.9	0.0	8.3	1.3
dfy	Default Yield Spread	–0.06	0.0087	–0.0044	–0.0032	–0.0277	–0.0177	3.0	23.0	23.7	0.8
svar	Stock Variance	–0.09	0.0202	–0.0040	–0.0031	–0.0208	–0.0113	0.0	51.2	25.3	0.2
cay3	Cnsmptn, Wlth, Incme	1.88***	0.4015	–0.0274	0.0114**	0.0914	0.0411	50.6	0.0	10.8	9.5

Panel B: Simple Return $U_{\mathbf{U}} = 0.8018\%, U_{\mathbf{mkt}} = 0.7797\%, U_{\mathbf{rf}} = 0.3970\%$

	Variable	IS $\overline{R}^2$	IS $\Delta U_{\text{PN}}^{\gamma=3}$	OOS $\Delta\text{RMSE}_{\text{PN}}$	OOS $\Delta\text{RMSE}_{\text{CT}}$	OOS $\Delta U_{\text{CT}}^{\gamma=3}$	OOS $\Delta U_{\text{CT}}^{\gamma=7.48}$	Frcst= 0	Frcst= U	$w_{\text{CT}} = w_{\max}$	$\Delta w_{\text{CT}} - \Delta w_{\text{U}}$
ntis	Net Equity Expansion	1.02***	0.0150	–0.0004	–0.0003	0.0229	–0.0052	0.4	0.0	57.4	4.4
csp	Cross-Sectional Prem	0.99***	0.1629	–0.0164	0.0072**	0.0600	0.0716	44.7	0.0	13.5	4.7
e/p	Earning(10Y) Price Ratio	0.86***	–0.1475	–0.0428	–0.0071	–0.1313	–0.0628	52.4	0.0	15.4	4.8
b/m	Book to Market	0.81***	–0.1690	–0.0647	–0.0432	–0.2185	–0.2026	44.3	0.0	31.3	3.5
eqis	Pct Equity Issuing	0.80***	0.1391	0.0059**	0.0093***	0.1367	0.0874	6.7	0.0	55.8	1.5
e/p	Earning Price Ratio	0.54**	0.0402	–0.0186	–0.0183	–0.0444	–0.0532	18.1	0.0	34.4	4.3
d/y	Dividend Yield	0.47**	–0.0348	–0.0202	0.0023*	–0.1390	0.0087	54.2	0.0	16.4	3.2
d/p	Dividend Price Ratio	0.33*	–0.0103	–0.0033	0.0066*	–0.1018	0.0164	32.3	0.0	16.1	4.0
dfy	Default Yield Spread	0.28*	–0.0094	–0.0086	–0.0071	–0.0761	–0.0302	4.0	0.0	27.3	2.6
tbl	T-Bill Rate	0.20*	0.1421	0.0013*	0.0081**	0.0954	0.0869	23.1	0.0	16.4	3.1
tms	Term Spread	0.18	0.1563	0.0075**	0.0073**	0.1440	0.0760	3.7	0.0	59.3	4.4
infl	Inflation	0.14	0.0460	0.0032*	0.0045**	0.0389	0.0415	1.3	0.0	43.5	12.0
ltr	Long Term Return	0.07	0.1009	–0.0102	0.0053**	0.0610	0.0159	3.0	38.2	51.2	24.6
lty	Long Term Yield	0.02	0.0639	–0.0137	0.0085**	0.0601	0.0758	34.1	0.0	19.5	2.1
dfr	Default Return Spread	–0.07	0.0326	–0.0048	–0.0030	0.0064	–0.0071	0.0	20.9	44.9	6.5
svar	Stock Variance	–0.07	–0.0190	–0.0134	–0.0134	–0.0355	–0.0329	0.0	0.0	35.4	2.0
d/e	Dividend Payout Ratio	–0.10	–0.0150	–0.0115	–0.0114	–0.0136	–0.0631	0.0	7.9	57.7	–0.2
cay3	Cnsmptn, Wlth, Incme	1.87***	0.3931	–0.0288	0.0088*	0.0610	0.0200	44.7	0.0	13.2	9.7