

Appendix to:  
Asset Pricing Models and Economic Risk Premia:  
A Decomposition

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### Table A.I: $\lambda$ vs $\lambda^*$ (null vs alternative)

We report estimates of  $\lambda_t$  and  $\lambda_t^*$  for the six economic factors: term structure (HB3), dividend yield (DIV), consumption growth (CG), default premium (PREM), inflation (INF), and real T-bill rate (REALTB). We consider four multi-beta models. The first model is the I-CAPM (Panel A), the second model is the C-CAPM (Panel B), the third model is the FF3 model (Panel C), and the fourth model is the CAPM (Panel D). The sample period is March 1959-December 2002. Finite-sample absolute biases (Bias) and empirical standard errors (Emp. Std.) are estimated by bootstrap under the null (Panel A) and under the alternative (Panel B); see Section V for details. For each economic factor, we report the unconditional risk premium  $\lambda_0^*$  ( $\lambda_0$ ). For the models with non-traded factors, we consider estimates based on the two weighting matrices  $W = I$  (OLS) and  $W = \hat{\Sigma}_{rr}^{-1}$  (GLS).

Panel A: Analysis under the null

|                               | I-CAPM                       | C-CAPM                       | FF3     | CAPM    |
|-------------------------------|------------------------------|------------------------------|---------|---------|
| $\lambda^*(HB3)$              | -0.0240                      | -0.0125                      | -0.0133 | -0.0057 |
| $\lambda(HB3)$                | -2.8315                      | 0.0208                       | -0.0357 | -0.0057 |
| $Bias_{\lambda^*}(HB3)$       | -0.0006                      | -0.0000                      | -0.0001 | -0.0000 |
| $Bias_{\lambda}(HB3)$         | 1.9428(OLS)<br>1.9949(GLS)   | -0.0004(OLS)<br>-0.0051(GLS) | 0.0000  | -0.0000 |
| $Emp.Std_{\lambda^*}(HB3)$    | 0.0151                       | 0.0137                       | 0.0110  | 0.0113  |
| $Emp.Std_{\lambda}(HB3)$      | 0.8834(OLS)<br>0.8757(GLS)   | 0.0477(OLS)<br>0.0327(GLS)   | 0.0130  | 0.0063  |
| $\lambda^*(DIV)$              | -0.0556                      | -0.0849                      | -0.0644 | -0.0639 |
| $\lambda(DIV)$                | 0.6956                       | -0.1536                      | -0.0722 | -0.0641 |
| $Bias_{\lambda^*}(DIV)$       | -0.0011                      | -0.0009                      | -0.0010 | -0.0010 |
| $Bias_{\lambda}(DIV)$         | -0.7796(OLS)<br>-0.6616(GLS) | -0.0074(OLS)<br>0.0285(GLS)  | -0.0003 | -0.0004 |
| $Emp.Std_{\lambda^*}(DIV)$    | 0.0313                       | 0.0318                       | 0.0315  | 0.0313  |
| $Emp.Std_{\lambda}(DIV)$      | 0.3983(OLS)<br>0.4677(GLS)   | 0.0802(OLS)<br>0.0407(GLS)   | 0.0308  | 0.0286  |
| $\lambda^*(CG)$               | 0.0053                       | 0.0481                       | 0.0180  | 0.0139  |
| $\lambda(CG)$                 | -0.3909                      | 0.7674                       | 0.0249  | 0.0141  |
| $Bias_{\lambda^*}(CG)$        | -0.0002                      | -0.0006                      | -0.0000 | -0.0001 |
| $Bias_{\lambda}(CG)$          | 0.1579(OLS)<br>0.1836(GLS)   | 0.0640(OLS)<br>-0.1331(GLS)  | 0.0006  | 0.0003  |
| $Emp.Std_{\lambda^*}(CG)$     | 0.0166                       | 0.0149                       | 0.0132  | 0.0130  |
| $Emp.Std_{\lambda}(CG)$       | 0.6326(OLS)<br>0.6132(GLS)   | 0.4462(OLS)<br>0.1890(GLS)   | 0.0128  | 0.0079  |
| $\lambda^*(PREM)$             | 0.0027                       | 0.0071                       | 0.0048  | 0.0063  |
| $\lambda(PREM)$               | -2.7568                      | 0.0083                       | 0.0172  | 0.0064  |
| $Bias_{\lambda^*}(PREM)$      | -0.0002                      | 0.0002                       | 0.0000  | 0.0001  |
| $Bias_{\lambda}(PREM)$        | 2.7415(OLS)<br>2.5603(GLS)   | 0.0036(OLS)<br>0.0003(GLS)   | 0.0000  | 0.0000  |
| $Emp.Std_{\lambda^*}(PREM)$   | 0.0122                       | 0.0123                       | 0.0092  | 0.0093  |
| $Emp.Std_{\lambda}(PREM)$     | 1.1633(OLS)<br>1.1630(GLS)   | 0.0502(OLS)<br>0.0350(GLS)   | 0.0123  | 0.0057  |
| $\lambda^*(INF)$              | 0.0034                       | -0.0263                      | -0.0106 | -0.0130 |
| $\lambda(INF)$                | -1.6223                      | -0.1355                      | -0.0191 | -0.0132 |
| $Bias_{\lambda^*}(INF)$       | 0.0001                       | 0.0004                       | -0.0001 | -0.0000 |
| $Bias_{\lambda}(INF)$         | 1.8529(OLS)<br>1.6974(GLS)   | -0.0012(OLS)<br>0.0267(GLS)  | 0.0003  | -0.0001 |
| $Emp.Std_{\lambda^*}(INF)$    | 0.0158                       | 0.0127                       | 0.0115  | 0.0111  |
| $Emp.Std_{\lambda}(INF)$      | 0.7630(OLS)<br>0.7683(GLS)   | 0.0762(OLS)<br>0.0470(GLS)   | 0.0125  | 0.0077  |
| $\lambda^*(REALTB)$           | -0.0052                      | 0.0184                       | 0.0048  | 0.0088  |
| $\lambda(REALTB)$             | 2.2831                       | 0.1340                       | 0.0127  | 0.0090  |
| $Bias_{\lambda^*}(REALTB)$    | -0.0002                      | -0.0006                      | 0.0000  | -0.0000 |
| $Bias_{\lambda}(REALTB)$      | -2.3989(OLS)<br>-2.2503(GLS) | 0.0017(OLS)<br>-0.0264(GLS)  | -0.0001 | 0.0000  |
| $Emp.Std_{\lambda^*}(REALTB)$ | 0.0147                       | 0.0123                       | 0.0105  | 0.0101  |
| $Emp.Std_{\lambda}(REALTB)$   | 0.8630(OLS)<br>0.8715(GLS)   | 0.0769(OLS)<br>0.0464(GLS)   | 0.0114  | 0.0063  |

Panel B: Analysis under the alternative

|                               | I-CAPM                       | C-CAPM                       | FF3     | CAPM    |
|-------------------------------|------------------------------|------------------------------|---------|---------|
| $\lambda^*(HB3)$              | -0.0197                      | -0.0197                      | -0.0197 | -0.0197 |
| $\lambda(HB3)$                | -2.8315(OLS)<br>-2.1016(GLS) | 0.0208(OLS)<br>0.0040(GLS)   | -0.0357 | -0.0057 |
| $Bias_{\lambda^*}(HB3)$       | -0.0011                      | -0.0011                      | -0.0011 | -0.0011 |
| $Bias_{\lambda}(HB3)$         | 2.0788(OLS)<br>1.4771(GLS)   | -0.0007(OLS)<br>-0.0027(GLS) | 0.0001  | -0.0000 |
| $Emp.Std_{\lambda^*}(HB3)$    | 0.0142                       | 0.0142                       | 0.0142  | 0.0142  |
| $Emp.Std_{\lambda}(HB3)$      | 0.9453(OLS)<br>0.7980(GLS)   | 0.0470(OLS)<br>0.0135(GLS)   | 0.0129  | 0.0063  |
| $\lambda^*(DIV)$              | -0.0588                      | -0.0588                      | -0.0588 | -0.0588 |
| $\lambda(DIV)$                | 0.6956(OLS)<br>0.3306(GLS)   | -0.1536(OLS)<br>-0.0294(GLS) | -0.0722 | -0.0641 |
| $Bias_{\lambda^*}(DIV)$       | -0.0012                      | -0.0012                      | -0.0012 | -0.0012 |
| $Bias_{\lambda}(DIV)$         | -0.8252(OLS)<br>-0.4241(GLS) | -0.0060(OLS)<br>0.0059(GLS)  | -0.0003 | -0.0004 |
| $Emp.Std_{\lambda^*}(DIV)$    | 0.0324                       | 0.0324                       | 0.0324  | 0.0324  |
| $Emp.Std_{\lambda}(DIV)$      | 0.4249(OLS)<br>0.4251(GLS)   | 0.0787(OLS)<br>0.0440(GLS)   | 0.0308  | 0.0286  |
| $\lambda^*(CG)$               | 0.0092                       | 0.0092                       | 0.0092  | 0.0092  |
| $\lambda(CG)$                 | -0.3909(OLS)<br>-0.1516(GLS) | 0.7674(OLS)<br>0.1468(GLS)   | 0.0249  | 0.0141  |
| $Bias_{\lambda^*}(CG)$        | -0.0002                      | -0.0002                      | -0.0002 | -0.0002 |
| $Bias_{\lambda}(CG)$          | 0.2345(OLS)<br>0.0909(GLS)   | 0.0566(OLS)<br>-0.0314(GLS)  | 0.0006  | 0.0003  |
| $Emp.Std_{\lambda^*}(CG)$     | 0.0165                       | 0.0165                       | 0.0165  | 0.0165  |
| $Emp.Std_{\lambda}(CG)$       | 0.6774(OLS)<br>0.5669(GLS)   | 0.4374(OLS)<br>0.2233(GLS)   | 0.0128  | 0.0079  |
| $\lambda^*(PREM)$             | 0.0049                       | 0.0049                       | 0.0049  | 0.0049  |
| $\lambda(PREM)$               | -2.7568(OLS)<br>-1.4901(GLS) | 0.0083(OLS)<br>0.0016(GLS)   | 0.0172  | 0.0064  |
| $Bias_{\lambda^*}(PREM)$      | -0.0000                      | -0.0000                      | -0.0000 | -0.0000 |
| $Bias_{\lambda}(PREM)$        | 2.8212(OLS)<br>1.4997(GLS)   | 0.0033(OLS)<br>-0.0004(GLS)  | 0.0000  | 0.0001  |
| $Emp.Std_{\lambda^*}(PREM)$   | 0.0125                       | 0.0125                       | 0.0125  | 0.0125  |
| $Emp.Std_{\lambda}(PREM)$     | 1.2789(OLS)<br>1.0921(GLS)   | 0.0496(OLS)<br>0.0135(GLS)   | 0.0123  | 0.0057  |
| $\lambda^*(INF)$              | 0.0030                       | 0.0030                       | 0.0030  | 0.0030  |
| $\lambda(INF)$                | -1.6223(OLS)<br>-1.0253(GLS) | -0.1355(OLS)<br>-0.0259(GLS) | -0.0191 | -0.0132 |
| $Bias_{\lambda^*}(INF)$       | -0.0002                      | -0.0002                      | -0.0002 | -0.0002 |
| $Bias_{\lambda}(INF)$         | 1.9130(OLS)<br>1.1904(GLS)   | 0.0002(OLS)<br>0.0088(GLS)   | 0.0003  | -0.0001 |
| $Emp.Std_{\lambda^*}(INF)$    | 0.0149                       | 0.0149                       | 0.0149  | 0.0149  |
| $Emp.Std_{\lambda}(INF)$      | 0.8090(OLS)<br>0.6990(GLS)   | 0.0745(OLS)<br>0.0395(GLS)   | 0.0125  | 0.0077  |
| $\lambda^*(REALTB)$           | -0.0036                      | -0.0036                      | -0.0036 | -0.0036 |
| $\lambda(REALTB)$             | 2.2831(OLS)<br>1.6478(GLS)   | 0.1340(OLS)<br>0.0256(GLS)   | 0.0127  | 0.0090  |
| $Bias_{\lambda^*}(REALTB)$    | -0.0001                      | -0.0001                      | -0.0001 | -0.0001 |
| $Bias_{\lambda}(REALTB)$      | -2.4131(OLS)<br>-1.6541(GLS) | 0.0003(OLS)<br>-0.0088(GLS)  | -0.0001 | 0.0001  |
| $Emp.Std_{\lambda^*}(REALTB)$ | 0.0136                       | 0.0136                       | 0.0136  | 0.0136  |
| $Emp.Std_{\lambda}(REALTB)$   | 0.9179(OLS)<br>0.7920(GLS)   | 0.0752(OLS)<br>0.0392(GLS)   | 0.0114  | 0.0063  |

## Table A.II: Changing the tradeability of the factors

We report estimates of  $\lambda_t$  and  $\lambda_t^*$  for the six economic factors: term structure (HB3), dividend yield (DIV), consumption growth (CG), default premium (PREM), inflation (INF), and real T-bill rate (REALTB). We consider two multi-beta models: the first model is the I-CAPM (Panel A), the second model is the C-CAPM (Panel B). The sample period is March 1959-December 2002. We modify the factors as follows:  $y_t^m = \frac{y_t^* + c(y_t - y_t^*)}{\sqrt{\sigma_{y^*}^2 + c^2 \sigma_{y - y^*}^2}}$ , for  $c = 1/4, 2/3, 1, 3/2, 4$ . Finite-sample absolute biases (Bias) and empirical standard errors (Emp. Std.) are computed by bootstrap (see Section V for details). For each economic factor, we report the unconditional risk premium  $\lambda_0^*$  ( $\lambda_0$ ). We consider estimates based on the two weighting matrices  $W = I$  (OLS) and  $W = \hat{\Sigma}_{rr}^{-1}$  (GLS).

Panel A: I-CAPM

|                               | $c = 1/4$                    | $c = 2/3$                    | $c = 1$                      | $c = 3/2$                    | $c = 4$                       |
|-------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|-------------------------------|
| $\lambda^*(HB3)$              | -0.0673                      | -0.0291                      | -0.0197                      | -0.0132                      | -0.0050                       |
| $\lambda(HB3)$                | -0.6926(OLS)<br>-0.5114(GLS) | -1.8928(OLS)<br>-1.3959(GLS) | -2.8315(OLS)<br>-2.1016(GLS) | -4.2129(OLS)<br>-3.1579(GLS) | -10.9676(OLS)<br>-8.4287(GLS) |
| $Bias_{\lambda^*}(HB3)$       | -0.0005                      | -0.0010                      | -0.0011                      | -0.0011                      | -0.0011                       |
| $Bias_{\lambda}(HB3)$         | 0.0641(OLS)<br>0.0238(GLS)   | 1.0943(OLS)<br>0.7259(GLS)   | 2.0788(OLS)<br>1.4771(GLS)   | 3.5168(OLS)<br>2.5983(GLS)   | 10.5867(OLS)<br>8.1501(GLS)   |
| $Emp.Std_{\lambda^*}(HB3)$    | 0.0277                       | 0.0162                       | 0.0142                       | 0.0133                       | 0.0128                        |
| $Emp.Std_{\lambda}(HB3)$      | 0.2480(OLS)<br>0.1865(GLS)   | 0.7519(OLS)<br>0.6116(GLS)   | 0.9453(OLS)<br>0.7980(GLS)   | 1.3264(OLS)<br>0.9525(GLS)   | 2.3341(OLS)<br>1.3012(GLS)    |
| $\lambda^*(DIV)$              | -0.0829                      | -0.0700                      | -0.0588                      | -0.0457                      | -0.0197                       |
| $\lambda(DIV)$                | -0.0165(OLS)<br>-0.0486(GLS) | 0.3219(OLS)<br>0.1359(GLS)   | 0.6956(OLS)<br>0.3306(GLS)   | 1.3018(OLS)<br>0.6346(GLS)   | 4.1126(OLS)<br>2.0709(GLS)    |
| $Bias_{\lambda^*}(DIV)$       | -0.0010                      | -0.0012                      | -0.0012                      | -0.0012                      | -0.0013                       |
| $Bias_{\lambda}(DIV)$         | 0.0358(OLS)<br>-0.0489(GLS)  | -0.2525(OLS)<br>-0.1447(GLS) | -0.8252(OLS)<br>-0.4241(GLS) | -1.7448(OLS)<br>-0.7945(GLS) | -4.1917(OLS)<br>-2.0870(GLS)  |
| $Emp.Std_{\lambda^*}(DIV)$    | 0.0436                       | 0.0375                       | 0.0324                       | 0.0268                       | 0.0176                        |
| $Emp.Std_{\lambda}(DIV)$      | 0.0605(OLS)<br>0.0745(GLS)   | 0.1964(OLS)<br>0.2388(GLS)   | 0.4249(OLS)<br>0.4251(GLS)   | 0.9777(OLS)<br>0.6919(GLS)   | 2.3430(OLS)<br>1.2849(GLS)    |
| $\lambda^*(CG)$               | 0.0264                       | 0.0133                       | 0.0092                       | 0.0062                       | 0.0024                        |
| $\lambda(CG)$                 | -0.0544(OLS)<br>-0.0020(GLS) | -0.2479(OLS)<br>-0.0897(GLS) | -0.3909(OLS)<br>-0.1516(GLS) | -0.5944(OLS)<br>-0.2398(GLS) | -1.5391(OLS)<br>-0.6637(GLS)  |
| $Bias_{\lambda^*}(CG)$        | -0.0011                      | -0.0004                      | -0.0002                      | -0.0001                      | 0.0001                        |
| $Bias_{\lambda}(CG)$          | 0.0254(OLS)<br>0.0201(GLS)   | 0.1753(OLS)<br>0.0529(GLS)   | 0.2345(OLS)<br>0.0909(GLS)   | 0.3397(OLS)<br>0.1445(GLS)   | 1.1715(OLS)<br>0.4814(GLS)    |
| $Emp.Std_{\lambda^*}(CG)$     | 0.0334                       | 0.0201                       | 0.0165                       | 0.0143                       | 0.0123                        |
| $Emp.Std_{\lambda}(CG)$       | 0.1289(OLS)<br>0.0949(GLS)   | 0.4357(OLS)<br>0.3543(GLS)   | 0.6774(OLS)<br>0.5669(GLS)   | 1.1399(OLS)<br>0.8020(GLS)   | 2.3466(OLS)<br>1.2930(GLS)    |
| $\lambda^*(PREM)$             | 0.0185                       | 0.0073                       | 0.0049                       | 0.0033                       | 0.0012                        |
| $\lambda(PREM)$               | -0.6082(OLS)<br>-0.3334(GLS) | -1.7910(OLS)<br>-0.9840(GLS) | -2.7568(OLS)<br>-1.4901(GLS) | -4.2365(OLS)<br>-2.2450(GLS) | -11.3663(OLS)<br>-6.0127(GLS) |
| $Bias_{\lambda^*}(PREM)$      | -0.0001                      | -0.0000                      | -0.0000                      | -0.0000                      | -0.0000                       |
| $Bias_{\lambda}(PREM)$        | -0.1199(OLS)<br>0.0800(GLS)  | 1.5142(OLS)<br>0.8722(GLS)   | 2.8212(OLS)<br>1.4997(GLS)   | 4.3443(OLS)<br>2.3000(GLS)   | 11.4180(OLS)<br>6.0504(GLS)   |
| $Emp.Std_{\lambda^*}(PREM)$   | 0.0196                       | 0.0135                       | 0.0125                       | 0.0121                       | 0.0116                        |
| $Emp.Std_{\lambda}(PREM)$     | 0.4100(OLS)<br>0.3329(GLS)   | 1.1251(OLS)<br>0.9395(GLS)   | 1.2789(OLS)<br>1.0921(GLS)   | 1.6335(OLS)<br>1.1588(GLS)   | 2.5498(OLS)<br>1.3838(GLS)    |
| $\lambda^*(INF)$              | 0.0091                       | 0.0044                       | 0.0030                       | 0.0020                       | 0.0008                        |
| $\lambda(INF)$                | -0.3014(OLS)<br>-0.1858(GLS) | -1.0516(OLS)<br>-0.6610(GLS) | -1.6223(OLS)<br>-1.0253(GLS) | -2.4524(OLS)<br>-1.5616(GLS) | -6.3883(OLS)<br>-4.2061(GLS)  |
| $Bias_{\lambda^*}(INF)$       | -0.0006                      | -0.0002                      | -0.0002                      | -0.0001                      | -0.0000                       |
| $Bias_{\lambda}(INF)$         | 0.0754(OLS)<br>0.0136(GLS)   | 1.0575(OLS)<br>0.6117(GLS)   | 1.9130(OLS)<br>1.1904(GLS)   | 2.9203(OLS)<br>1.8662(GLS)   | 6.8106(OLS)<br>4.4480(GLS)    |
| $Emp.Std_{\lambda^*}(INF)$    | 0.0274                       | 0.0172                       | 0.0149                       | 0.0137                       | 0.0127                        |
| $Emp.Std_{\lambda}(INF)$      | 0.1805(OLS)<br>0.1404(GLS)   | 0.6157(OLS)<br>0.5092(GLS)   | 0.8090(OLS)<br>0.6990(GLS)   | 1.2237(OLS)<br>0.8834(GLS)   | 2.3534(OLS)<br>1.3123(GLS)    |
| $\lambda^*(REALTB)$           | -0.0118                      | -0.0054                      | -0.0036                      | -0.0025                      | -0.0009                       |
| $\lambda(REALTB)$             | 0.4494(OLS)<br>0.3224(GLS)   | 1.4894(OLS)<br>1.0724(GLS)   | 2.2831(OLS)<br>1.6478(GLS)   | 3.4478(OLS)<br>2.4989(GLS)   | 9.0761(OLS)<br>6.7105(GLS)    |
| $Bias_{\lambda^*}(REALTB)$    | 0.0004                       | 0.0000                       | -0.0001                      | -0.0001                      | -0.0002                       |
| $Bias_{\lambda}(REALTB)$      | -0.0774(OLS)<br>-0.0350(GLS) | -1.3112(OLS)<br>-0.8440(GLS) | -2.4131(OLS)<br>-1.6541(GLS) | -3.8108(OLS)<br>-2.6851(GLS) | -9.4522(OLS)<br>-6.9001(GLS)  |
| $Emp.Std_{\lambda^*}(REALTB)$ | 0.0246                       | 0.0153                       | 0.0136                       | 0.0127                       | 0.0121                        |
| $Emp.Std_{\lambda}(REALTB)$   | 0.2343(OLS)<br>0.1818(GLS)   | 0.7384(OLS)<br>0.6086(GLS)   | 0.9179(OLS)<br>0.7920(GLS)   | 1.3230(OLS)<br>0.9514(GLS)   | 2.4040(OLS)<br>1.3335(GLS)    |

Panel B: C-CAPM

|                               | $c = 1/4$                    | $c = 2/3$                    | $c = 1$                      | $c = 3/2$                    | $c = 4$                      |
|-------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| $\lambda^*(HB3)$              | -0.0673                      | -0.0291                      | -0.0197                      | -0.0132                      | -0.0050                      |
| $\lambda(HB3)$                | -0.0355(OLS)<br>-0.0068(GLS) | 0.0034(OLS)<br>0.0007(GLS)   | 0.0208(OLS)<br>0.0040(GLS)   | 0.0420(OLS)<br>0.0080(GLS)   | 0.1317(OLS)<br>0.0252(GLS)   |
| $Bias_{\lambda^*}(HB3)$       | -0.0005                      | -0.0010                      | -0.0011                      | -0.0011                      | -0.0011                      |
| $Bias_{\lambda}(HB3)$         | -0.0015(OLS)<br>-0.0002(GLS) | -0.0014(OLS)<br>-0.0013(GLS) | -0.0007(OLS)<br>-0.0027(GLS) | 0.0003(OLS)<br>-0.0058(GLS)  | -0.0765(OLS)<br>-0.0250(GLS) |
| $Emp.Std_{\lambda^*}(HB3)$    | 0.0277                       | 0.0162                       | 0.0142                       | 0.0133                       | 0.0128                       |
| $Emp.Std_{\lambda}(HB3)$      | 0.0202(OLS)<br>0.0096(GLS)   | 0.0282(OLS)<br>0.0079(GLS)   | 0.0470(OLS)<br>0.0135(GLS)   | 0.0847(OLS)<br>0.0227(GLS)   | 0.2208(OLS)<br>0.0441(GLS)   |
| $\lambda^*(DIV)$              | -0.0829                      | -0.0700                      | -0.0588                      | -0.0457                      | -0.0197                      |
| $\lambda(DIV)$                | -0.1256(OLS)<br>-0.0240(GLS) | -0.1373(OLS)<br>-0.0263(GLS) | -0.1536(OLS)<br>-0.0294(GLS) | -0.1858(OLS)<br>-0.0355(GLS) | -0.3963(OLS)<br>-0.0758(GLS) |
| $Bias_{\lambda^*}(DIV)$       | -0.0010                      | -0.0012                      | -0.0012                      | -0.0012                      | -0.0013                      |
| $Bias_{\lambda}(DIV)$         | -0.0028(OLS)<br>0.0010(GLS)  | -0.0035(OLS)<br>0.0029(GLS)  | -0.0060(OLS)<br>0.0059(GLS)  | -0.0091(OLS)<br>0.0125(GLS)  | 0.2005(OLS)<br>0.0604(GLS)   |
| $Emp.Std_{\lambda^*}(DIV)$    | 0.0436                       | 0.0375                       | 0.0324                       | 0.0268                       | 0.0176                       |
| $Emp.Std_{\lambda}(DIV)$      | 0.0548(OLS)<br>0.0436(GLS)   | 0.0629(OLS)<br>0.0375(GLS)   | 0.0787(OLS)<br>0.0440(GLS)   | 0.1290(OLS)<br>0.0558(GLS)   | 0.4059(OLS)<br>0.0862(GLS)   |
| $\lambda^*(CG)$               | 0.0264                       | 0.0133                       | 0.0092                       | 0.0062                       | 0.0024                       |
| $\lambda(CG)$                 | 0.2672(OLS)<br>0.0511(GLS)   | 0.5313(OLS)<br>0.1016(GLS)   | 0.7674(OLS)<br>0.1468(GLS)   | 1.1309(OLS)<br>0.2163(GLS)   | 2.9781(OLS)<br>0.5696(GLS)   |
| $Bias_{\lambda^*}(CG)$        | -0.0011                      | -0.0004                      | -0.0002                      | -0.0001                      | 0.0001                       |
| $Bias_{\lambda}(CG)$          | 0.0078(OLS)<br>-0.0023(GLS)  | 0.0240(OLS)<br>-0.0122(GLS)  | 0.0566(OLS)<br>-0.0314(GLS)  | 0.1032(OLS)<br>-0.0804(GLS)  | -1.5472(OLS)<br>-0.4611(GLS) |
| $Emp.Std_{\lambda^*}(CG)$     | 0.0334                       | 0.0201                       | 0.0165                       | 0.0143                       | 0.0123                       |
| $Emp.Std_{\lambda}(CG)$       | 0.1207(OLS)<br>0.0650(GLS)   | 0.2585(OLS)<br>0.1436(GLS)   | 0.4374(OLS)<br>0.2233(GLS)   | 0.8992(OLS)<br>0.3448(GLS)   | 3.0536(OLS)<br>0.6319(GLS)   |
| $\lambda^*(PREM)$             | 0.0185                       | 0.0073                       | 0.0049                       | 0.0033                       | 0.0012                       |
| $\lambda(PREM)$               | 0.0272(OLS)<br>0.0052(GLS)   | 0.0114(OLS)<br>0.0022(GLS)   | 0.0083(OLS)<br>0.0016(GLS)   | 0.0066(OLS)<br>0.0013(GLS)   | 0.0066(OLS)<br>0.0013(GLS)   |
| $Bias_{\lambda^*}(PREM)$      | -0.0001                      | -0.0000                      | -0.0000                      | -0.0000                      | -0.0000                      |
| $Bias_{\lambda}(PREM)$        | 0.0010(OLS)<br>-0.0004(GLS)  | 0.0020(OLS)<br>-0.0002(GLS)  | 0.0033(OLS)<br>-0.0004(GLS)  | 0.0049(OLS)<br>-0.0009(GLS)  | -0.0031(OLS)<br>-0.0036(GLS) |
| $Emp.Std_{\lambda^*}(PREM)$   | 0.0196                       | 0.0135                       | 0.0125                       | 0.0121                       | 0.0116                       |
| $Emp.Std_{\lambda}(PREM)$     | 0.0198(OLS)<br>0.0079(GLS)   | 0.0333(OLS)<br>0.0096(GLS)   | 0.0496(OLS)<br>0.0135(GLS)   | 0.0799(OLS)<br>0.0194(GLS)   | 0.1741(OLS)<br>0.0328(GLS)   |
| $\lambda^*(INF)$              | 0.0091                       | 0.0044                       | 0.0030                       | 0.0020                       | 0.0008                       |
| $\lambda(INF)$                | -0.1000(OLS)<br>-0.0191(GLS) | -0.1089(OLS)<br>-0.0208(GLS) | -0.1355(OLS)<br>-0.0259(GLS) | -0.1839(OLS)<br>-0.0352(GLS) | -0.4543(OLS)<br>-0.0869(GLS) |
| $Bias_{\lambda^*}(INF)$       | -0.0006                      | -0.0002                      | -0.0002                      | -0.0001                      | -0.0000                      |
| $Bias_{\lambda}(INF)$         | -0.0015(OLS)<br>0.0012(GLS)  | 0.0008(OLS)<br>0.0044(GLS)   | 0.0002(OLS)<br>0.0088(GLS)   | -0.0003(OLS)<br>0.0182(GLS)  | 0.2393(OLS)<br>0.0786(GLS)   |
| $Emp.Std_{\lambda^*}(INF)$    | 0.0274                       | 0.0172                       | 0.0149                       | 0.0137                       | 0.0127                       |
| $Emp.Std_{\lambda}(INF)$      | 0.0440(OLS)<br>0.0242(GLS)   | 0.0531(OLS)<br>0.0293(GLS)   | 0.0745(OLS)<br>0.0395(GLS)   | 0.1318(OLS)<br>0.0568(GLS)   | 0.4347(OLS)<br>0.1003(GLS)   |
| $\lambda^*(REALTB)$           | -0.0118                      | -0.0054                      | -0.0036                      | -0.0025                      | -0.0009                      |
| $\lambda(REALTB)$             | 0.0828(OLS)<br>0.0158(GLS)   | 0.1024(OLS)<br>0.0196(GLS)   | 0.1340(OLS)<br>0.0256(GLS)   | 0.1876(OLS)<br>0.0359(GLS)   | 0.4751(OLS)<br>0.0909(GLS)   |
| $Bias_{\lambda^*}(REALTB)$    | 0.0004                       | 0.0000                       | -0.0001                      | -0.0001                      | -0.0002                      |
| $Bias_{\lambda}(REALTB)$      | 0.0009(OLS)<br>-0.0011(GLS)  | -0.0008(OLS)<br>-0.0043(GLS) | 0.0003(OLS)<br>-0.0088(GLS)  | 0.0016(OLS)<br>-0.0185(GLS)  | -0.2515(OLS)<br>-0.0821(GLS) |
| $Emp.Std_{\lambda^*}(REALTB)$ | 0.0246                       | 0.0153                       | 0.0136                       | 0.0127                       | 0.0121                       |
| $Emp.Std_{\lambda}(REALTB)$   | 0.0372(OLS)<br>0.0200(GLS)   | 0.0511(OLS)<br>0.0277(GLS)   | 0.0752(OLS)<br>0.0392(GLS)   | 0.1377(OLS)<br>0.0581(GLS)   | 0.4599(OLS)<br>0.0121(GLS)   |