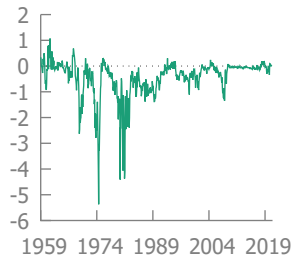
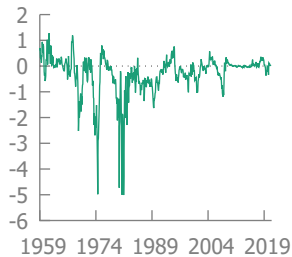


- Monthly data (1959.01-2020.11) for:
 - 3-Month Treasury Constant Maturity rate (C) Minus Federal Funds rate (FEDFUNDS)
 - 6-Month Treasury C Minus FEDFUNDS
 - 1-Year Treasury C Minus FEDFUNDS
 - 5-Year Treasury C Minus FEDFUNDS5
 - 10-Year Treasury C Minus FEDFUNDS

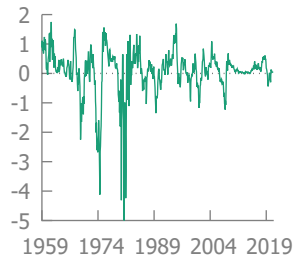
TB3SMFFM



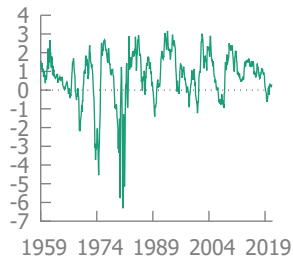
TB6SMFFM



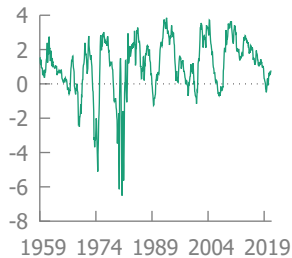
T1YFFM



T5YFFM



T10YFFM



Augmented Dickey-Fuller test for TB3SMFFM
testing down from 12 lags, criterion t-statistic
sample size 734
unit-root null hypothesis: $\alpha = 1$

test with constant
including 8 lags of $(1-L)TB3SMFFM$
model: $(1-L)y = b_0 + (\alpha-1)y(-1) + \dots + e$
estimated value of $(\alpha - 1)$: -0.0808335
test statistic: $\tau_c(1) = -4.09519$
asymptotic p-value 0.0009869
1st-order autocorrelation coeff. for e: 0.005
lagged differences: $F(8, 724) = 4.648$ [0.0000]

Augmented Dickey-Fuller test for T1YFFM
testing down from 12 lags, criterion t-statistic
sample size 736
unit-root null hypothesis: $a = 1$

test with constant
including 6 lags of $(1-L)T1YFFM$
model: $(1-L)y = b_0 + (a-1)*y(-1) + \dots + e$
estimated value of $(a - 1)$: -0.115226
test statistic: $\tau_c(1) = -5.55467$
asymptotic p-value $1.308e-06$
1st-order autocorrelation coeff. for e: -0.001
lagged differences: $F(6, 728) = 11.058$ [0.0000]

Augmented Dickey-Fuller test for T10YFFM
testing down from 12 lags, criterion t-statistic
sample size 731
unit-root null hypothesis: $a = 1$

test with constant
including 11 lags of $(1-L)T10YFFM$
model: $(1-L)y = b_0 + (a-1)y(-1) + \dots + e$
estimated value of $(a - 1)$: -0.0531696
test statistic: $\tau_c(1) = -4.39659$
asymptotic p-value 0.0002958
1st-order autocorrelation coeff. for e: -0.002
lagged differences: $F(11, 718) = 11.524$ [0.0000]

VAR system, maximum lag order 12

The asterisks below indicate the best (that is, minimized) values of the respective information criteria, AIC = Akaike criterion, BIC = Schwarz Bayesian criterion and HQC = Hannan-Quinn criterion.

lags	loglik	p(LR)	AIC	BIC	HQC
1	2069.69264		-5.580554	-5.392001	-5.507814
2	2197.84283	0.00000	-5.862771	-5.517090*	-5.729413
3	2261.98437	0.00000	-5.969861	-5.467053	-5.775887
4	2304.89915	0.00000	-6.018876	-5.358940	-5.764284
5	2363.71491	0.00000	-6.111395	-5.294331	-5.796186*
6	2393.01563	0.00016	-6.123162	-5.148970	-5.747335
7	2425.48736	0.00002	-6.143604	-5.012285	-5.707161
8	2467.71558	0.00000	-6.190740	-4.902293	-5.693680
9	2512.63873	0.00000	-6.245250*	-4.799675	-5.687572
10	2534.83735	0.00979	-6.237585	-4.634883	-5.619290
11	2553.72257	0.04870	-6.220855	-4.461025	-5.541943
12	2582.45275	0.00023	-6.231061	-4.314103	-5.491532

VAR system, lag order 5

OLS estimates, observations 1959:06-2020:11 (T = 738)

Log-likelihood = 2372.1602

Determinant of covariance matrix = 1.1110019e-09

Equation 1: TB3SMFFM

F-tests of zero restrictions:

All lags of TB3SMFFM $F(5, 712) = 10.241 [0.0000]$

All lags of TB6SMFFM $F(5, 712) = 7.2226 [0.0000]$

All lags of T1YFFM $F(5, 712) = 10.412 [0.0000]$

All lags of T5YFFM $F(5, 712) = 2.9691 [0.0116]$

All lags of T10YFFM $F(5, 712) = 1.7749 [0.1157]$

All vars, lag 5 $F(5, 712) = 9.5265 [0.0000]$

Equation 2: TB6SMFFM

F-tests of zero restrictions:

All lags of TB3SMFFM $F(5, 712) = 2.4903 [0.0301]$

All lags of TB6SMFFM $F(5, 712) = 31.718 [0.0000]$

All lags of T1YFFM $F(5, 712) = 9.9438 [0.0000]$

All lags of T5YFFM $F(5, 712) = 3.6213 [0.0031]$

All lags of T10YFFM $F(5, 712) = 2.1674 [0.0560]$

All vars, lag 5 $F(5, 712) = 9.4622 [0.0000]$

Equation 3: T1YFFM

F-tests of zero restrictions:

All lags of TB3SMFFM $F(5, 712) = 3.1738 [0.0077]$

All lags of TB6SMFFM $F(5, 712) = 3.769 [0.0022]$

All lags of T1YFFM $F(5, 712) = 20.233 [0.0000]$

All lags of T5YFFM $F(5, 712) = 3.7942 [0.0021]$

All lags of T10YFFM $F(5, 712) = 2.3326 [0.0408]$

All vars, lag 5 $F(5, 712) = 9.8348 [0.0000]$

Equation 4: T5YFFM

F-tests of zero restrictions:

All lags of TB3SMFFM $F(5, 712) = 0.86538 [0.5039]$

All lags of TB6SMFFM $F(5, 712) = 2.889 [0.0136]$

All lags of T1YFFM $F(5, 712) = 10.213 [0.0000]$

All lags of T5YFFM $F(5, 712) = 33.092 [0.0000]$

All lags of T10YFFM $F(5, 712) = 2.7405 [0.0184]$

All vars, lag 5 $F(5, 712) = 8.5153 [0.0000]$

Equation 5: T10YFFM

F-tests of zero restrictions:

All lags of TB3SMFFM $F(5, 712) = 0.76915 [0.5722]$

All lags of TB6SMFFM $F(5, 712) = 3.6881 [0.0027]$

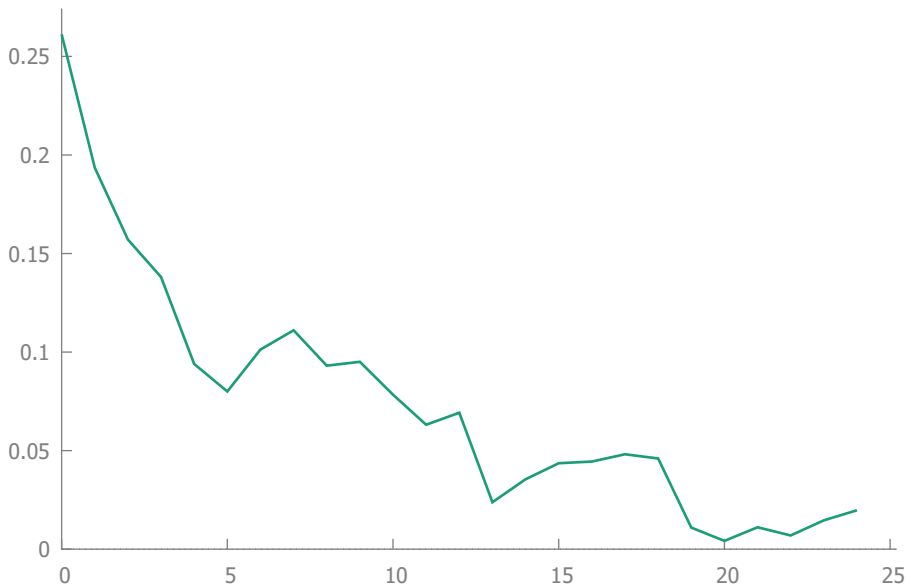
All lags of T1YFFM $F(5, 712) = 14.016 [0.0000]$

All lags of T5YFFM $F(5, 712) = 3.9555 [0.0015]$

All lags of T10YFFM $F(5, 712) = 42.817 [0.0000]$

All vars, lag 5 $F(5, 712) = 7.2903 [0.0000]$

IRF: TB3SMFFM -> TB3SMFFM



IRF: T1YFFM -> TB3SMFFM



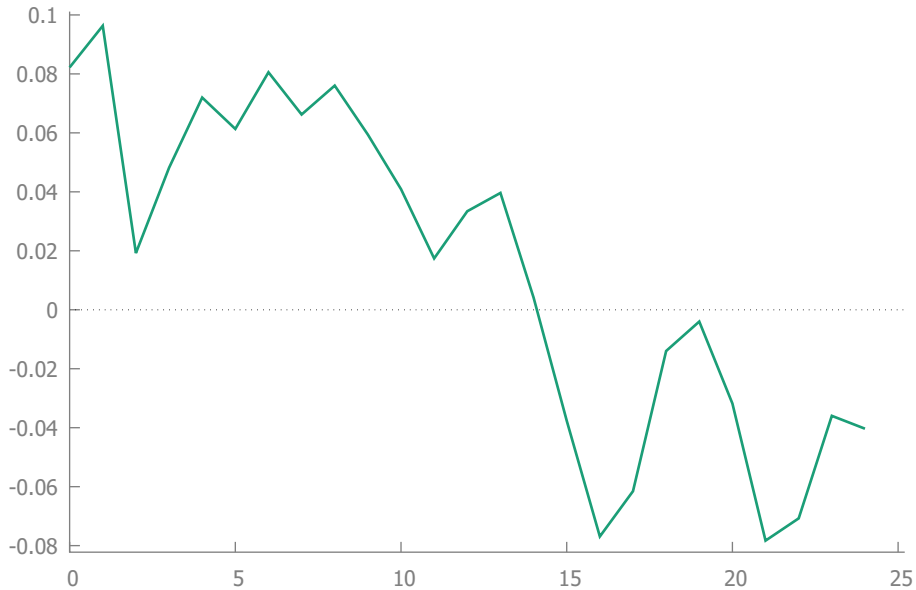
IRF: T10YFFM -> TB3SMFFM



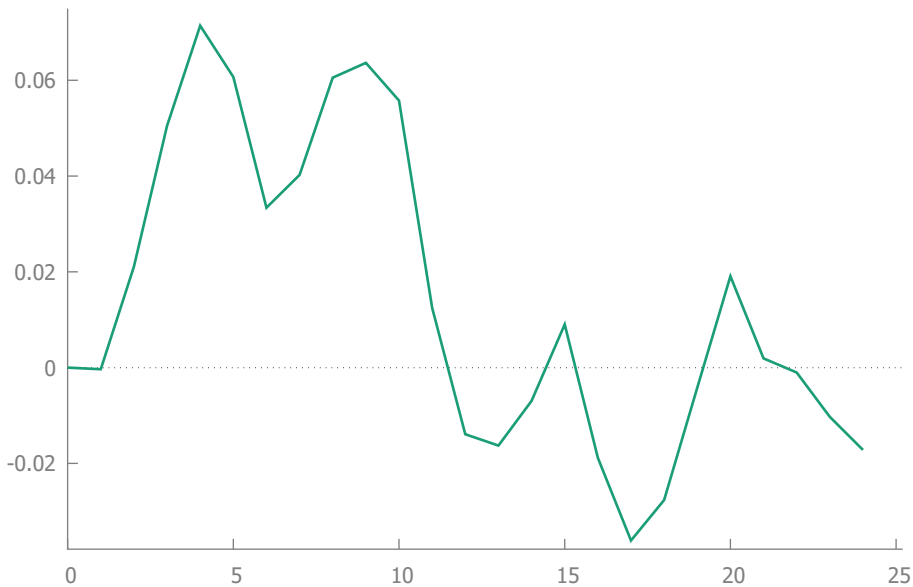
IRF: TB3SMFFM -> T1YFFM



IRF: T1YFFM -> T1YFFM



IRF: T10YFFM -> T1YFFM



IRF: TB3SMFFM -> T10YFFM



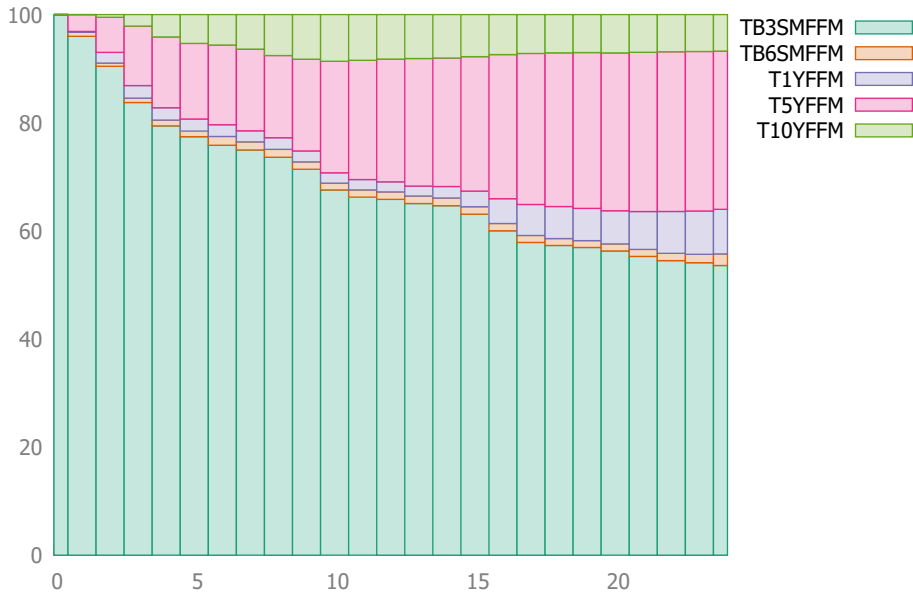
IRF: T1YFFM -> T10YFFM



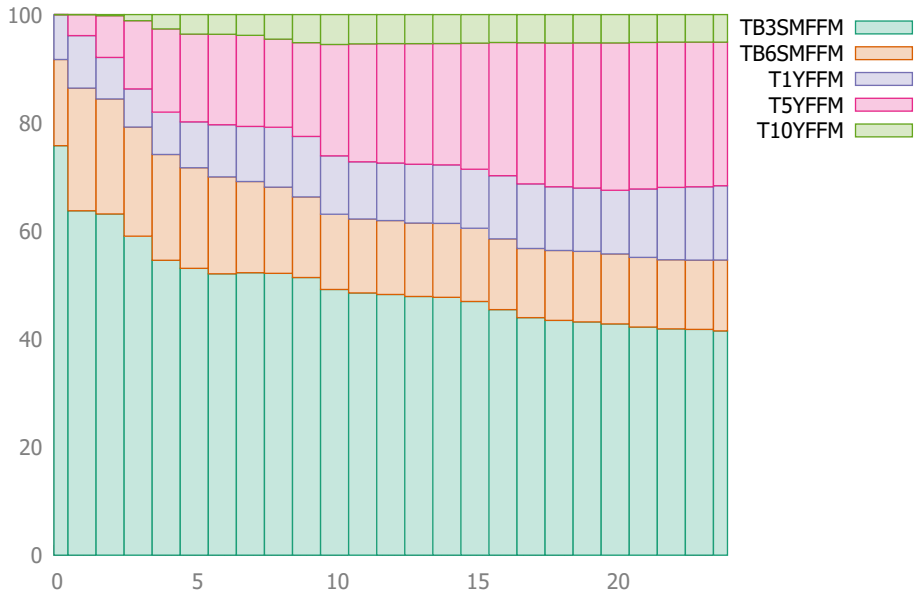
IRF: T10YFFM -> T10YFFM



FEVD for TB3SMFFM



FEVD for T1YFFM



FEVD for T10YFFM

