Appendix

1. *Decomposition of the Yield Curve*

In Figures 1 and 2 we report the decomposition of the yield curve in an expectations and a term premium component based on the OLS estimation of the VAR with macroeconomic and financial state variables. The decomposition refers to the interest rate of the 40 quarters (10 years) maturity bond, but the situation is similar for the other maturities.

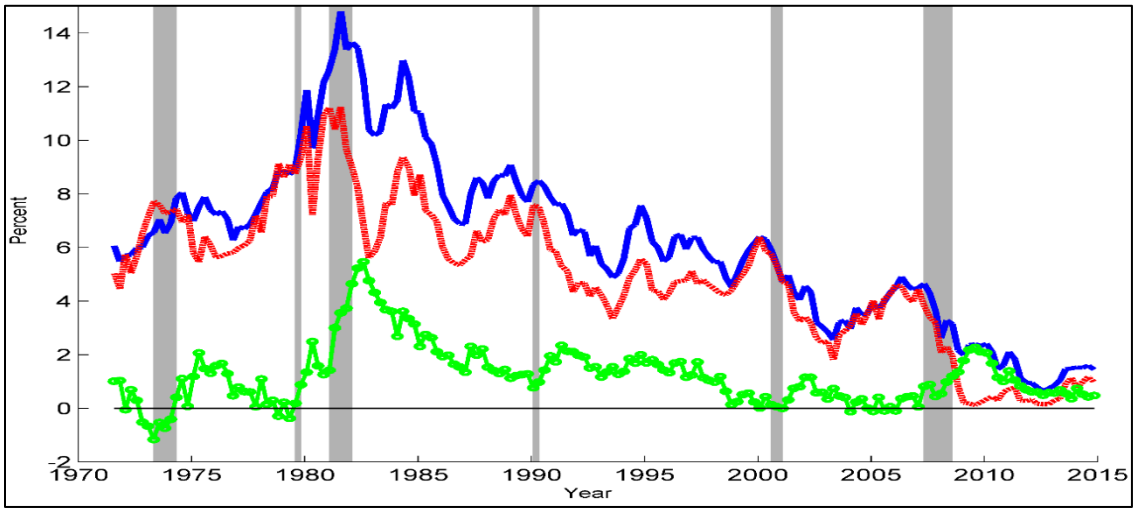

Figure 1: Decomposition with macroeconomic and financial state variables with OLS estimation of the VAR. The solid (blue) line corresponds to the 40-quarters interest rate, the dotted (red) line to the expectation component and the circled (green) line to the term premium component. Grey areas correspond to NBER recessions. Colors refer to the online edition of the paper.

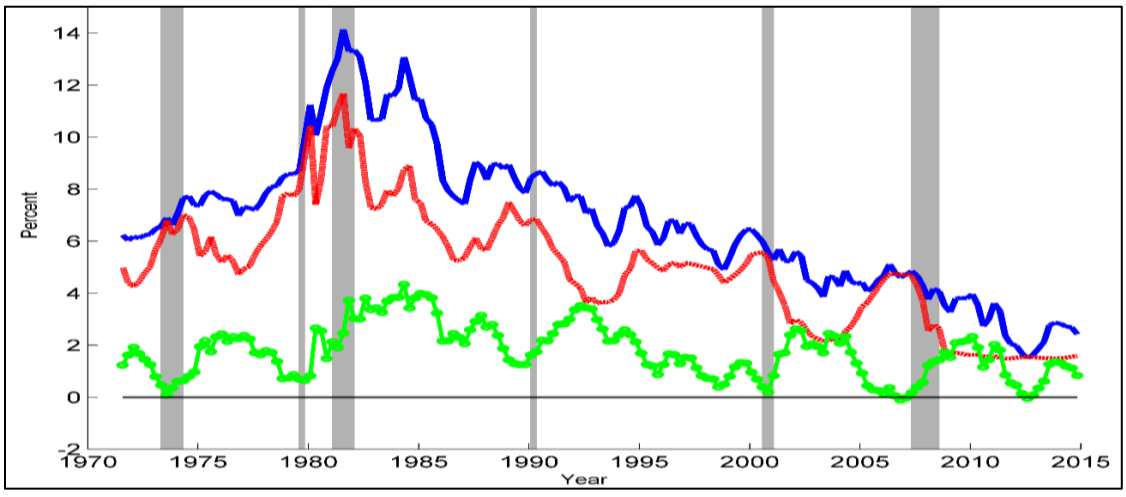

Figure 2: Decomposition without the macroeconomic variables with OLS estimation the VAR. The solid (blue) line corresponds to the 40-quarters interest rate, the dotted (red) line to the expectation component and the circled (green) line to the term premium component. Grey areas correspond to NBER recessions. Colors refer to the online edition of the paper.

In the first decomposition scheme (Figure 1) we detect higher term premiums during the first part of the 1980s in comparison to 1990s, which could be interpreted as an effect of the Volcker's Great Moderation initiative. Fed's inflation targeting policies resulted in lower expectations regarding future inflation and expectations of a stable future economic activity, thus lowering the premiums for holding long-term treasury bonds. This observation is not obvious in the second decomposition (Figure 2), since the term premium appears more volatile during the 1990s. In both decomposition schemes the term premiums exhibit countercyclical behavior in line with the economic theory. On the other hand, the picture is different for the after 2008 period. The decomposition including macroeconomic as state variables (Figure 1) reports that the interest rate in the after 2008 period should be mainly attributed to the term premium, holding expectations regarding short-term interest rate close to the zero lower bound. The decomposition of the yield curve without the macroeconomic variables (Figure 2) reports an expected short-term interest rate around 2% and volatile the term premiums. Taking into account the "flight-to-quality" effect of investors during crisis periods (investing into low risk options such as treasury bonds) and the quantitative easing program of the Fed, the decomposition scheme with the macroeconomic variables is much closer to the actual short-term interest rates of the period. In Figures 3 and 4 we report the decomposition with and without macroeconomic variables using the BC methodology of Bauer *et al.* (2014) in the VAR.

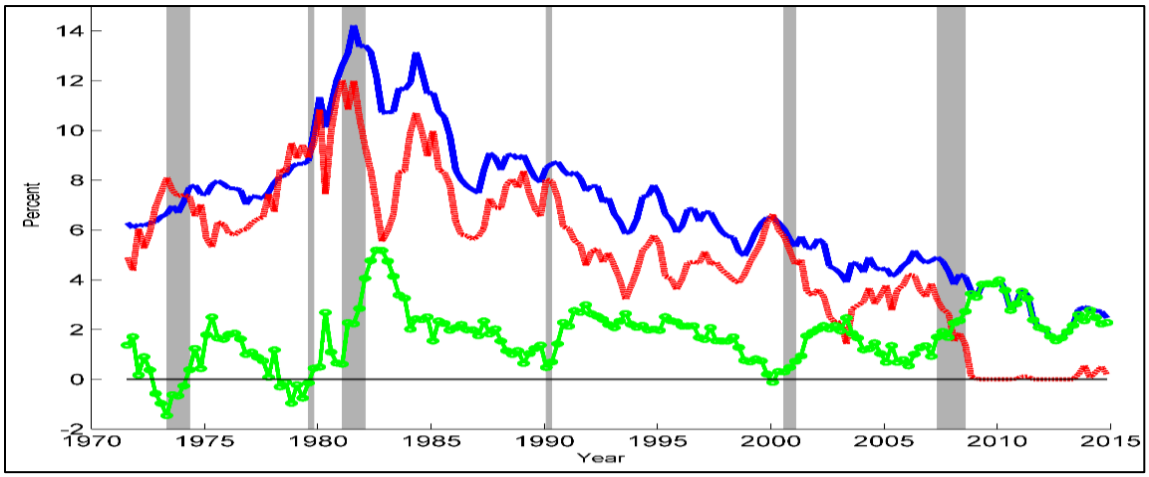

Figure 3: Decomposition with macroeconomic variables with bias correction in the VAR. The solid (blue) line corresponds to the 40-quarters interest rate bond, the dotted (red) line to the expectation component and the circled (green) line to the term premium component. Grey areas correspond to NBER recessions. Colors refer to the online edition of the paper.

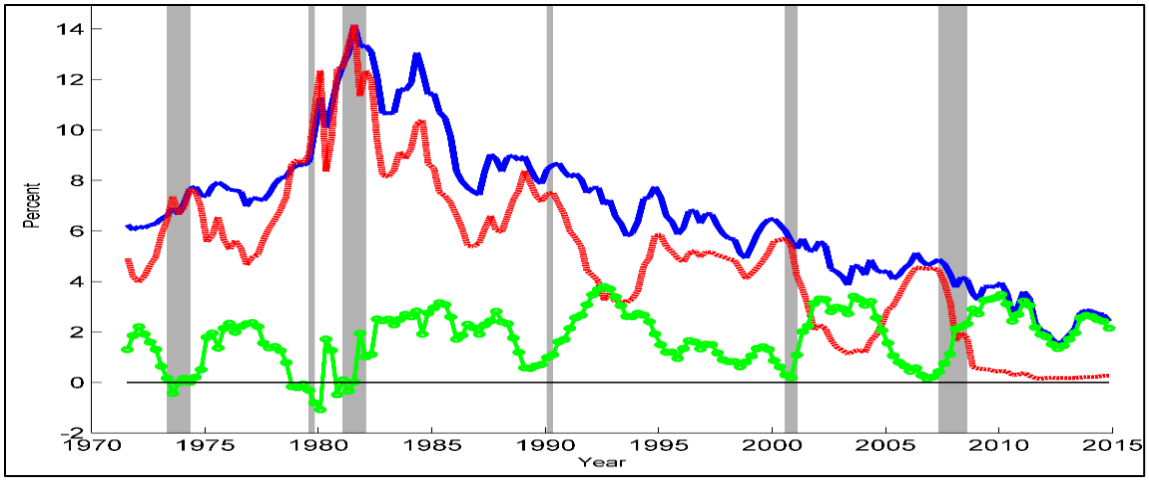

Figure 4: Decomposition without the macroeconomic variables and bias correction in the VAR. The solid (blue) line corresponds to the 40-quarters interest rate bond, the dotted (red) line to the expectation component and the circled (green) line to the term premium component. Grey areas correspond to NBER recessions. Colors refer to the online edition of the paper.

The countercyclical behavior of the term premiums is more obvious in the BC decompositions while they exhibit higher volatility that the respectful OLS ones. In contrast to the OLS, both bias corrected decompositions schemes report clearly a "flight-to-quality" effect in the post 2008 period with the decomposition without the macroeconomic variables being closer to the realized short-term interest rates during that period. All four examined decomposition schemes report a low term premium in 2006, which could be interpreted as a reason behind the Greenspan's "conundrum"[1]. Overall, there is no clear consensus whether to use the OLS or bias corrected VAR parameters and whether to include or not macroeconomic variables as state variables, since each decomposition attributes to different characteristics of the realized experience.

[1] In 2006 the Fed raised the short-term interest rates but the long-term interest rates failed to follow due to the extremely low term premiums during that period (Bernanke, 2015).

2. Inflation forecast point estimates

The reported results are of the following coding

Table 1: Models' structure

Model	Inflation forecasting (GDP deflator)	GDP forecasting
1	$\pi_{t+h} = c + \beta^{spr}\left(Spr_t^{(n)}\right) + \varepsilon_{t+h}$	$g_{t+h} = c + \beta^{spr}\left(Spr_t^{(n)}\right) + \varepsilon_{t+h}$
2	$\pi_{t+h} = c + \beta^{spr}\left(Spr_t^{e,(n)} + x_t^{(n)}\right) + \beta^{tp}x_t^{(n)} + \varepsilon_{t+h}$	$g_{t+h} = c + \beta^{spr}\left(Spr_t^{e,(n)} + x_t^{(n)}\right) + \beta^{tp}x_t^{(n)} + \varepsilon_{t+h}$
3	$\pi_{t+h} = c + \beta^{spr}\left(Spr_t^{(n)}\right) + \beta^{\pi}\bar{\pi}_{t-3,t} + \beta^{ir}y_t^{(1)} + \varepsilon_{t+h}$	$g_{t+h} = c + \beta^{spr}\left(Spr_t^{(n)}\right) + \beta^{g}g_{t-1} + \beta^{ir}y_t^{(1)} + \varepsilon_{t+h}$
4	$\pi_{t+h} = c + \beta^{spr}\left(Spr_t^{e,(n)} + x_t^{(n)}\right) + \beta^{tp}x_t^{(n)} + \beta^{\pi}\bar{\pi}_{t-3,t} + \beta^{ir}y_t^{(1)} + \varepsilon_{t+h}$	$g_{t+h} = c + \beta^{spr}\left(Spr_t^{e,(n)} + x_t^{(n)}\right) + \beta^{tp}x_t^{(n)} + \beta^{g}g_{t-1} + \beta^{ir}y_t^{(1)} + \varepsilon_{t+h}$
5	$\pi_{t+h} = c + \beta^{spr}\left(Spr_t^{e,(n)} + x_t^{(n)}\right) + \varepsilon_{t+h}$	$g_{t+h} = c + \beta^{spr}\left(Spr_t^{e,(n)} + x_t^{(n)}\right) + \varepsilon_{t+h}$
6	$\pi_{t+h} = c + \beta^{spr}\left(Spr_t^{e,(n)}\right) + \varepsilon_{t+h}$	$g_{t+h} = c + \beta^{spr}\left(Spr_t^{e,(n)}\right) + \varepsilon_{t+h}$
7	$\pi_{t+h} = c + \beta^{tp}x_t^{(n)} + \varepsilon_{t+h}$	$g_{t+h} = c + \beta^{tp}x_t^{(n)} + \varepsilon_{t+h}$
8	$\pi_{t+h} = c + \beta^{spr}\left(Spr_t^{(n)}\right) + \beta^{tp}x_t^{(n)} + \beta^{\pi}\bar{\pi}_{t-3,t} + \beta^{ir}y_t^{(1)} + \beta^{cfnai}CFNAI_t + \varepsilon_{t+h}$	$g_{t+h} = c + \beta^{spr}\left(Spr_t^{(n)}\right) + \beta^{tp}x_t^{(n)} + \beta^{g}g_{t-1} + \beta^{ir}y_t^{(1)} + \beta^{cfnai}CFNAI_t + \varepsilon_{t+h}$
9	$\pi_{t+h} = c + \beta^{spr}\left(Spr_t^{e,(n)} + x_t^{(n)}\right) + \beta^{tp}x_t^{(n)} + \beta^{\pi}\bar{\pi}_{t-3,t} + \beta^{ir}y_t^{(1)} + \beta^{cfnai}CFNAI_t + \varepsilon_{t+h}$	$g_{t+h} = c + \beta^{spr}\left(Spr_t^{e,(n)} + x_t^{(n)}\right) + \beta^{tp}x_t^{(n)} + \beta^{g}g_{t-1} + \beta^{ir}y_t^{(1)} + \beta^{cfnai}CFNAI_t + \varepsilon_{t+h}$

Table 2: Mean Average Percentage Error in percentages of the OLS VAR estimates (out-of-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	1.184	1.145	1.297	1.224	1.187	1.176	1.226	1.191	1.193	1.170	1.373	1.254	1.085	0.984	1.012	1.320	0.747	0.722	0.802	0.734	1.184	1.145	1.297	1.224
2	1.141	1.058	0.985	1.340	1.093	1.066	0.998	1.088	0.998	0.944	1.018	0.979	0.834	0.837	0.896	1.593	0.782	0.773	0.765	1.149	1.141	1.058	0.985	1.340
3	0.995	0.947	0.964	0.977	0.961	0.971	0.833	0.891	0.935	0.915	0.896	0.819	0.809	0.799	0.873	0.873	0.679	0.681	0.649	0.792	0.995	0.947	0.964	0.977
4	1.026	0.964	0.935	1.189	1.000	0.996	0.893	1.034	0.932	0.886	0.917	0.956	0.947	0.878	0.895	1.154	1.030	0.954	0.668	0.986	1.026	0.964	0.935	1.189
5	1.174	1.126	1.217	1.230	1.188	1.181	1.214	1.259	1.188	1.155	1.194	1.244	1.083	0.960	0.969	1.203	0.749	0.725	0.774	0.765	1.174	1.126	1.217	1.230
6	1.238	1.140	1.180	1.343	1.159	1.109	1.141	1.238	1.018	0.959	0.926	1.055	0.887	0.829	0.920	0.908	0.805	0.745	0.864	0.978	1.238	1.140	1.180	1.343
7	1.182	1.102	1.091	1.565	1.015	0.956	1.003	1.413	0.885	0.828	0.861	2.408	0.856	0.821	0.803	97.175	0.794	0.771	0.817	1.440	1.182	1.102	1.091	1.565
8	0.992	0.981	0.846	1.071	0.986	1.018	0.937	1.116	0.889	0.870	0.923	0.838	0.948	0.794	0.880	0.992	1.068	0.916	0.700	0.928	0.992	0.981	0.846	1.071
9	0.958	0.948	0.841	1.000	0.940	0.963	0.859	0.996	0.887	0.846	0.925	0.878	0.795	0.767	0.917	0.862	0.718	0.724	0.708	0.832	0.958	0.948	0.841	1.000

Table 3: Mean Average Percentage Error in percentages of the BC VAR estimates (out-of-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	1.192	1.156	1.190	1.469	1.184	1.145	1.297	1.224	1.187	1.176	1.226	1.191	1.193	1.170	1.373	1.254	1.085	0.984	1.012	1.320	0.747	0.722	0.802	0.734
2	1.118	1.102	1.188	1.479	1.235	1.148	1.117	1.458	1.141	1.115	1.111	1.554	1.036	0.990	0.959	1.020	0.905	0.885	0.823	0.982	0.775	0.759	0.732	0.944
3	0.965	0.937	0.987	0.943	0.995	0.947	0.964	0.977	0.961	0.971	0.833	0.891	0.935	0.915	0.896	0.819	0.809	0.799	0.873	0.873	0.679	0.681	0.649	0.792
4	1.126	1.001	0.941	0.980	1.232	1.104	0.932	1.075	1.065	1.002	0.926	1.148	1.037	0.924	0.869	1.014	1.085	0.975	0.842	1.055	1.367	1.247	0.659	0.913
5	1.164	1.114	1.390	2.184	1.173	1.126	1.229	1.237	1.189	1.175	1.246	1.262	1.189	1.169	1.151	1.206	1.085	0.966	0.968	1.212	0.750	0.729	0.795	0.751
6	1.270	1.241	1.296	1.320	1.305	1.220	1.180	1.261	1.191	1.136	1.242	2.233	1.058	0.990	0.964	0.971	0.932	0.885	0.967	0.949	0.807	0.767	0.960	1.039
7	1.199	1.143	1.360	2.208	1.260	1.233	1.158	1.457	1.073	1.001	0.996	1.402	0.984	0.927	1.000	1.361	0.892	0.851	0.944	10.515	0.826	0.797	0.778	0.936
8	1.065	0.929	0.948	0.931	1.175	1.106	0.868	1.004	1.030	0.948	0.966	1.358	1.025	0.905	0.907	0.978	1.035	0.891	0.909	1.130	1.411	1.209	0.726	0.814
9	0.951	0.902	0.966	1.010	0.958	0.948	0.841	1.000	0.940	0.963	0.859	0.996	0.887	0.846	0.925	0.878	0.795	0.767	0.917	0.862	0.718	0.724	0.708	0.832

Table 4: Mean Average Percentage Error in percentages of the OLS VAR estimates (in-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.474	0.464	0.472	0.488	0.449	0.454	0.465	0.600	0.442	0.434	0.490	0.509	0.478	0.465	0.486	0.505	0.470	0.452	0.493	0.540	0.453	0.436	0.457	0.519
2	0.467	0.481	0.485	0.538	0.470	0.472	0.485	0.632	0.491	0.455	0.473	0.525	0.510	0.461	0.485	0.561	0.509	0.495	0.555	0.697	0.503	0.481	0.515	0.596
3	0.461	0.473	0.492	0.543	0.480	0.459	0.457	0.514	0.477	0.466	0.444	0.566	0.502	0.491	0.446	0.504	0.492	0.491	0.464	0.507	0.515	0.488	0.468	0.548
4	0.505	0.469	0.497	0.603	0.551	0.474	0.463	0.608	0.580	0.487	0.481	0.670	0.551	0.487	0.437	0.576	0.645	0.555	0.485	0.575	0.863	0.617	0.474	0.649
5	0.473	0.455	0.511	0.748	0.451	0.457	0.566	0.739	0.441	0.435	0.481	0.497	0.477	0.463	0.500	0.505	0.470	0.452	0.483	0.548	0.454	0.438	0.486	0.486
6	0.470	0.474	0.508	0.714	0.453	0.463	0.533	0.541	0.451	0.435	0.484	0.479	0.467	0.434	0.489	0.471	0.493	0.482	0.550	0.526	0.422	0.434	0.506	0.557
7	0.458	0.472	0.512	0.618	0.478	0.486	0.548	0.697	0.469	0.447	0.503	0.663	0.478	0.463	0.540	1.124	0.474	0.463	0.541	0.941	0.500	0.476	0.550	0.478
8	0.508	0.481	0.474	0.628	0.552	0.514	0.450	0.643	0.585	0.481	0.474	0.933	0.572	0.495	0.462	0.586	0.660	0.600	0.463	0.642	0.865	0.672	0.441	0.520
9	0.492	0.483	0.481	0.511	0.488	0.482	0.450	0.566	0.499	0.465	0.431	0.564	0.530	0.495	0.482	0.549	0.503	0.492	0.470	0.556	0.523	0.488	0.453	0.484

Table 5: Mean Average Percentage Error in percentages of the BC VAR estimates (in-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	1.192	1.156	1.190	1.464	1.184	1.145	1.297	1.220	1.187	1.176	1.226	1.182	1.193	1.170	1.373	1.265	1.085	0.984	1.012	1.276	0.747	0.722	0.802	0.728
2	1.131	1.126	1.204	2.966	1.194	1.121	1.207	3.081	1.243	1.211	1.221	1.487	1.246	1.184	1.119	1.276	1.049	0.947	0.990	1.485	0.755	0.747	0.710	0.801
3	0.965	0.937	0.987	0.926	0.995	0.947	0.964	0.941	0.961	0.971	0.833	0.890	0.935	0.915	0.896	0.805	0.809	0.799	0.873	0.835	0.679	0.681	0.649	0.776
4	1.023	0.896	0.898	0.935	1.120	1.043	0.909	0.968	0.997	0.998	0.892	1.059	0.964	0.907	0.940	1.120	0.934	0.870	0.911	0.906	0.868	0.738	0.657	0.842
5	1.178	1.132	1.282	2.275	1.178	1.123	1.258	1.218	1.189	1.182	1.235	1.216	1.186	1.159	1.246	1.233	1.081	0.966	1.116	1.183	0.749	0.729	0.762	0.762
6	1.286	1.206	1.287	1.280	1.219	1.152	1.214	1.209	1.172	1.144	1.185	1.329	1.202	1.122	1.204	1.309	1.072	0.995	1.032	1.100	0.766	0.746	0.737	0.810
7	1.220	1.181	1.255	1.873	1.216	1.177	1.164	1.452	1.169	1.136	1.098	5.450	1.110	1.053	1.167	1.372	0.959	0.913	0.988	1.076	0.800	0.785	0.940	1.565
8	0.978	0.837	0.931	0.882	1.062	1.014	0.855	1.000	0.969	0.950	0.884	1.330	0.942	0.922	0.889	1.183	0.877	0.820	0.912	0.889	0.882	0.722	0.711	0.843
9	0.951	0.902	0.966	0.991	0.958	0.948	0.841	0.970	0.940	0.963	0.859	0.999	0.887	0.846	0.925	0.856	0.795	0.767	0.917	0.851	0.718	0.724	0.708	0.850

Table 6: Mean Average Percentage Error in percentages of AR models (out-of-sample)

Quarters	4				8				12				16				20				40			
	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
AR	0.910	0.915	1.033	0.982	1.129	1.082	1.141	1.111	1.186	1.158	1.046	1.583	1.152	1.111	1.067	1.535	1.083	1.006	1.002	1.124	0.736	0.704	0.695	0.772

3. GDP point forecasts

Table 7: Mean Average Percentage Error in percentages of the OLS VAR estimates (out-of-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.474	0.464	0.472	0.488	0.449	0.454	0.465	0.600	0.442	0.434	0.490	0.509	0.478	0.465	0.486	0.505	0.470	0.452	0.493	0.540	0.453	0.436	0.457	0.519
2	0.471	0.460	0.465	0.498	0.448	0.438	0.460	0.593	0.459	0.436	0.460	0.620	0.502	0.474	0.490	0.738	0.500	0.476	0.468	0.894	0.519	0.489	0.439	0.676
3	0.461	0.473	0.492	0.543	0.480	0.459	0.457	0.514	0.477	0.466	0.444	0.566	0.502	0.491	0.446	0.504	0.492	0.491	0.464	0.507	0.515	0.488	0.468	0.548
4	0.528	0.504	0.492	0.552	0.491	0.480	0.461	0.597	0.513	0.466	0.446	0.581	0.537	0.492	0.455	0.635	0.572	0.522	0.470	0.634	0.622	0.564	0.467	0.593
5	0.476	0.455	0.508	0.734	0.451	0.454	0.526	0.746	0.442	0.432	0.494	0.480	0.478	0.466	0.475	0.500	0.470	0.452	0.468	0.538	0.453	0.439	0.499	0.463
6	0.472	0.458	0.492	0.464	0.454	0.459	0.484	0.527	0.436	0.423	0.441	0.469	0.463	0.444	0.495	0.489	0.479	0.475	0.534	0.527	0.419	0.425	0.451	0.526
7	0.467	0.457	0.493	0.601	0.447	0.454	0.505	0.578	0.440	0.420	0.475	0.714	0.463	0.461	0.553	1.690	0.494	0.462	0.517	2.539	0.508	0.463	0.490	0.627
8	0.535	0.499	0.476	0.550	0.496	0.517	0.446	0.661	0.543	0.483	0.442	0.649	0.557	0.515	0.454	0.577	0.583	0.531	0.461	0.583	0.623	0.558	0.432	0.575
9	0.492	0.483	0.481	0.511	0.488	0.482	0.450	0.566	0.499	0.465	0.431	0.564	0.530	0.495	0.482	0.549	0.503	0.492	0.470	0.556	0.523	0.488	0.453	0.484

Table 8: Mean Average Percentage Error in percentages of the BC VAR estimates (out-of-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.474	0.464	0.472	0.488	0.449	0.454	0.465	0.600	0.442	0.434	0.490	0.509	0.478	0.465	0.486	0.505	0.470	0.452	0.493	0.540	0.453	0.436	0.457	0.519
2	0.471	0.473	0.491	0.535	0.458	0.439	0.460	0.583	0.457	0.449	0.510	0.641	0.499	0.479	0.510	0.526	0.484	0.454	0.491	0.542	0.443	0.443	0.448	0.525
3	0.461	0.473	0.492	0.543	0.480	0.459	0.457	0.514	0.477	0.466	0.444	0.566	0.502	0.491	0.446	0.504	0.492	0.491	0.464	0.507	0.515	0.488	0.468	0.548
4	0.514	0.505	0.486	0.584	0.480	0.470	0.447	0.567	0.510	0.465	0.417	0.568	0.532	0.494	0.464	0.606	0.531	0.484	0.468	0.604	0.554	0.521	0.457	0.694
5	0.476	0.456	0.498	0.701	0.451	0.451	0.565	0.630	0.442	0.434	0.510	0.477	0.477	0.466	0.474	0.499	0.470	0.453	0.466	0.542	0.452	0.436	0.484	0.482
6	0.485	0.472	0.497	0.501	0.474	0.477	0.609	1.841	0.446	0.432	0.518	0.648	0.467	0.451	0.517	1.184	0.480	0.464	0.536	0.635	0.408	0.417	0.480	0.449
7	0.472	0.465	0.504	0.500	0.456	0.449	0.476	0.751	0.430	0.423	0.475	0.578	0.483	0.462	0.528	98.596	0.472	0.455	0.656	1.493	0.462	0.455	0.533	0.724
8	0.522	0.511	0.477	0.553	0.484	0.495	0.443	0.658	0.538	0.489	0.430	0.537	0.549	0.495	0.474	0.599	0.552	0.519	0.485	0.605	0.552	0.498	0.434	0.517
9	0.492	0.483	0.481	0.511	0.488	0.482	0.450	0.566	0.499	0.465	0.431	0.564	0.530	0.495	0.482	0.549	0.503	0.492	0.470	0.556	0.523	0.488	0.453	0.484

Table 9: Mean Average Percentage Error in percentages of the OLS VAR estimates (in-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.474	0.464	0.472	0.488	0.449	0.454	0.465	0.600	0.442	0.434	0.490	0.509	0.478	0.465	0.486	0.505	0.470	0.452	0.493	0.540	0.453	0.436	0.457	0.519
2	0.467	0.481	0.485	0.538	0.470	0.472	0.485	0.632	0.491	0.455	0.473	0.525	0.510	0.461	0.485	0.561	0.509	0.495	0.555	0.697	0.503	0.481	0.515	0.596
3	0.461	0.473	0.492	0.543	0.480	0.459	0.457	0.514	0.477	0.466	0.444	0.566	0.502	0.491	0.446	0.504	0.492	0.491	0.464	0.507	0.515	0.488	0.468	0.548
4	0.505	0.469	0.497	0.603	0.551	0.474	0.463	0.608	0.580	0.487	0.481	0.670	0.551	0.487	0.437	0.576	0.645	0.555	0.485	0.575	0.863	0.617	0.474	0.649
5	0.473	0.455	0.511	0.748	0.451	0.457	0.566	0.739	0.441	0.435	0.481	0.497	0.477	0.463	0.500	0.505	0.470	0.452	0.483	0.548	0.454	0.438	0.486	0.486
6	0.470	0.474	0.508	0.714	0.453	0.463	0.533	0.541	0.451	0.435	0.484	0.479	0.467	0.434	0.489	0.471	0.493	0.482	0.550	0.526	0.422	0.434	0.506	0.557
7	0.458	0.472	0.512	0.618	0.478	0.486	0.548	0.697	0.469	0.447	0.503	0.663	0.478	0.463	0.540	1.124	0.474	0.463	0.541	0.941	0.500	0.476	0.550	0.478
8	0.508	0.481	0.474	0.628	0.552	0.514	0.450	0.643	0.585	0.481	0.474	0.933	0.572	0.495	0.462	0.586	0.660	0.600	0.463	0.642	0.865	0.672	0.441	0.520
9	0.492	0.483	0.481	0.511	0.488	0.482	0.450	0.566	0.499	0.465	0.431	0.564	0.530	0.495	0.482	0.549	0.503	0.492	0.470	0.556	0.523	0.488	0.453	0.484

Table 10: Mean Average Percentage Error in percentages of the BC VAR estimates (in-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.474	0.464	0.472	0.488	0.449	0.454	0.465	0.600	0.442	0.434	0.490	0.509	0.478	0.465	0.486	0.505	0.470	0.452	0.493	0.540	0.453	0.436	0.457	0.519
2	0.466	0.470	0.501	0.687	0.484	0.466	0.497	0.522	0.475	0.436	0.452	0.544	0.492	0.475	0.475	0.557	0.491	0.475	0.494	0.599	0.478	0.463	0.453	0.652
3	0.461	0.473	0.492	0.543	0.480	0.459	0.457	0.514	0.477	0.466	0.444	0.566	0.502	0.491	0.446	0.504	0.492	0.491	0.464	0.507	0.515	0.488	0.468	0.548
4	0.461	0.479	0.502	0.572	0.519	0.464	0.455	0.541	0.541	0.471	0.434	0.599	0.544	0.499	0.466	0.645	0.561	0.482	0.476	0.562	0.625	0.519	0.475	0.728
5	0.475	0.453	0.516	0.953	0.451	0.455	0.516	0.643	0.442	0.437	0.484	0.466	0.477	0.460	0.449	0.465	0.471	0.451	0.451	0.540	0.452	0.436	0.453	0.466
6	0.470	0.468	0.497	0.659	0.469	0.473	0.500	4.310	0.447	0.428	0.472	0.521	0.474	0.463	0.468	0.587	0.476	0.454	0.515	0.601	0.436	0.434	0.571	0.504
7	0.469	0.459	0.523	0.660	0.483	0.476	0.530	3.006	0.455	0.442	0.468	0.805	0.480	0.460	0.504	27.125	0.466	0.459	0.502	0.531	0.501	0.457	0.488	1.031
8	0.481	0.475	0.477	0.591	0.523	0.480	0.475	0.618	0.539	0.468	0.446	0.610	0.564	0.508	0.464	0.639	0.574	0.514	0.484	0.587	0.630	0.527	0.463	0.646
9	0.492	0.483	0.481	0.511	0.488	0.482	0.450	0.566	0.499	0.465	0.431	0.564	0.530	0.495	0.482	0.549	0.503	0.492	0.470	0.556	0.523	0.488	0.453	0.484

Table 11: Mean Average Percentage Error in percentages of AR models

Quarters	4				8				12				16				20				40			
	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
AR	0.500	0.480	0.525	0.503	0.479	0.486	0.507	0.547	0.468	0.454	0.491	0.609	0.473	0.467	0.464	0.515	0.473	0.453	0.461	0.472	0.466	0.435	0.445	0.459

4. Inflation Density Forecasts

4.1 RS test results of OLS forecasts with macroeconomic and financial state variables

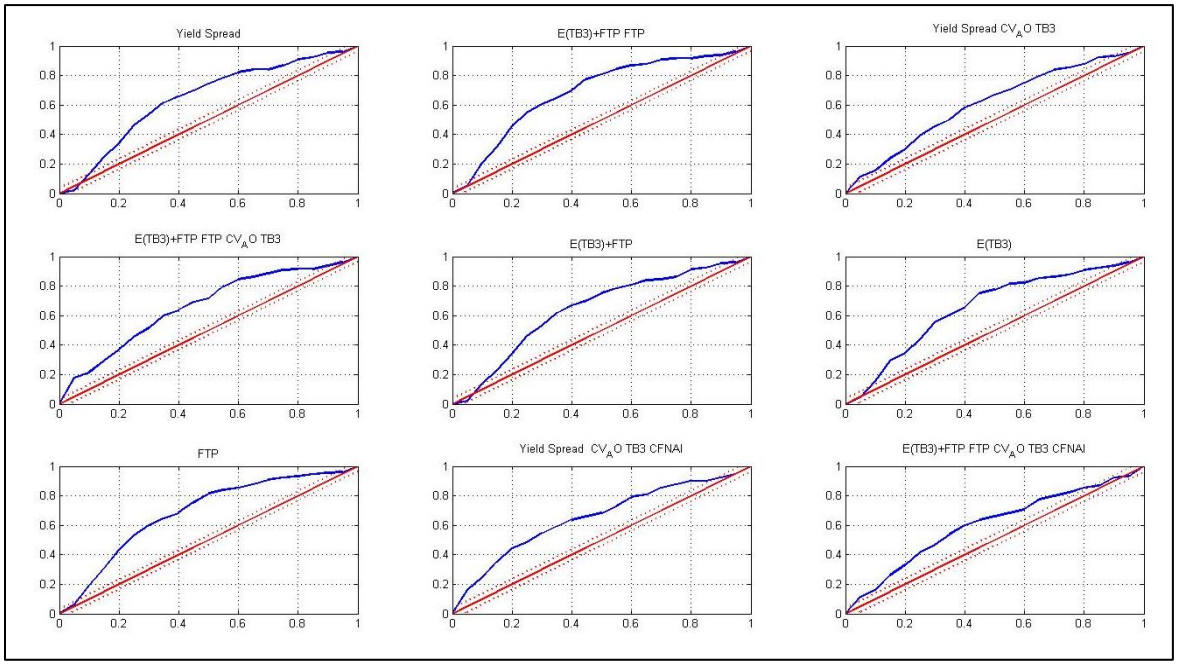

Figure 5: 4-quarter ahead conditional density forecasts for inflation.

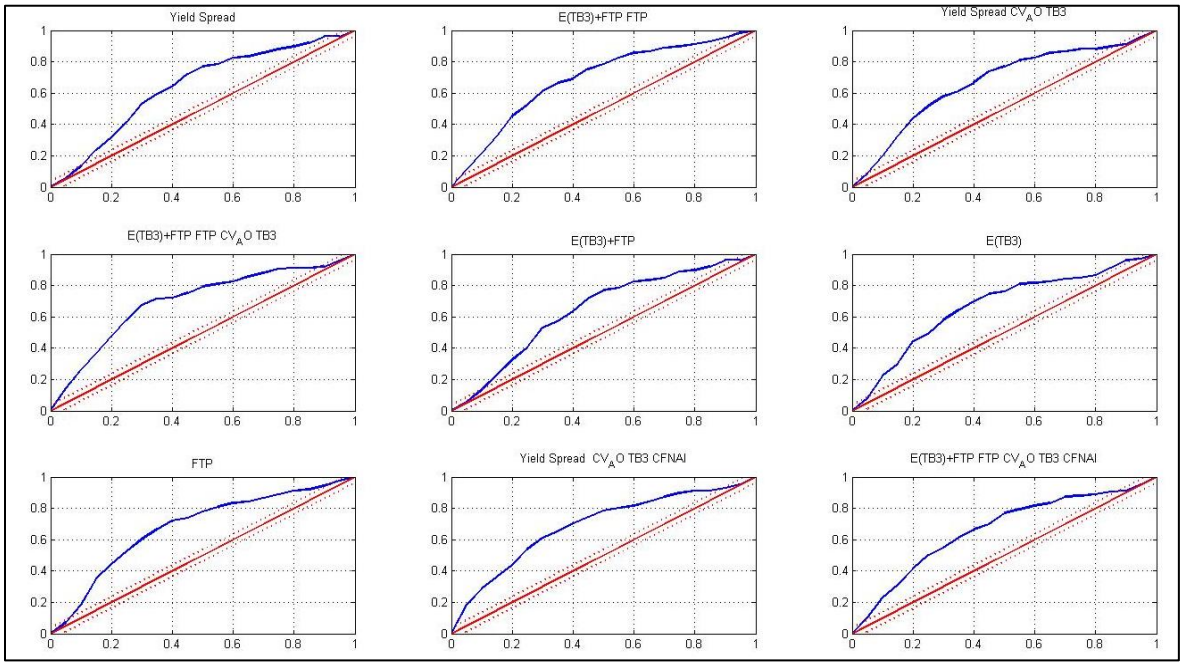

Figure 6: 8-quarter ahead conditional density forecasts for inflation.

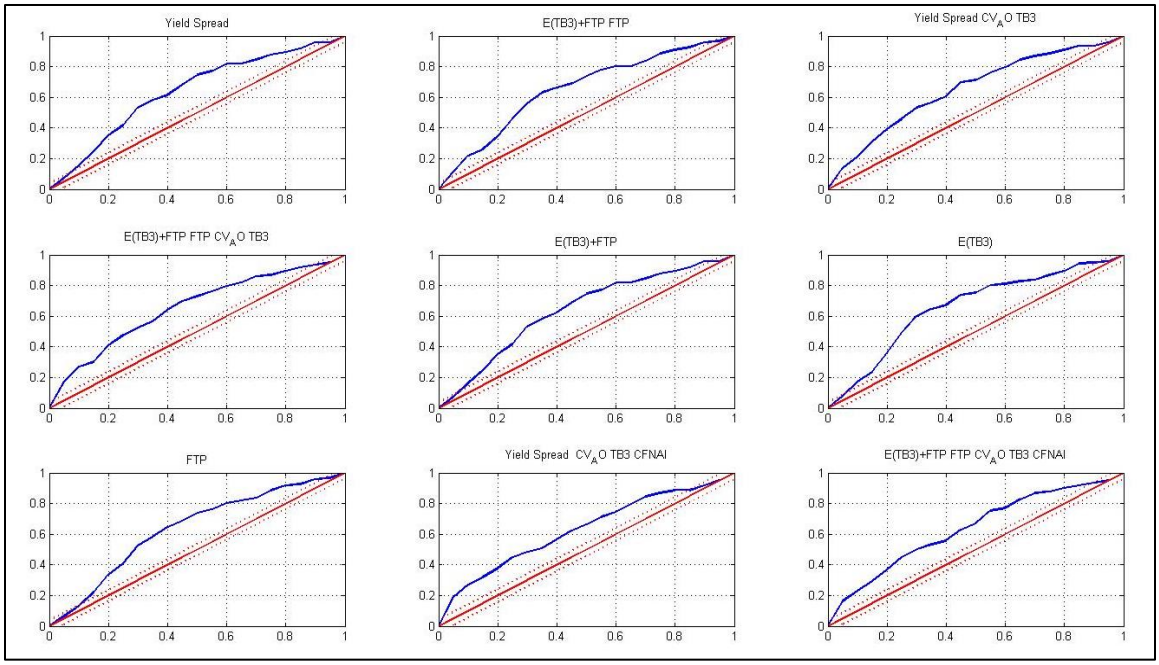

Figure 8: 12-quarter ahead conditional density forecasts for inflation.

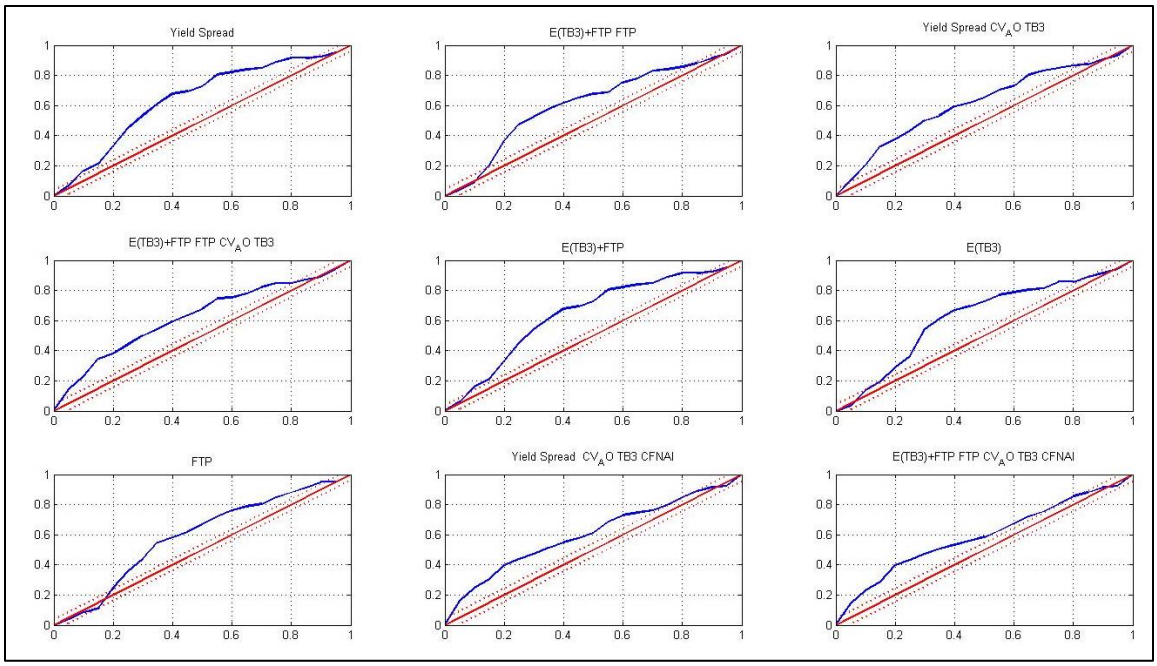

Figure 9: 16-quarter ahead conditional density forecasts for inflation.

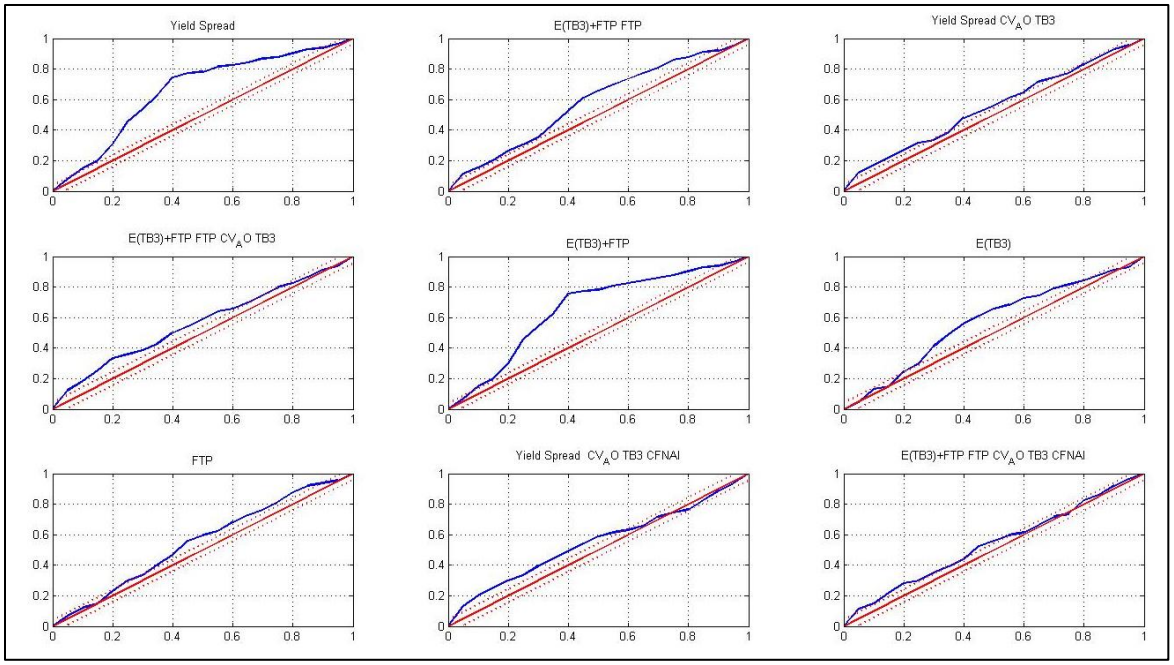

Figure 10: 20-quarter ahead conditional density forecasts for inflation.

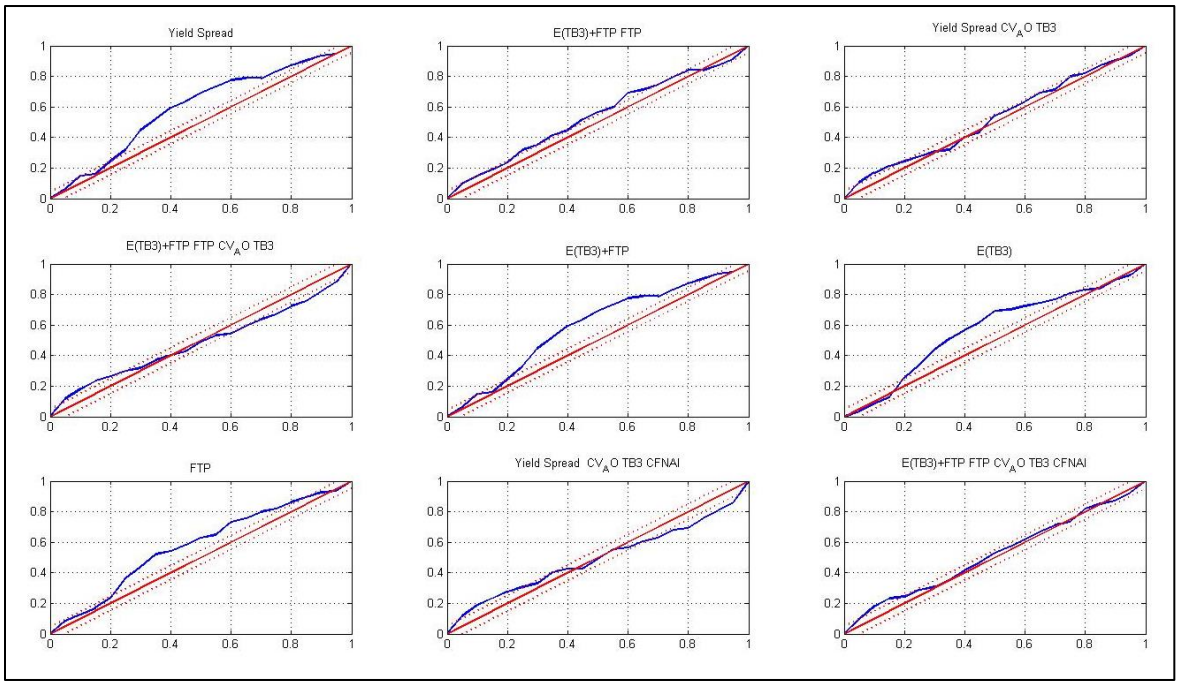

Figure 11: 40-quarter ahead conditional density forecasts for inflation.

4.2 RS test results of OLS forecasts with only financial state variables

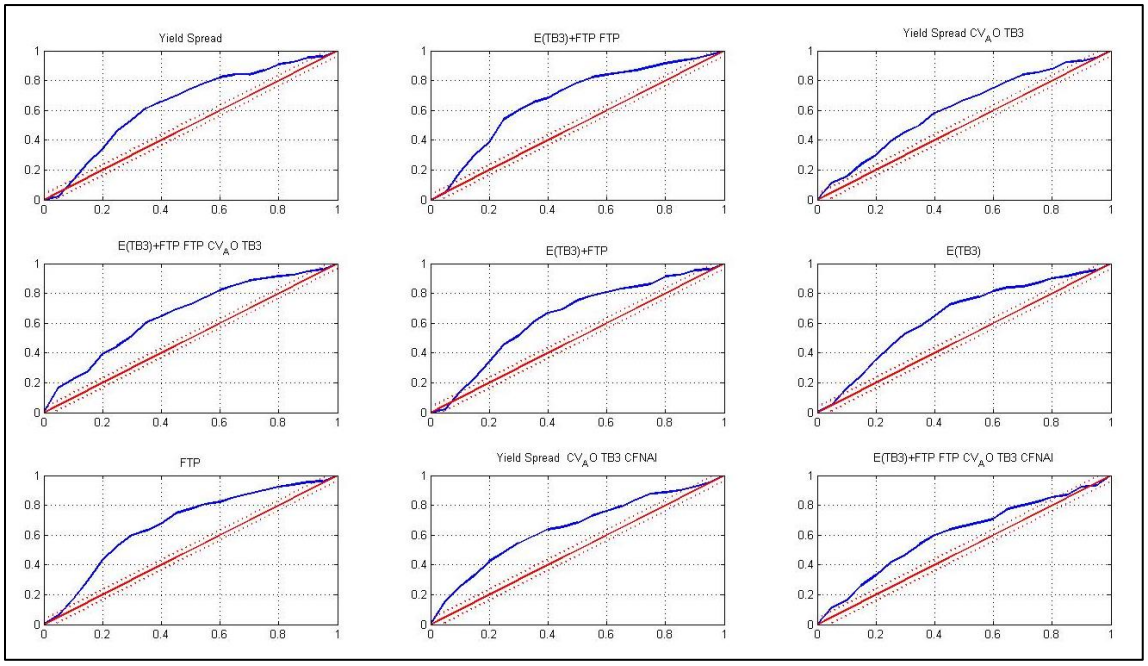

Figure 12: 4-quarter ahead conditional density forecasts for inflation.

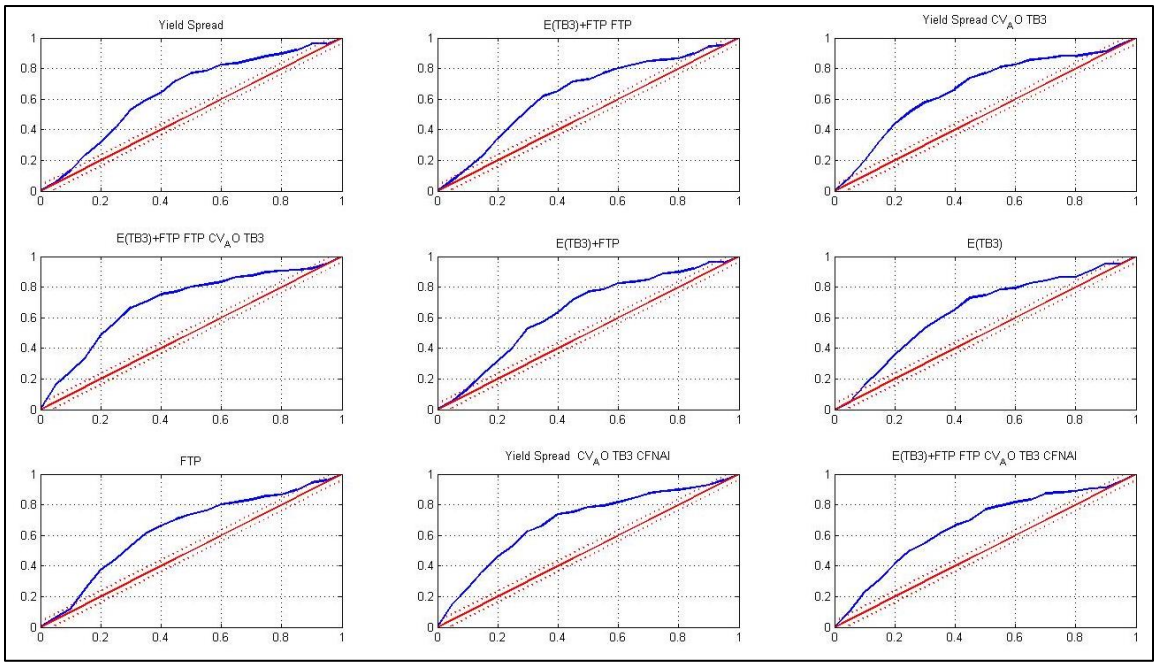

Figure 13: 8-quarter ahead conditional density forecasts for inflation.

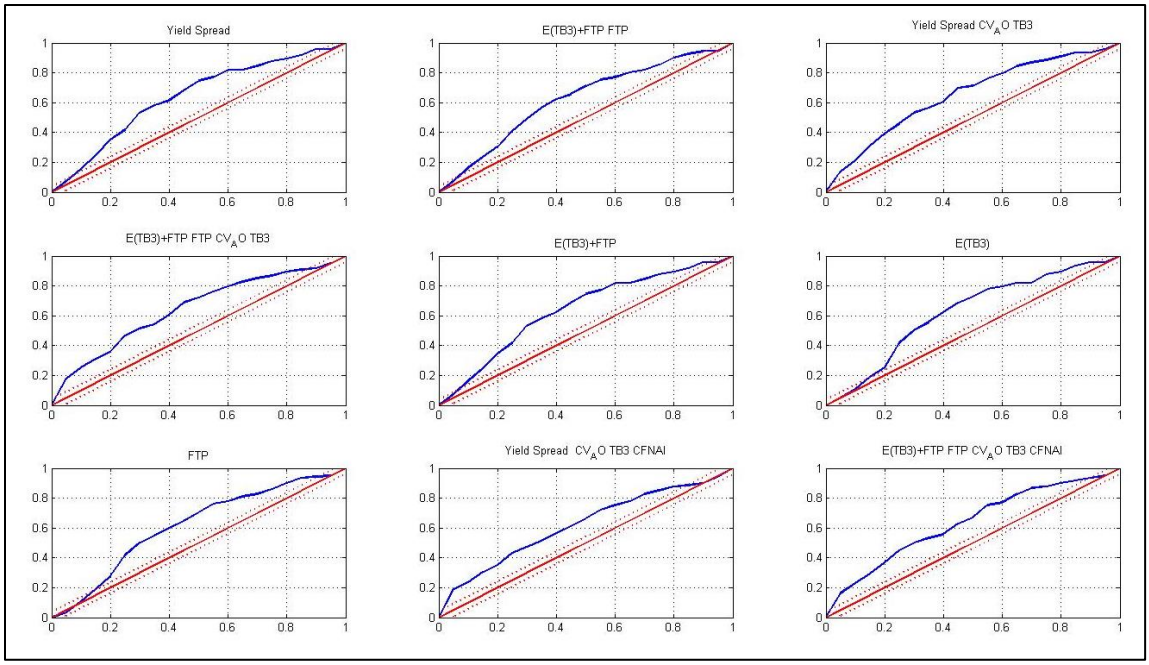

Figure 14: 12-quarter ahead conditional density forecasts for inflation.

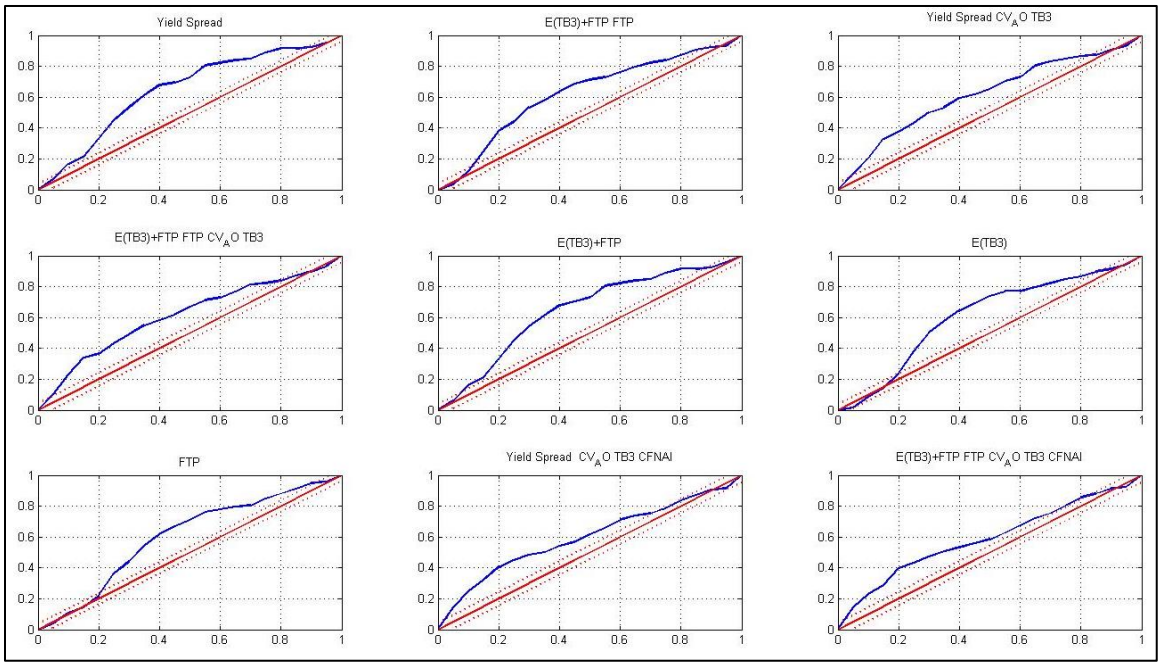

Figure 15: 16-quarter ahead conditional density forecasts for inflation.

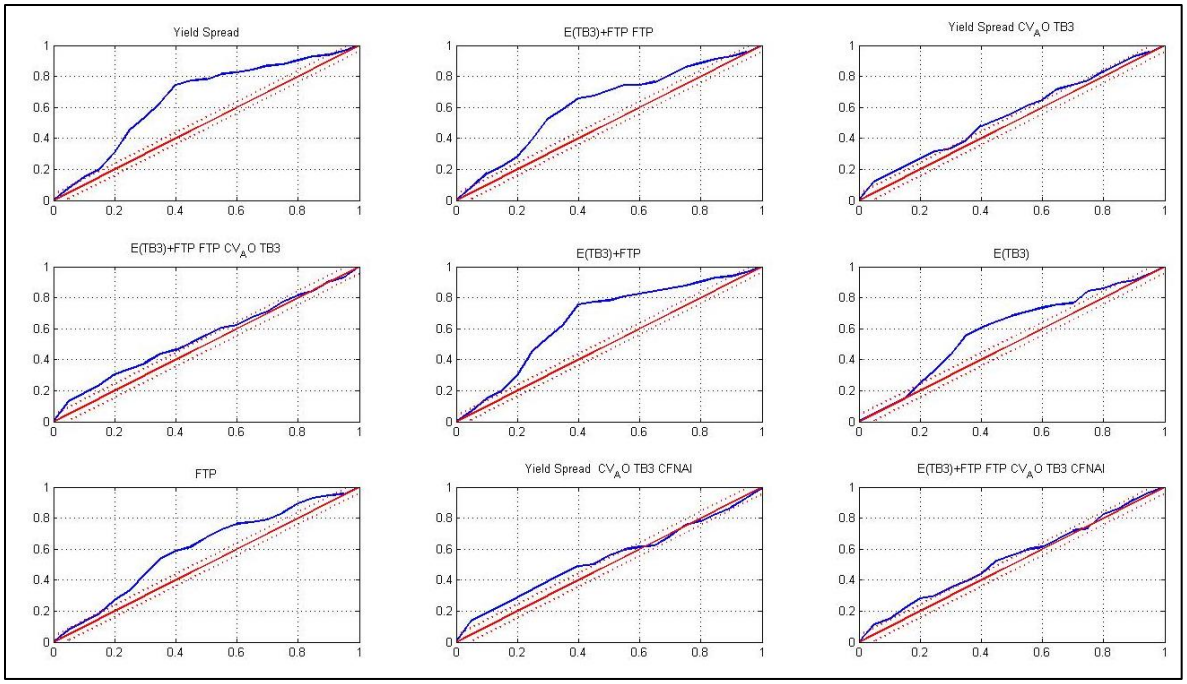

Figure 16: 20-quarter ahead conditional density forecasts for inflation.

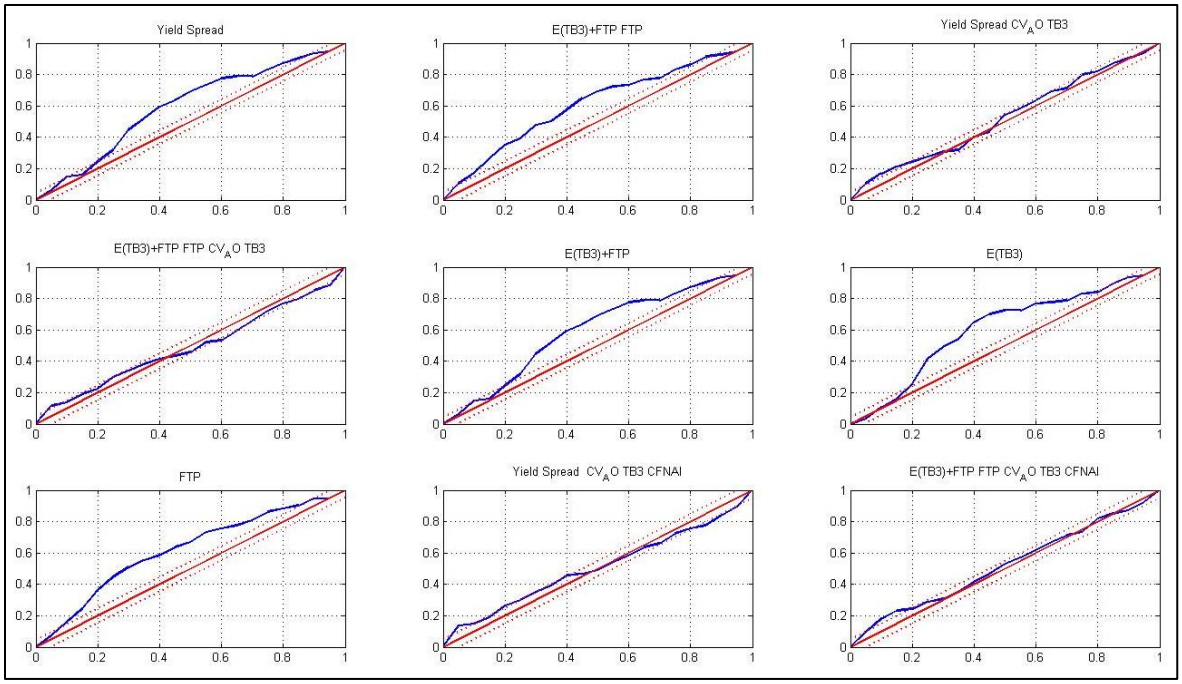

Figure 17: 40-quarter ahead conditional density forecasts for inflation.

4.3 RS test results of SVR forecasts with macroeconomic and financial state variables with the linear kernel

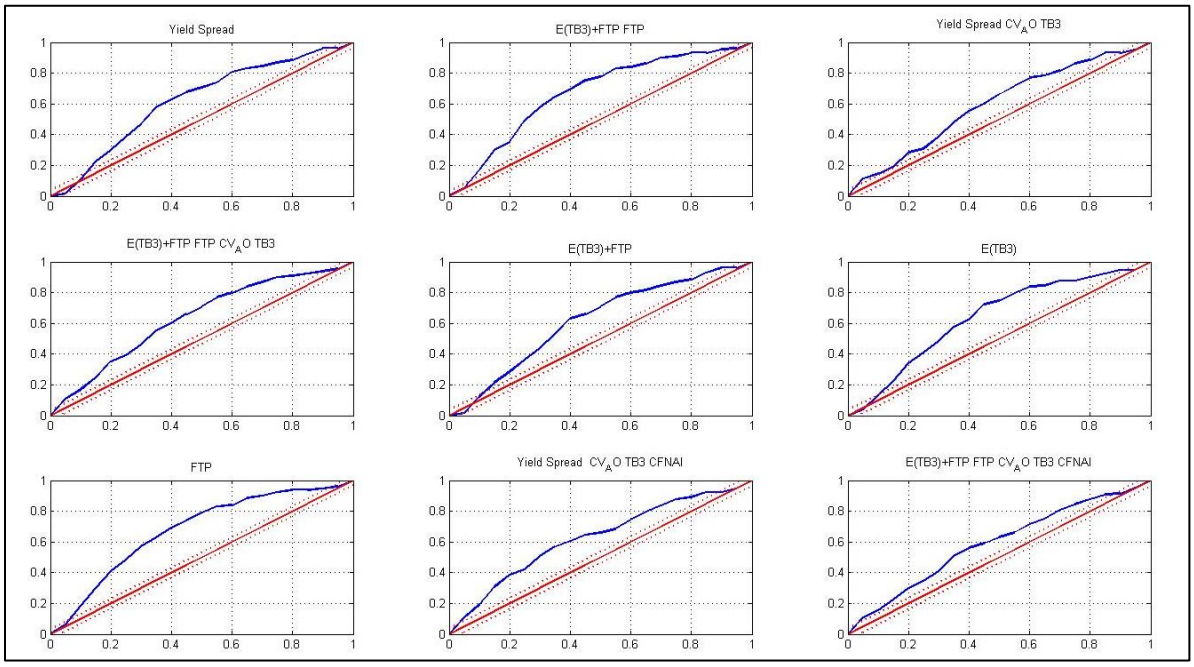

Figure 18: 4-quarter ahead conditional density forecasts for inflation.

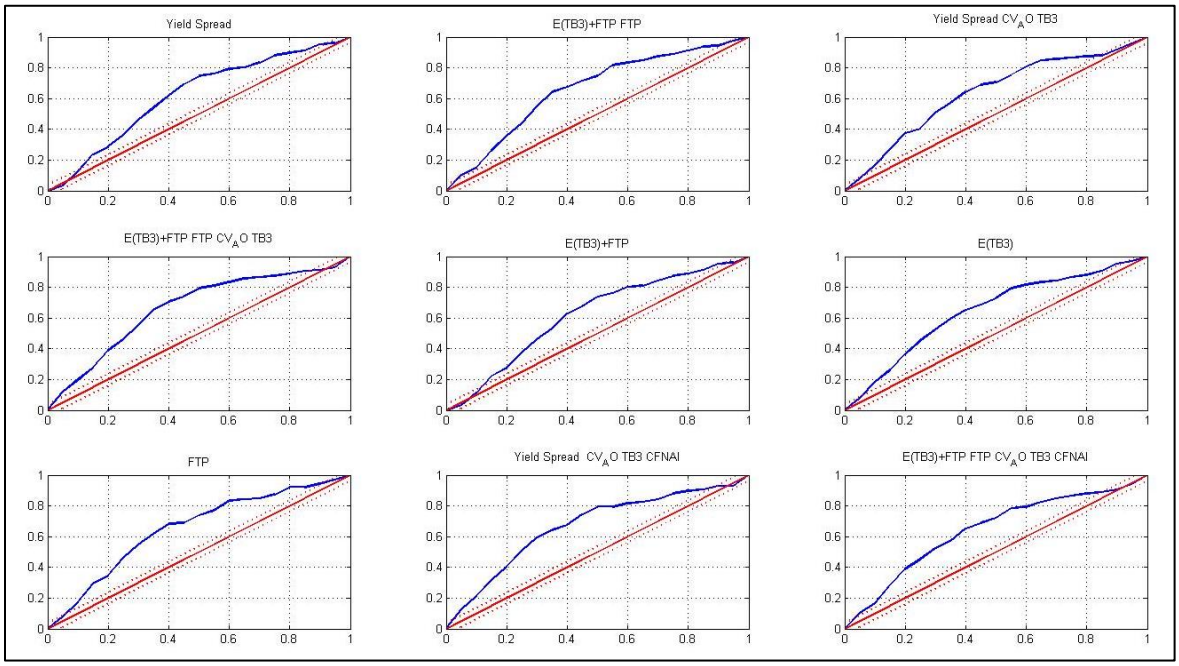

Figure 19: 8-quarter ahead conditional density forecasts for inflation.

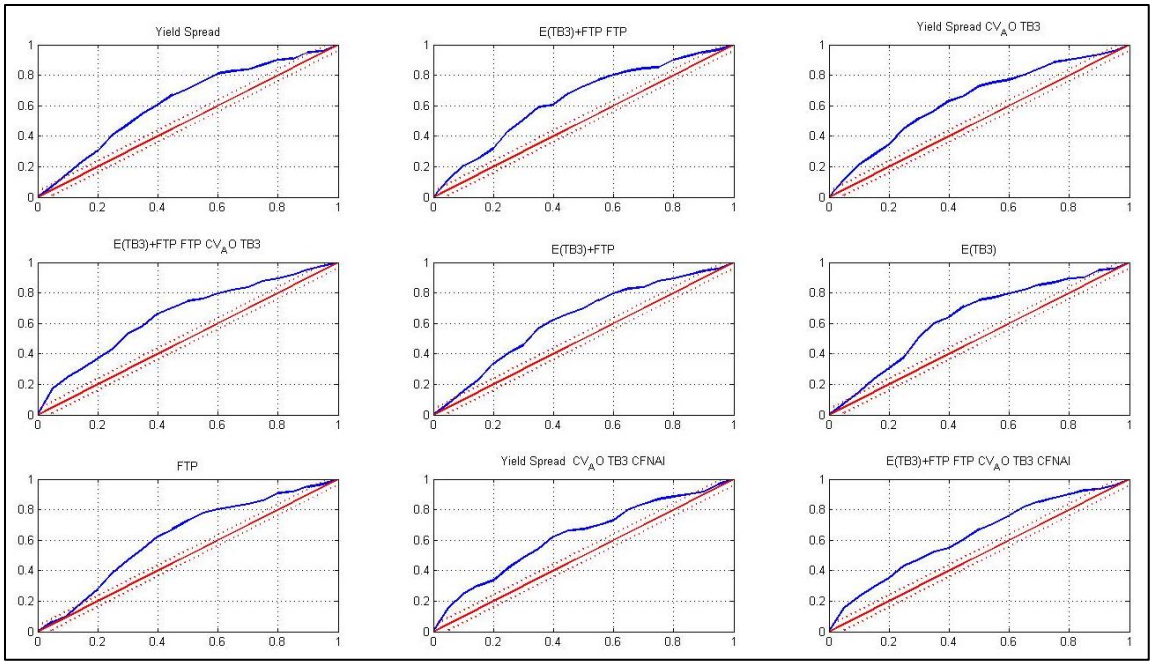

Figure 20: 12-quarter ahead conditional density forecasts for inflation.

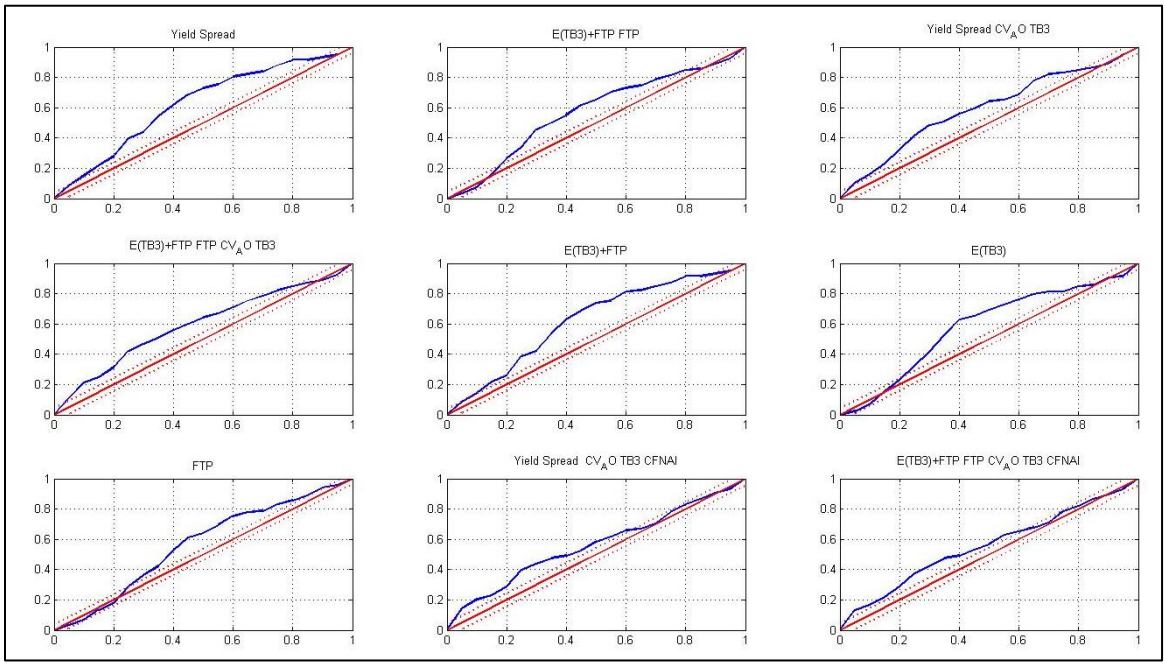

Figure 21: 16-quarter ahead conditional density forecasts for inflation.

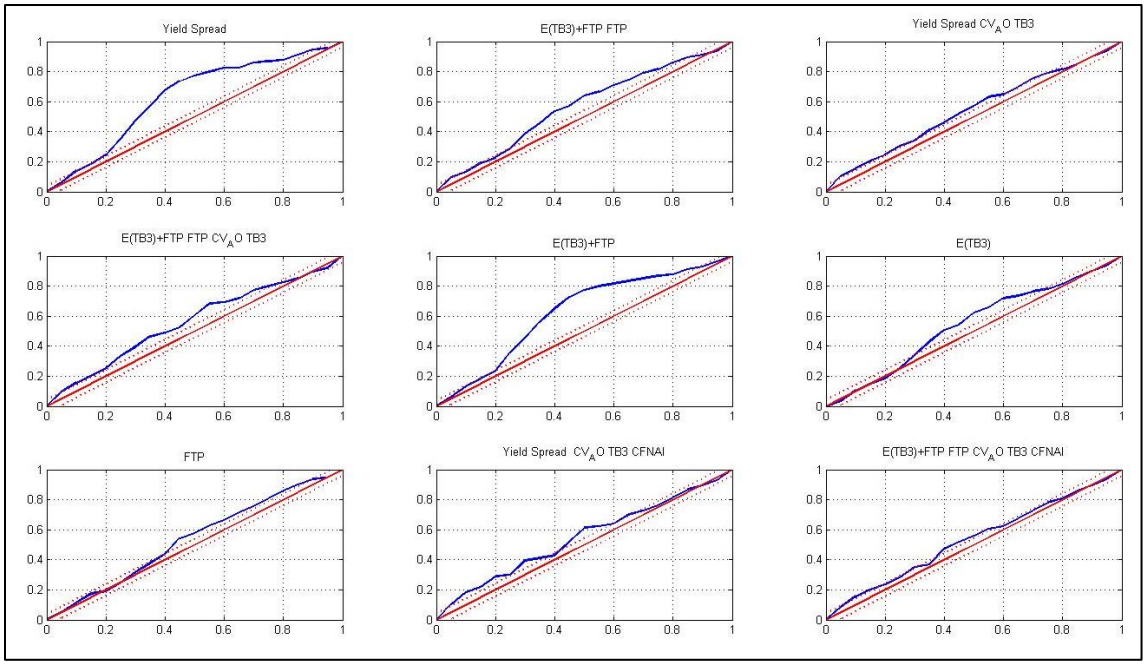

Figure 22: 20-quarter ahead conditional density forecasts for inflation.

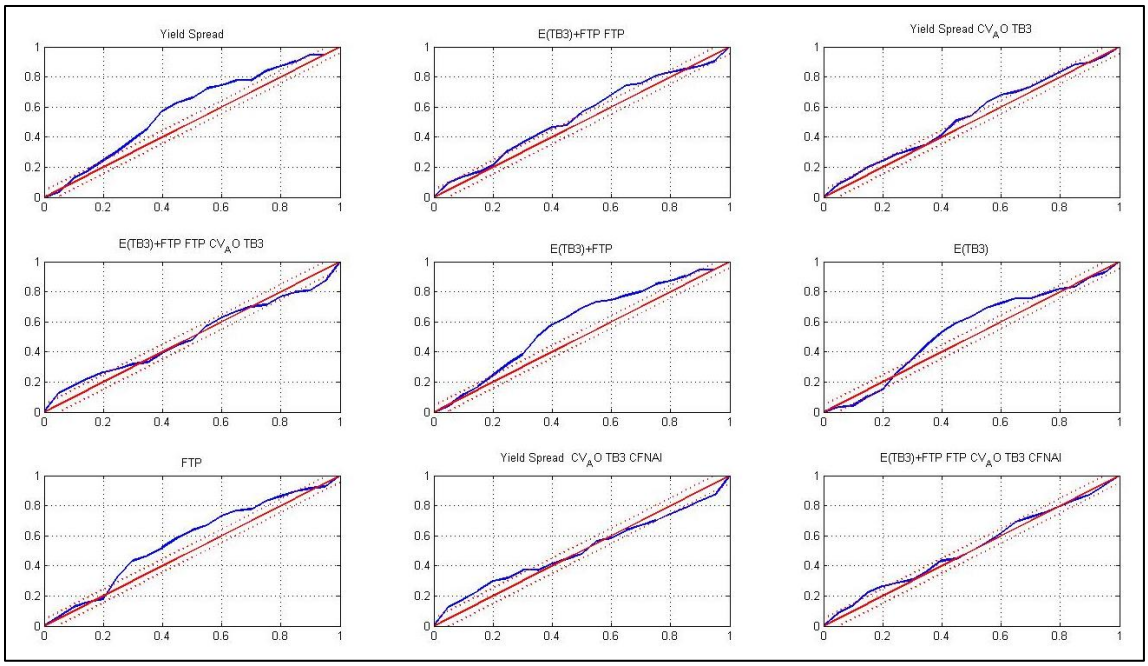

Figure 23: 40-quarter ahead conditional density forecasts for inflation.

4.4 RS test results of SVR forecasts with only financial state variables with the linear kernel

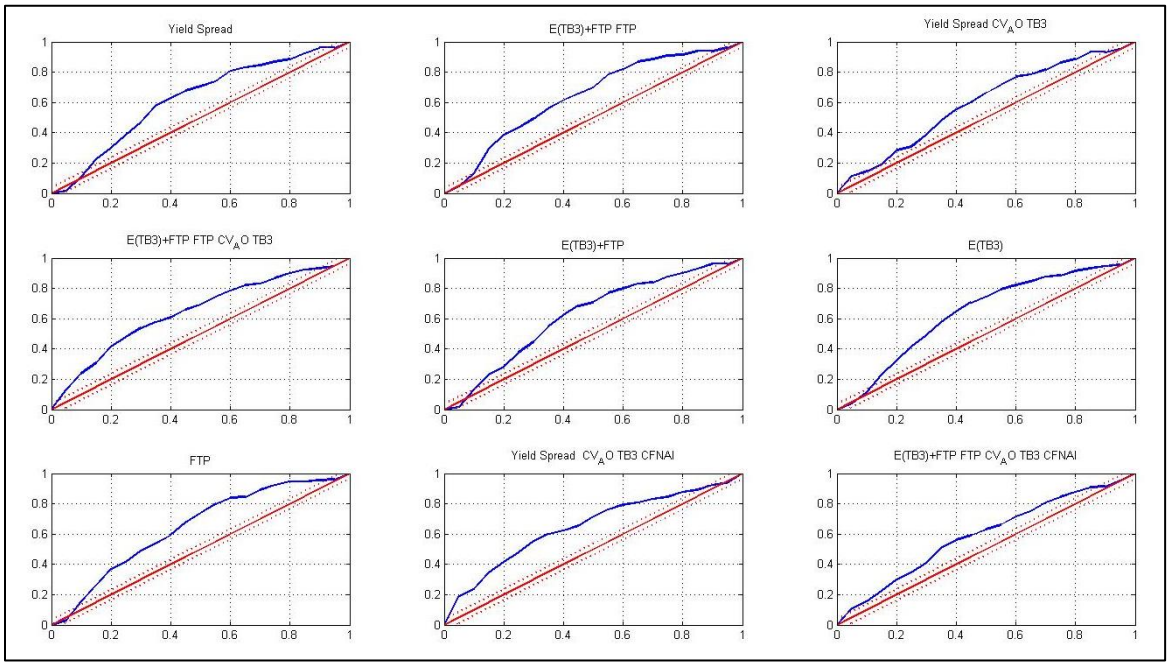

Figure 24: 4-quarter ahead conditional density forecasts for inflation.

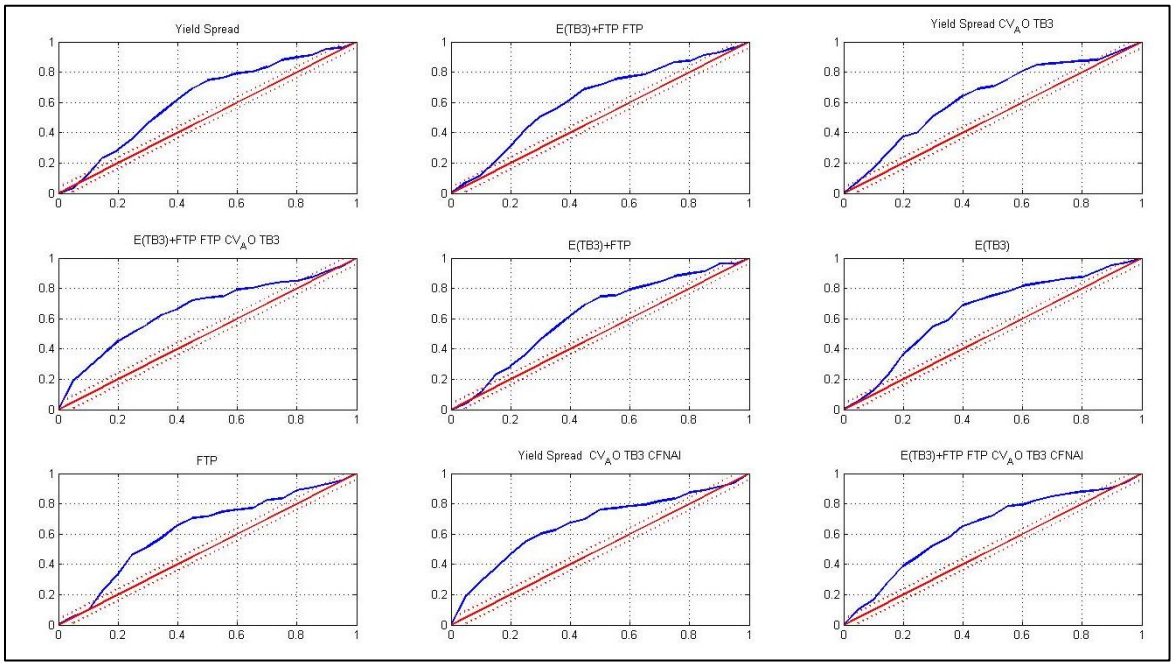

Figure 25: 8-quarter ahead conditional density forecasts for inflation.

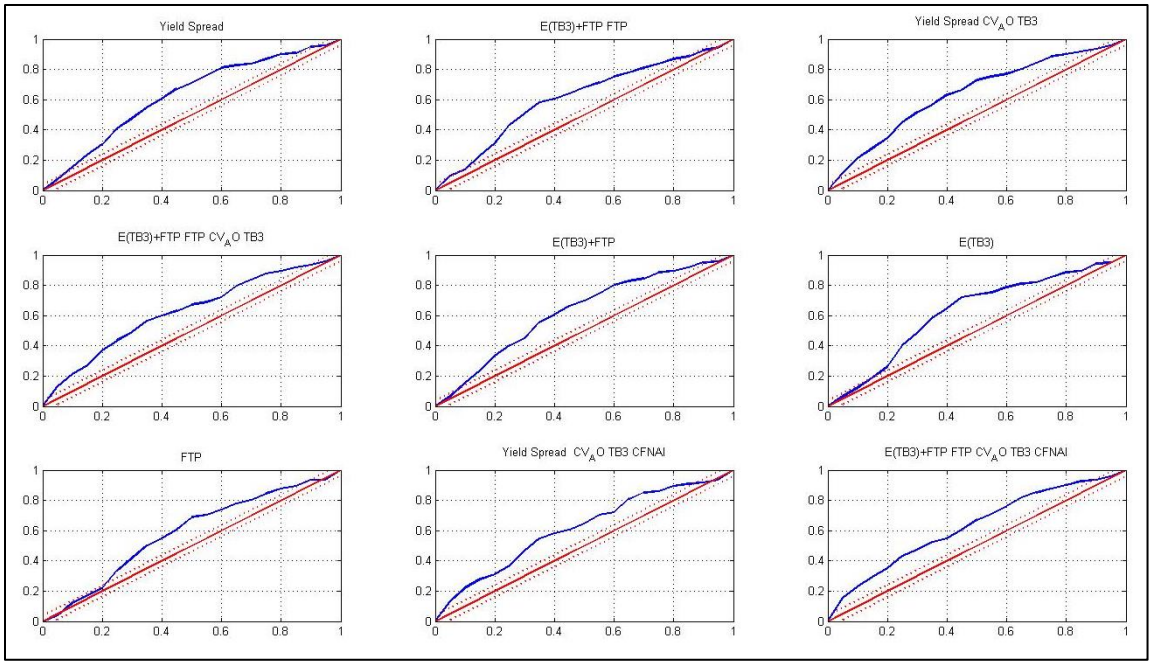

Figure 26: 12-quarter ahead conditional density forecasts for inflation.

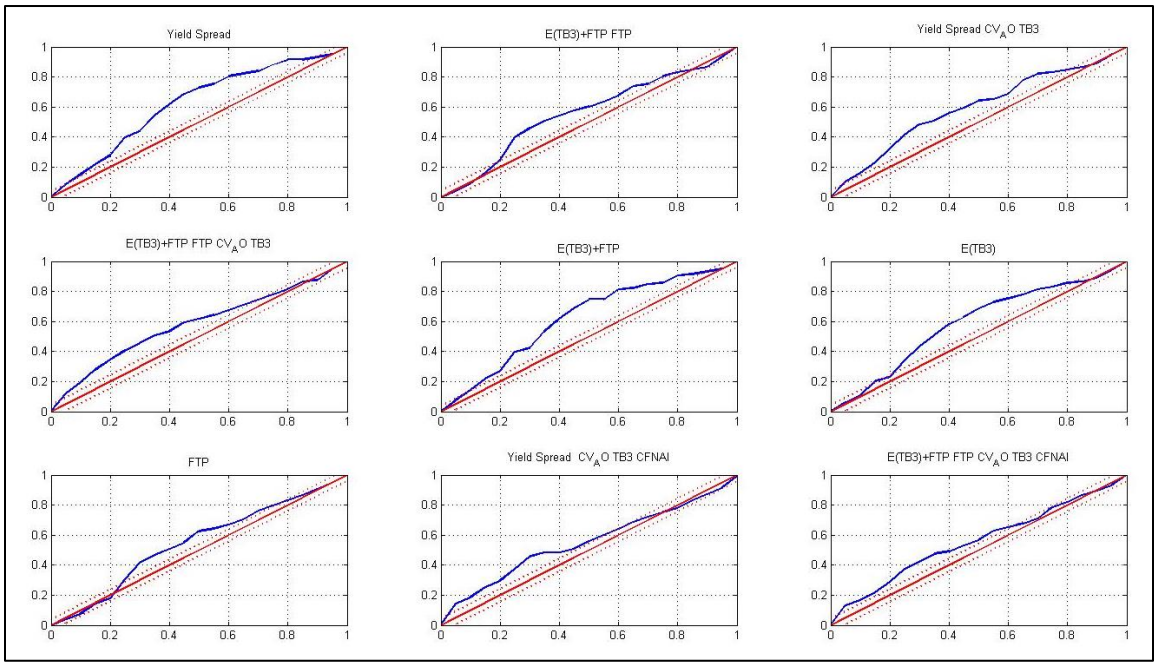

Figure 27: 16-quarter ahead conditional density forecasts for inflation.

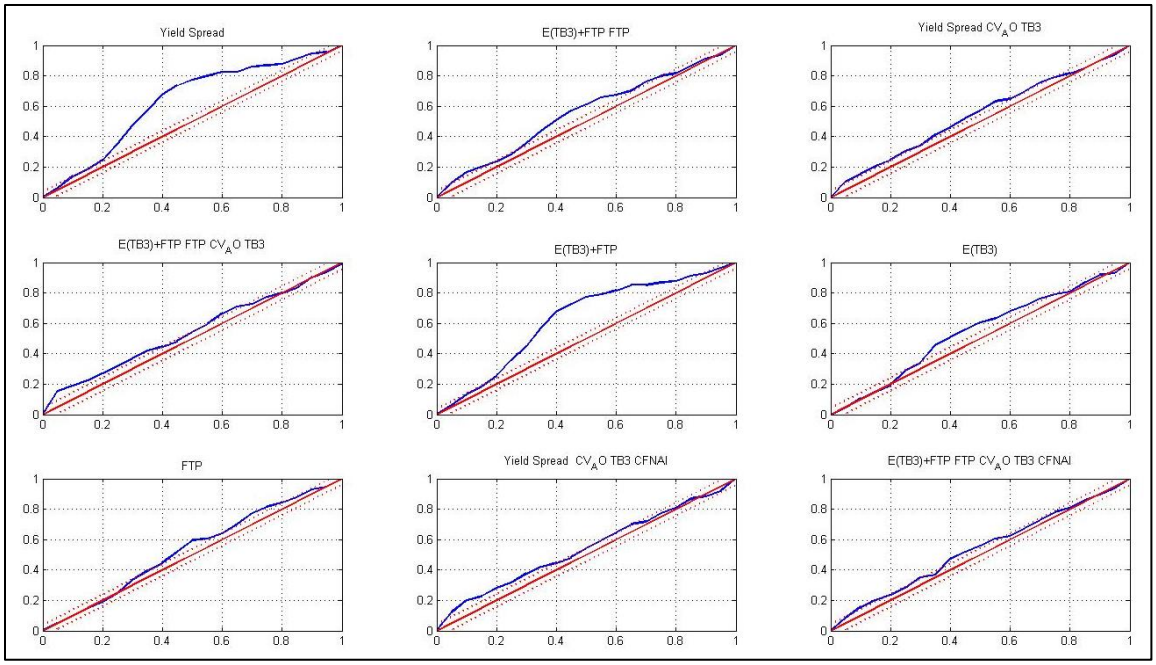

Figure 28: 20-quarter ahead conditional density forecasts for inflation.

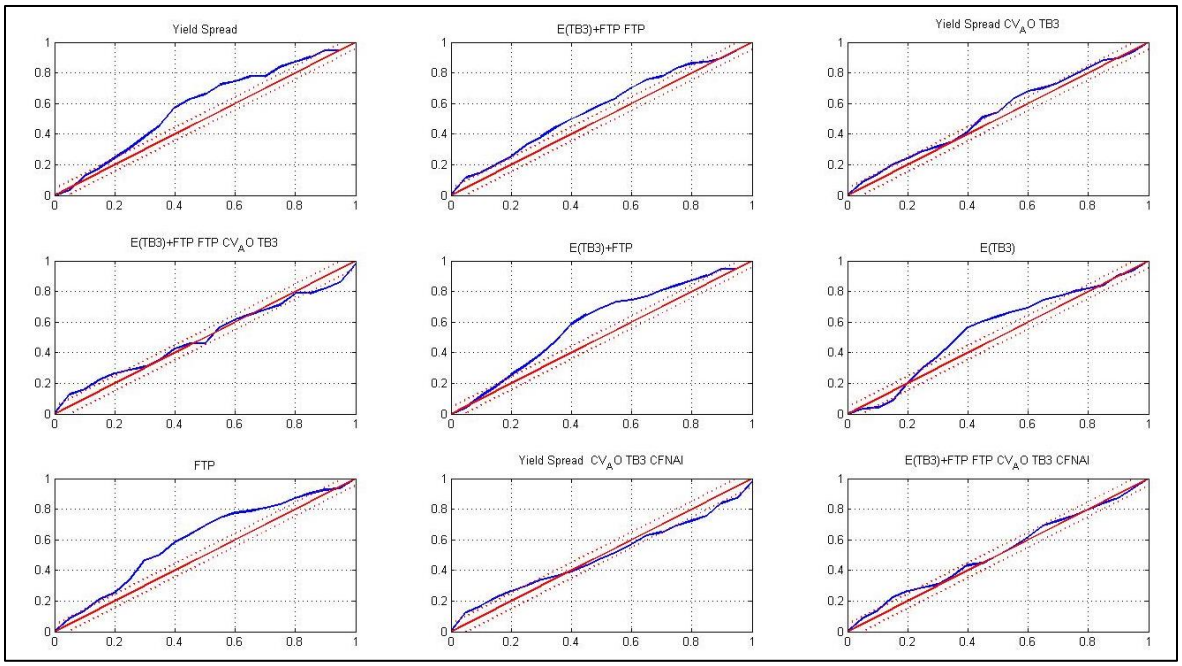

Figure 29: 40-quarter ahead conditional density forecasts for inflation.

4.5 Fan Charts of OLS forecasts with macroeconomic and financial state variables

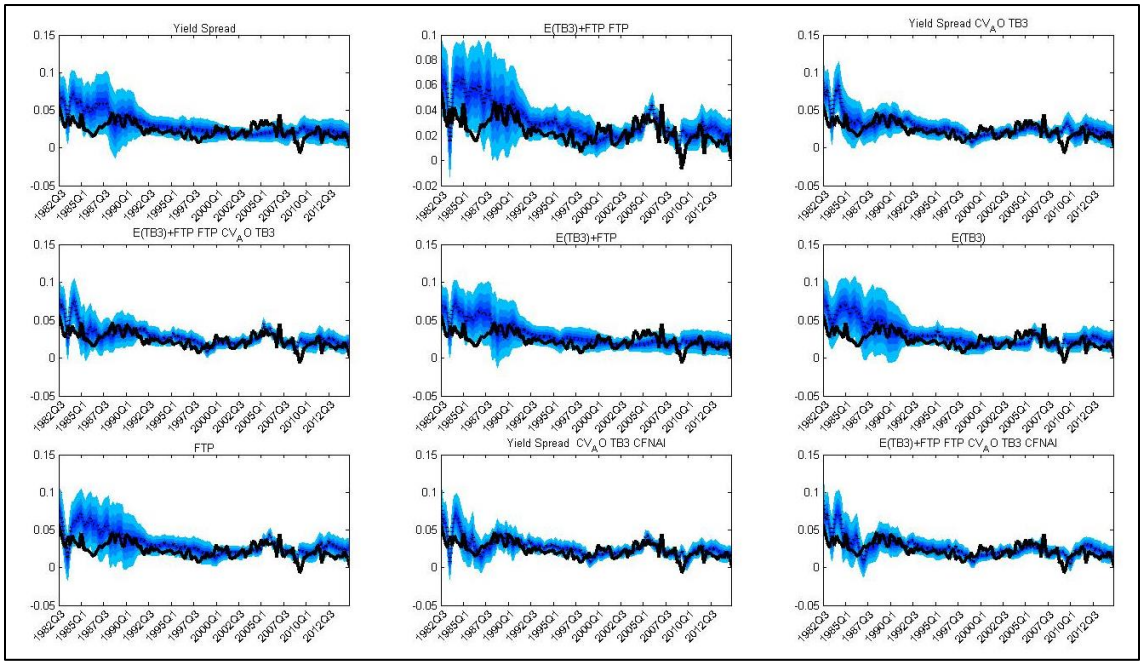

Figure 30: 4-quarter ahead fan charts for inflation.

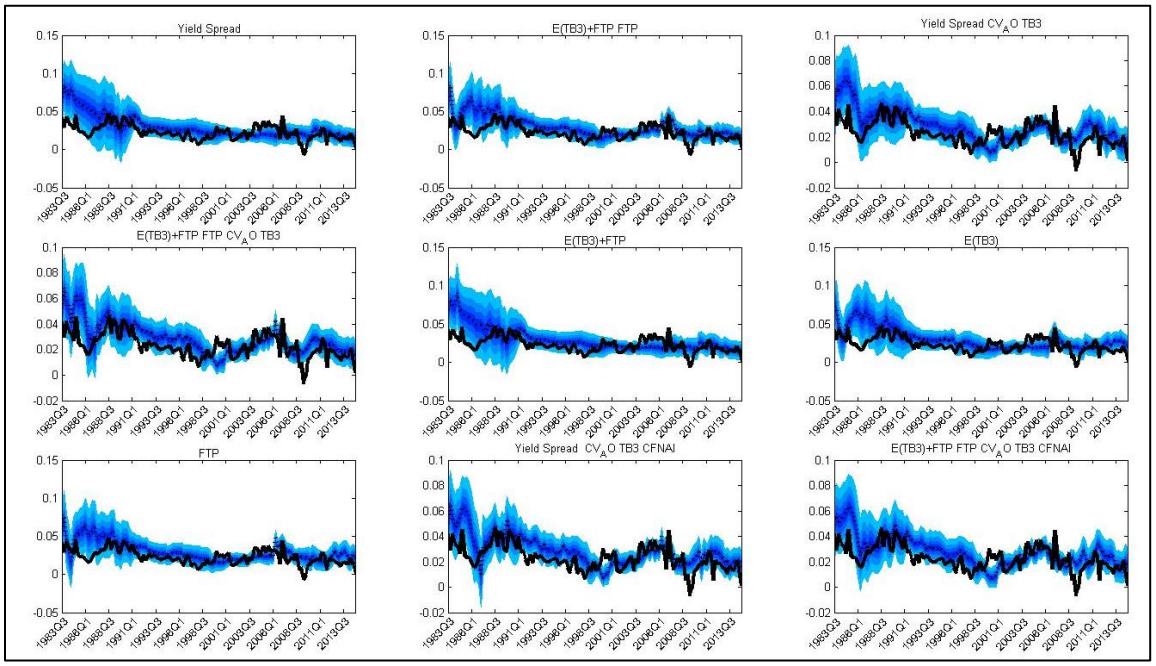

Figure 31: 8-quarter ahead fan charts for inflation.

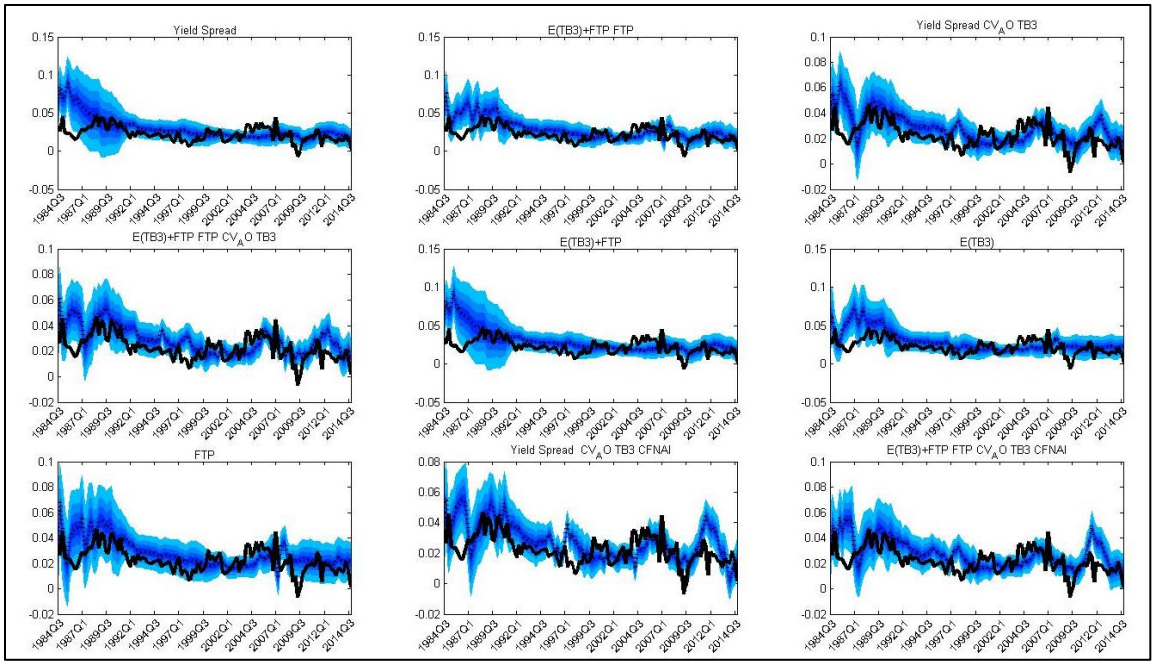

Figure 32: 12-quarter ahead fan charts for inflation.

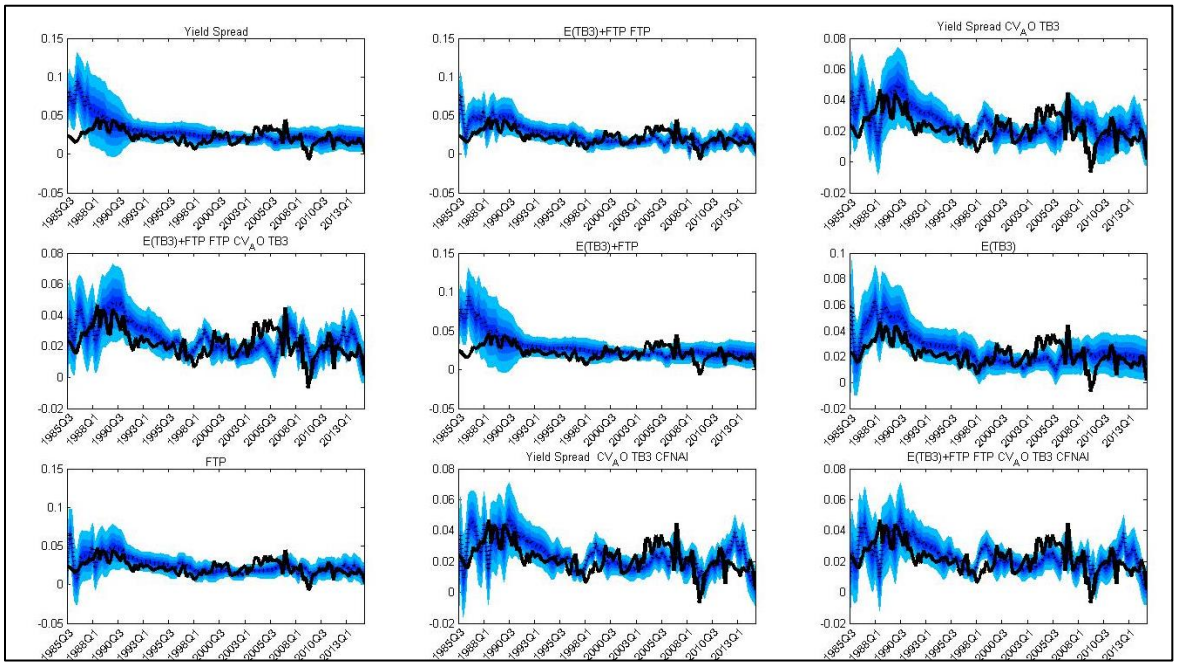

Figure 33: 16-quarter ahead fan charts for inflation.

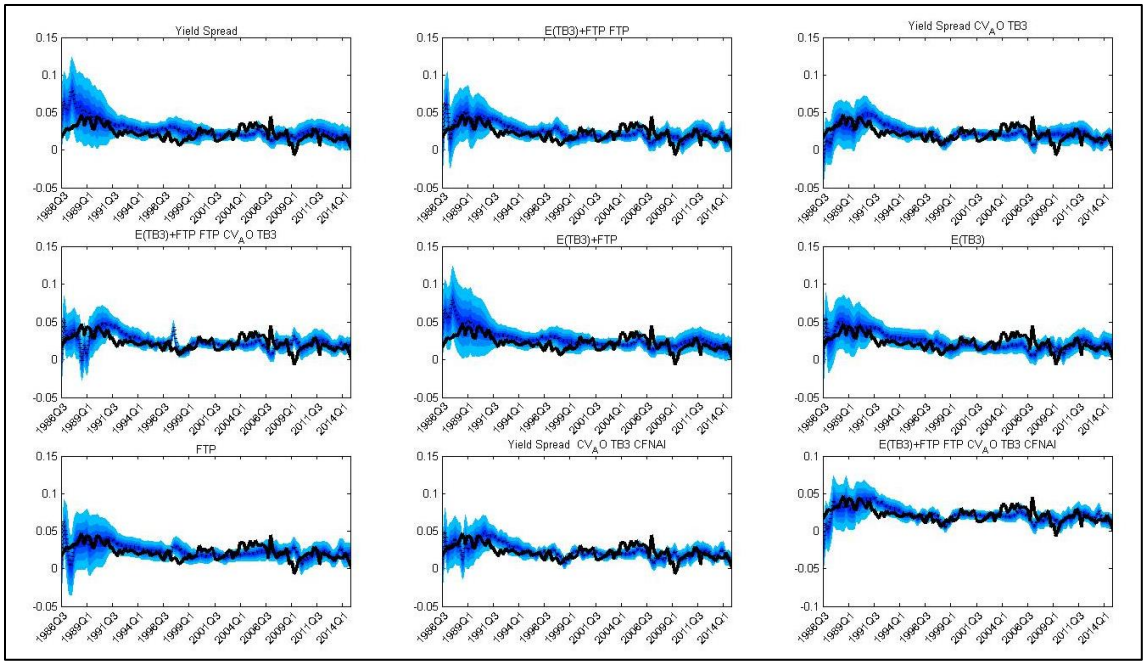

Figure 34: 20-quarter ahead fan charts for inflation.

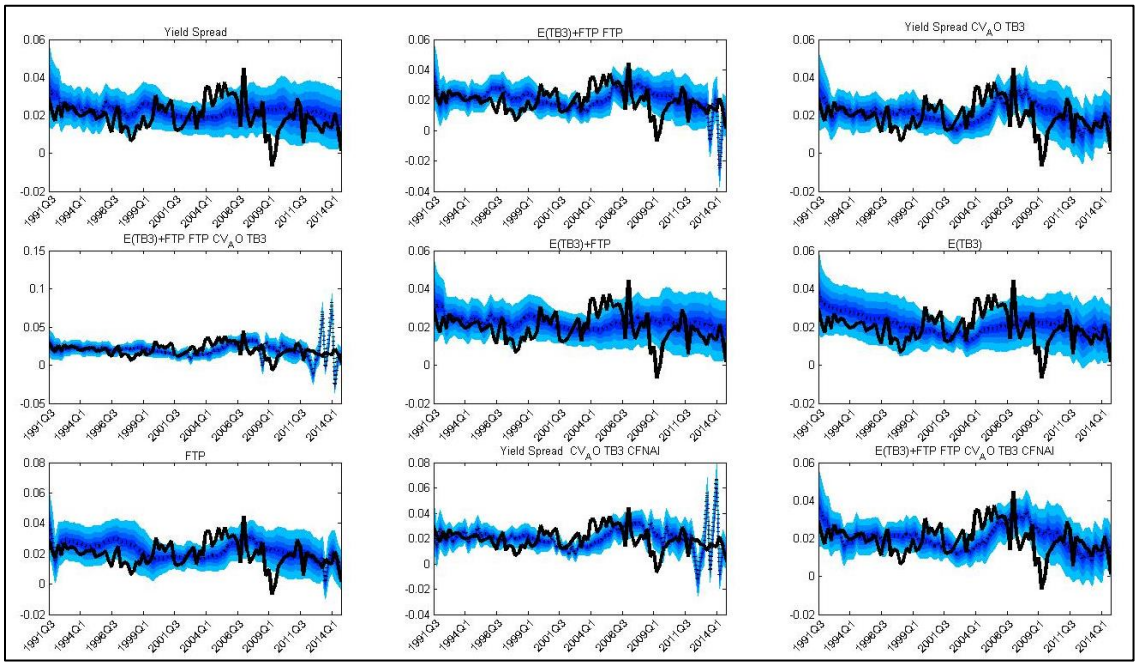

Figure 35: 40-quarter ahead fan charts for inflation.

4.6 Fan Charts of OLS forecasts with only financial state variables

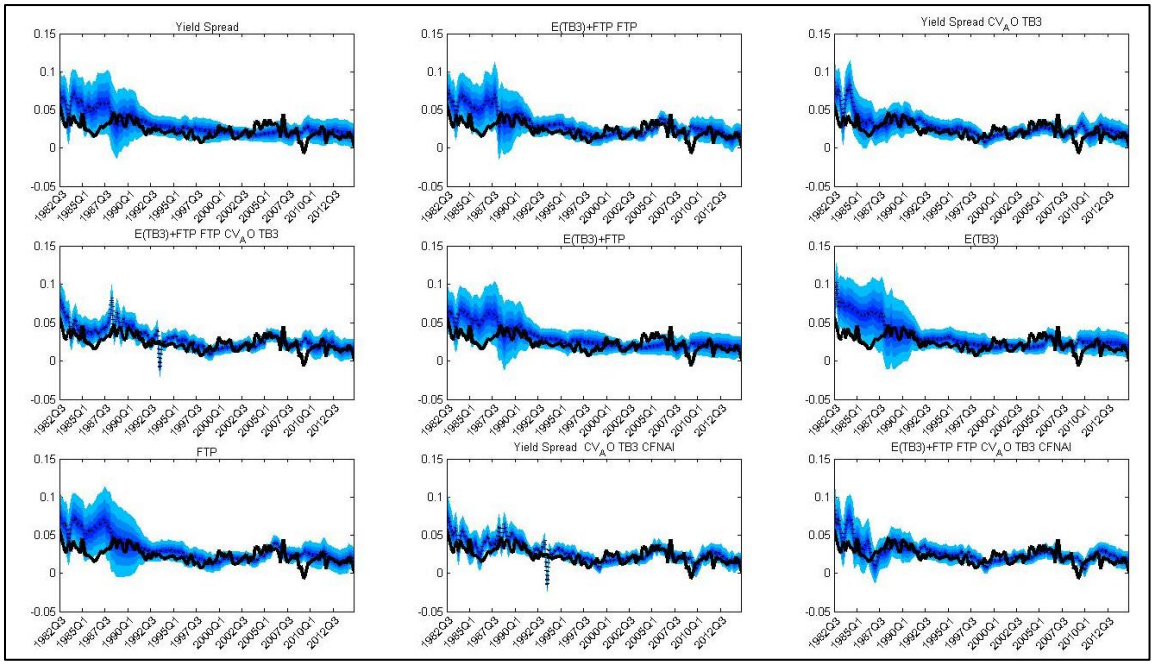

Figure 36: 4-quarter ahead fan charts for inflation.

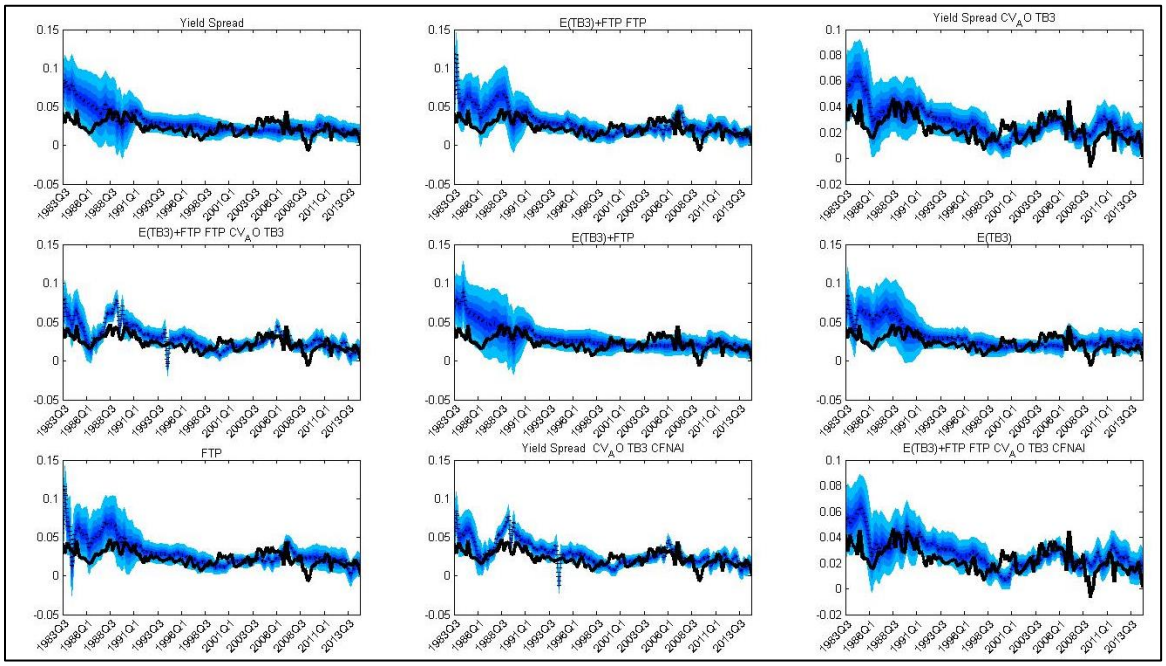

Figure 37: 8-quarter ahead fan charts for inflation.

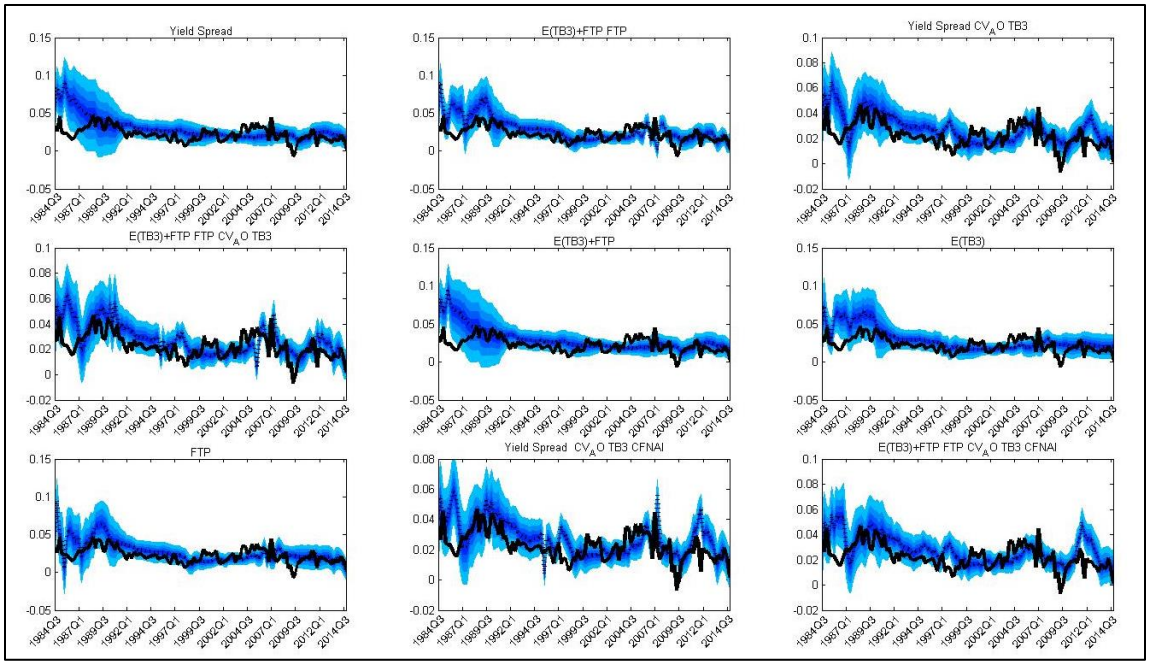

Figure 38: 12-quarter ahead fan charts for inflation.

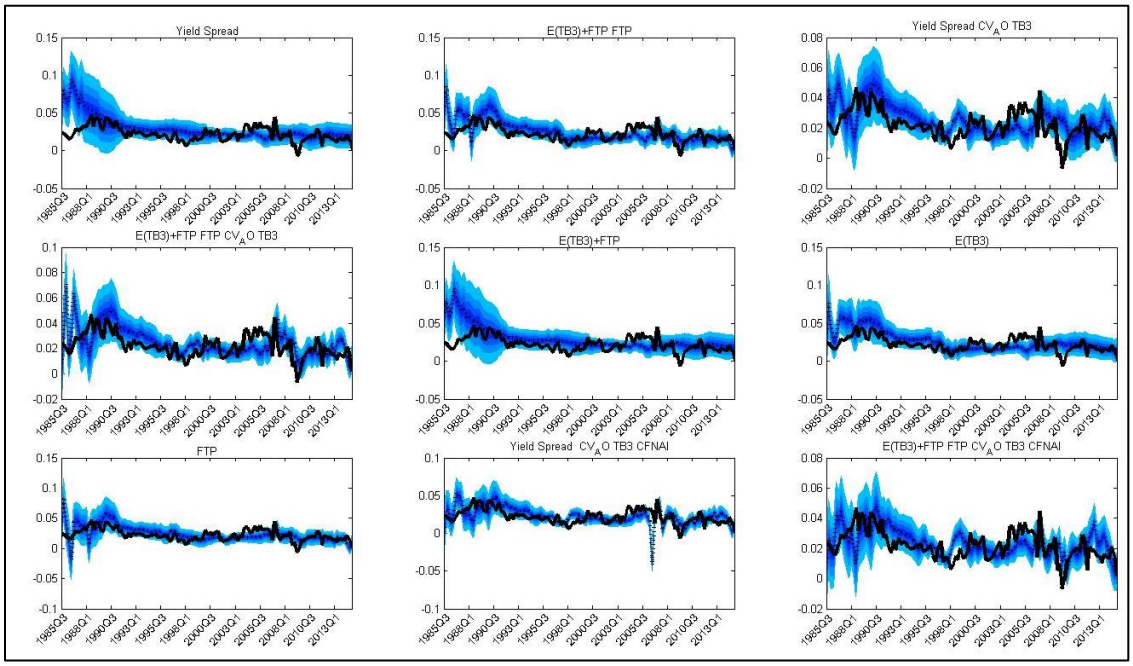

Figure 39: 16-quarter ahead fan charts for inflation.

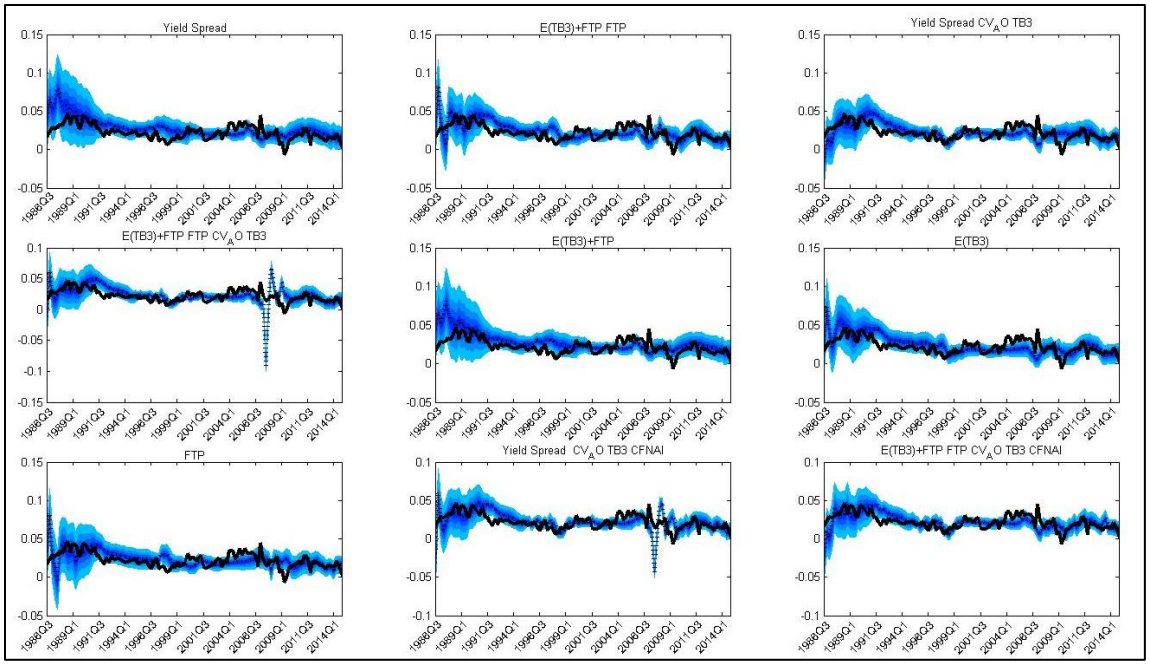

Figure 40: 20-quarter ahead fan charts for inflation.

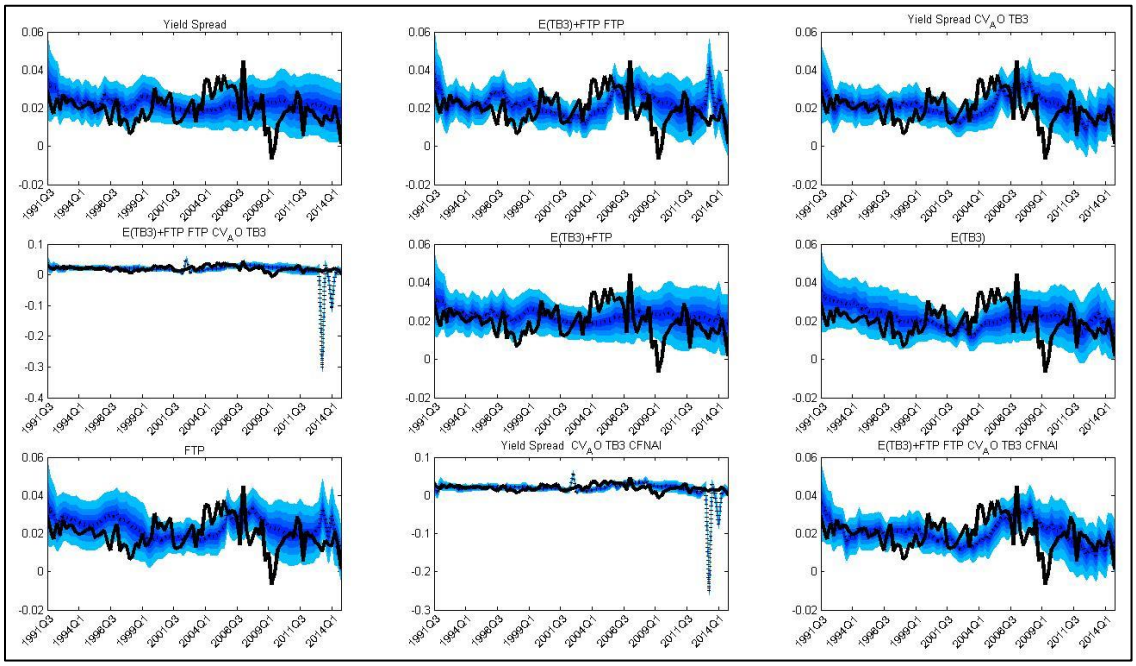

Figure 41: 40-quarter ahead fan charts for inflation.

4.7 Fan Charts of SVR forecasts with macroeconomic and financial state variables with the linear kernel

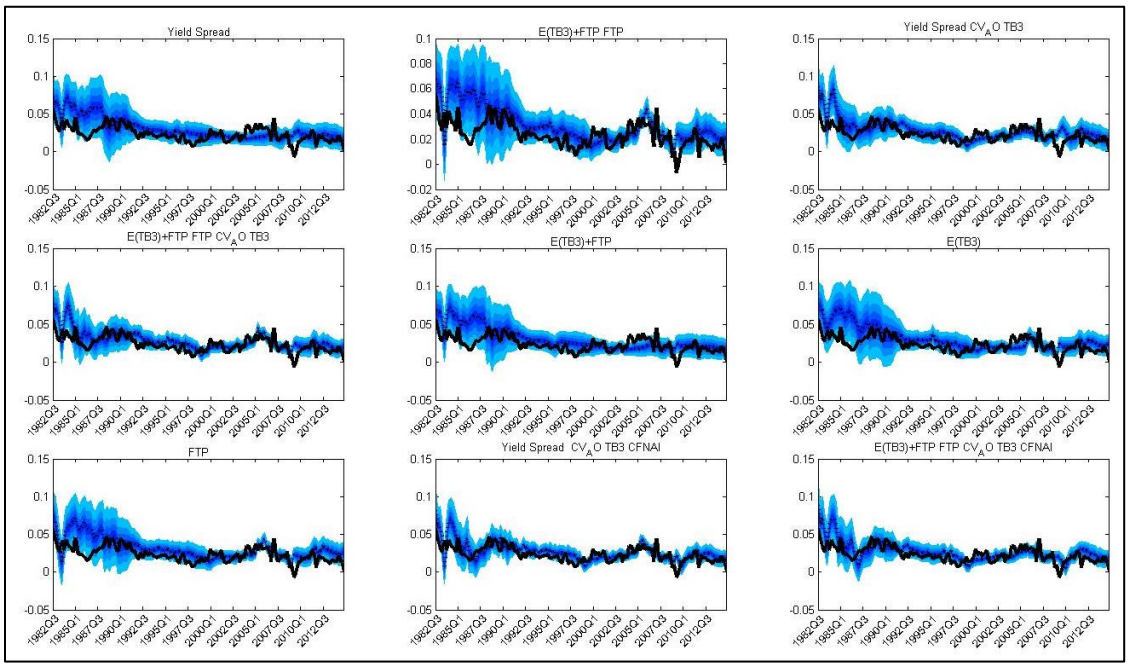

Figure 42: 4-quarter ahead fan charts for inflation.

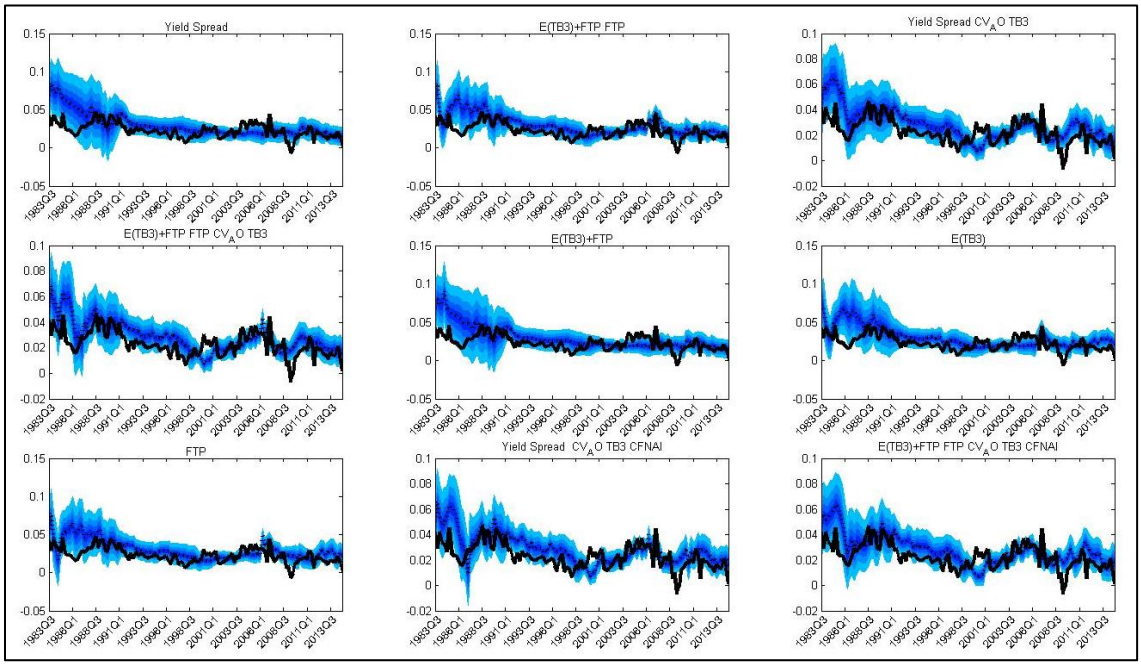

Figure 43: 8-quarter ahead fan charts for inflation.

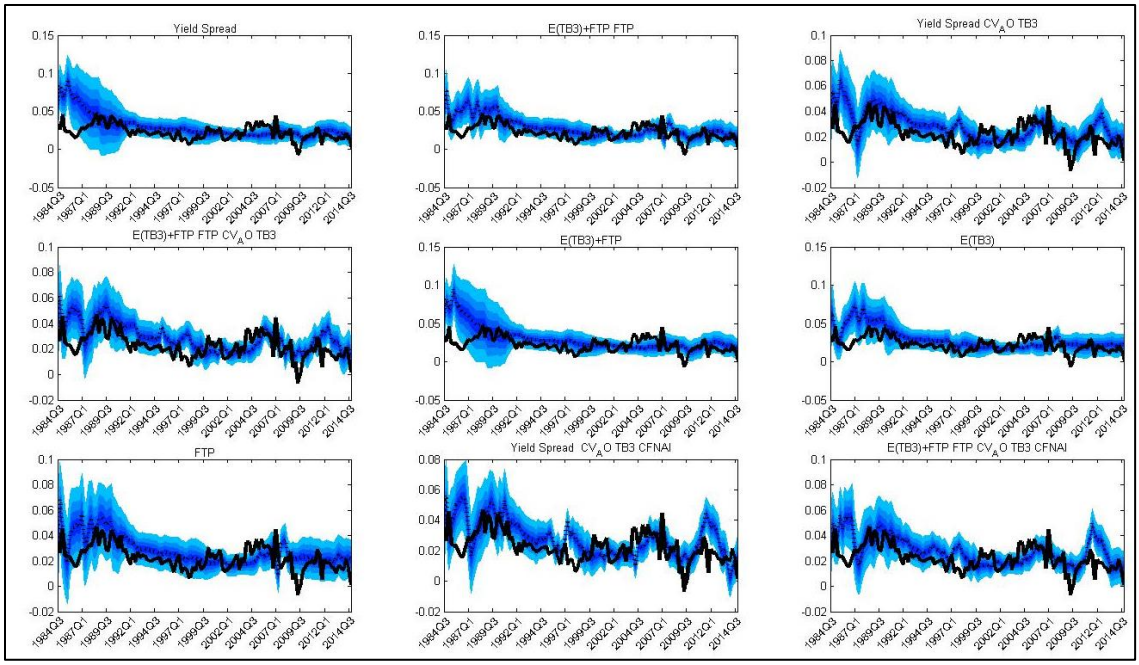

Figure 44: 12-quarter ahead fan charts for inflation.

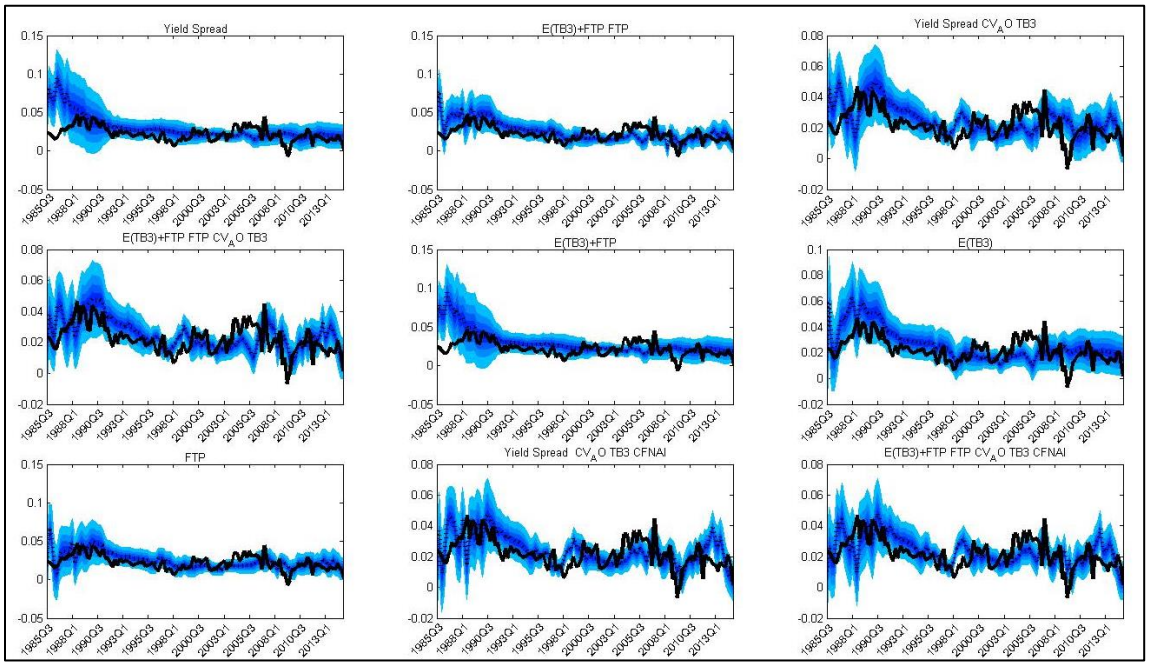

Figure 45: 16-quarter ahead fan charts for inflation.

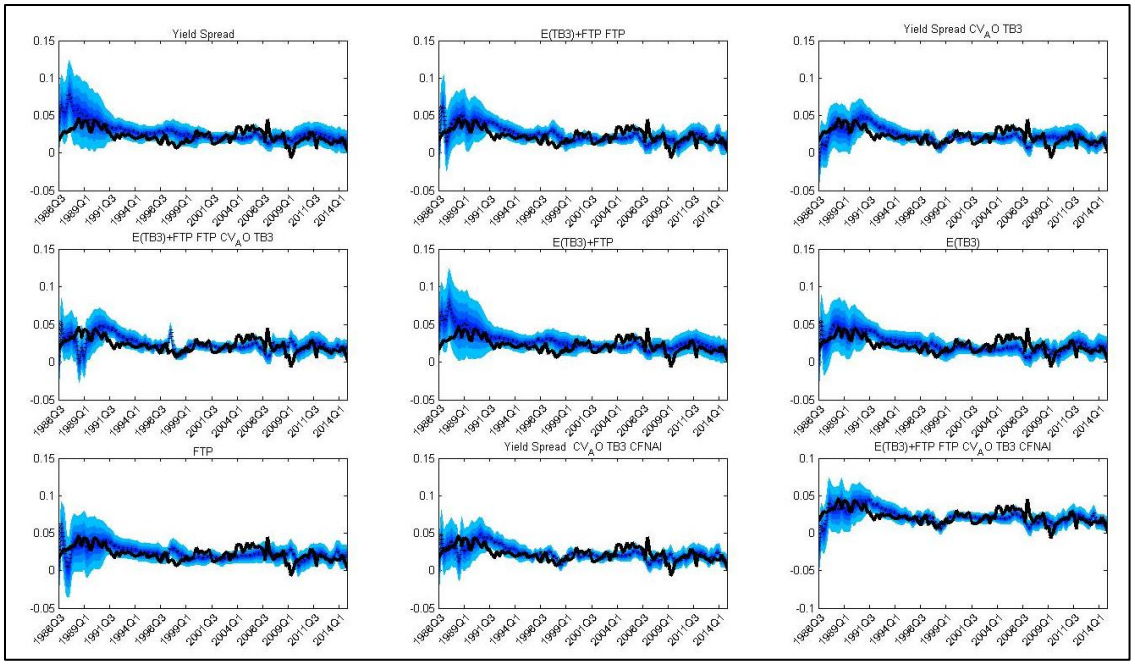

Figure 46: 20-quarter ahead fan charts for inflation.

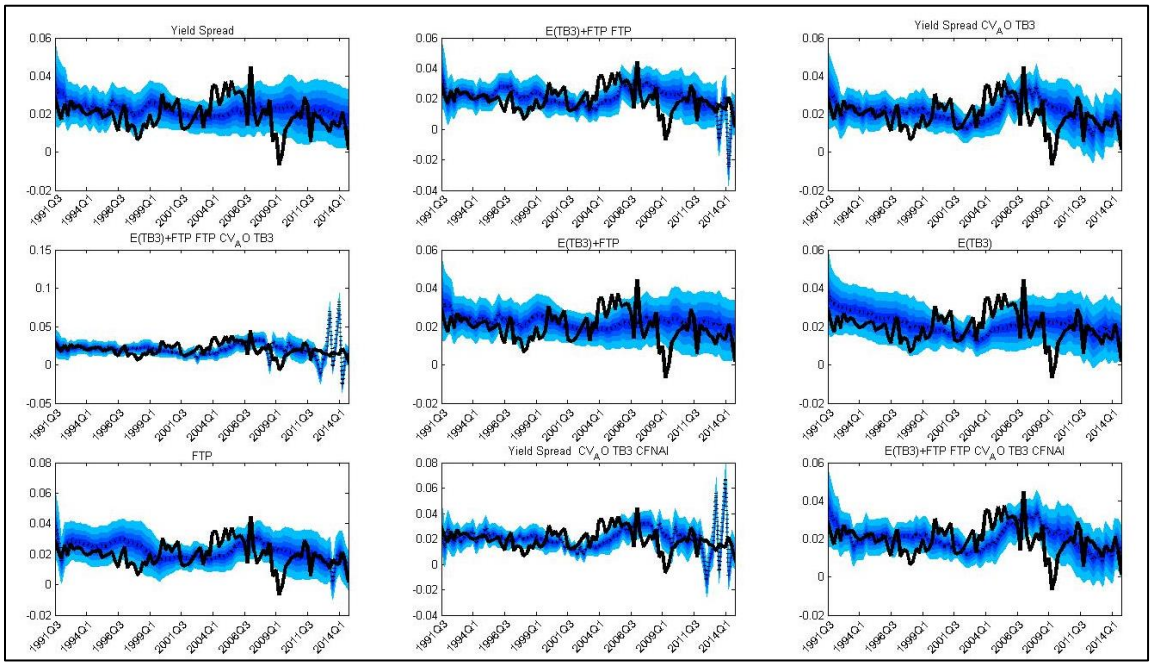

Figure 47: 40-quarter ahead fan charts for inflation.

4.8 Fan Charts of SVR forecasts with only financial state variables with the linear kernel

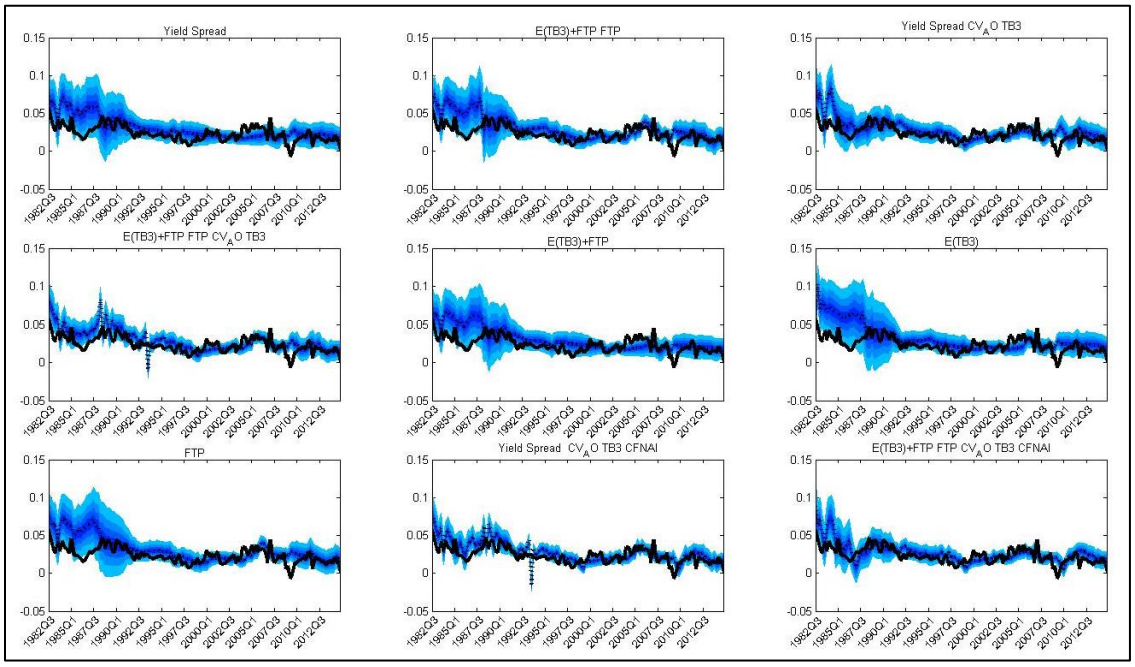

Figure 48: 4-quarter ahead fan charts for inflation.

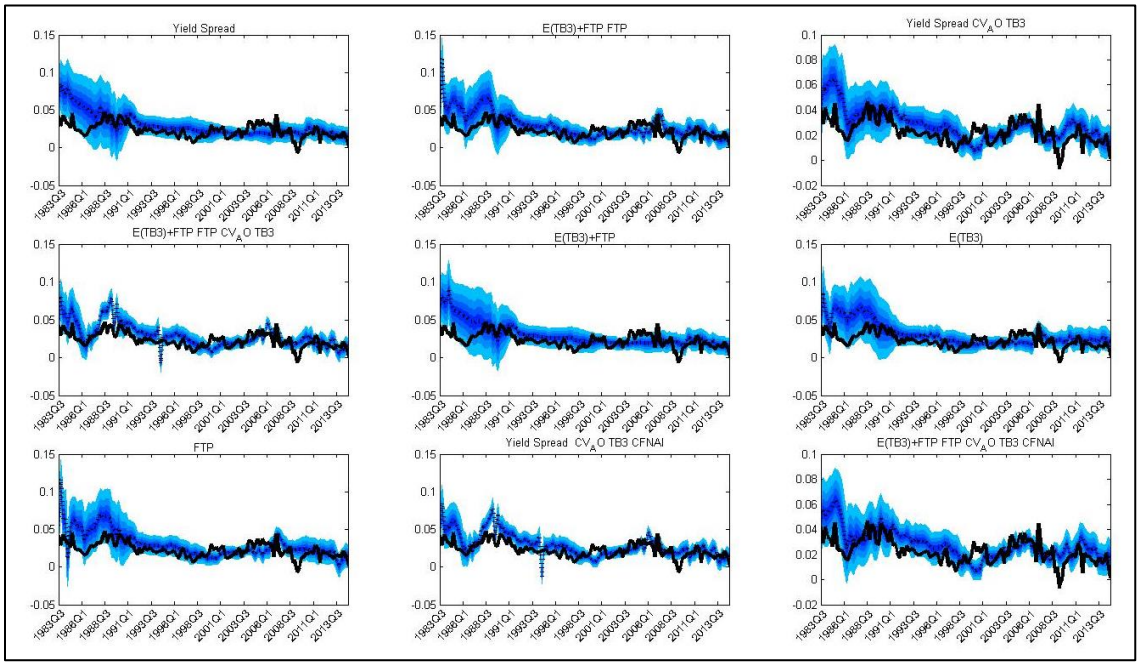

Figure 49: 8-quarter ahead fan charts for inflation.

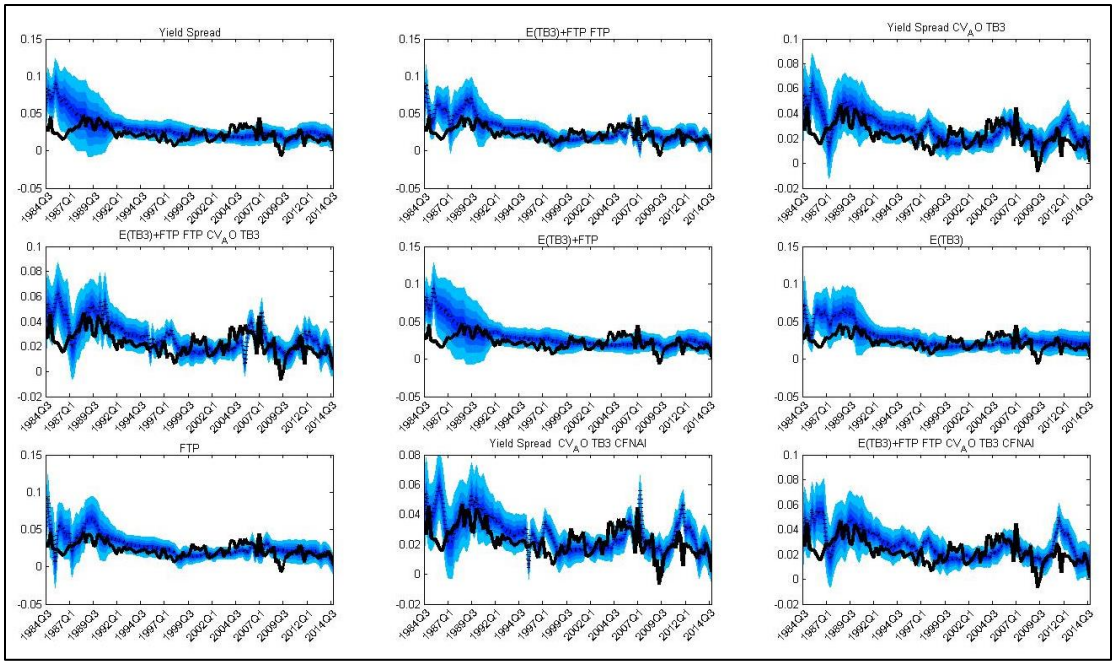

Figure 50: 12-quarter ahead fan charts for inflation.

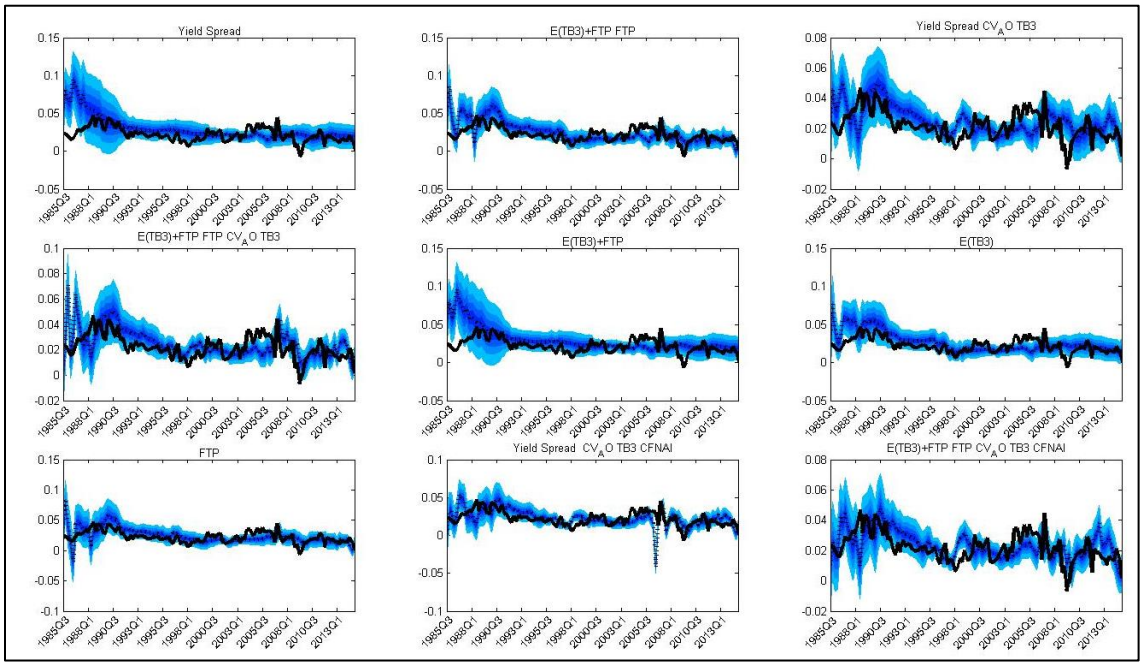

Figure 51: 16-quarter ahead fan charts for inflation.

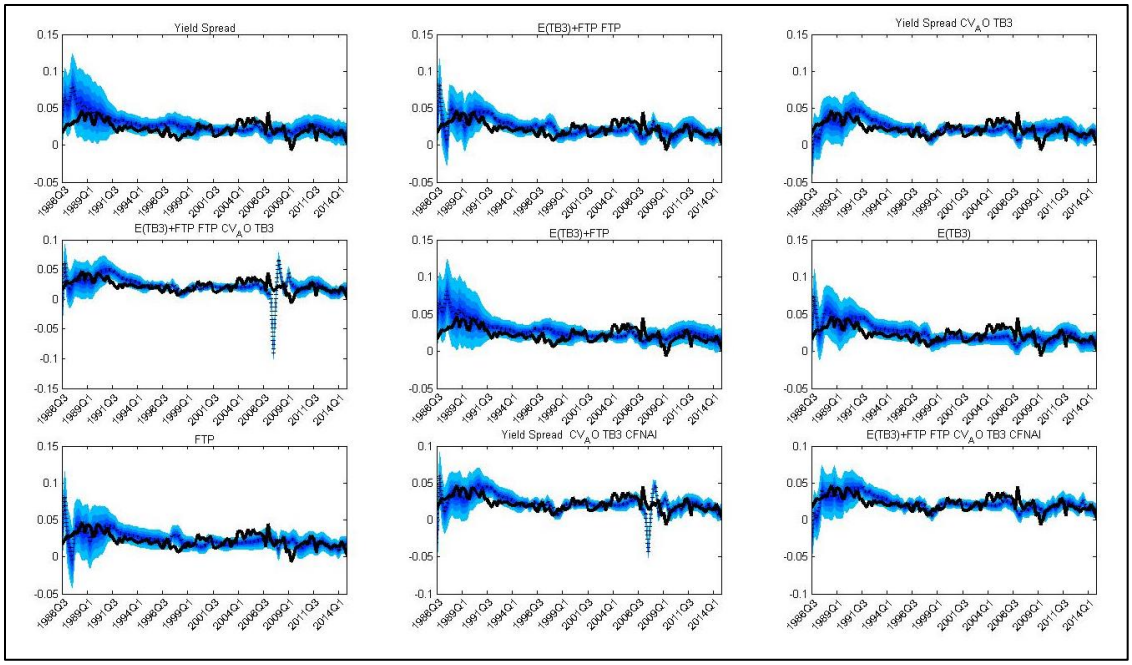

Figure 52: 20-quarter ahead fan charts for inflation.

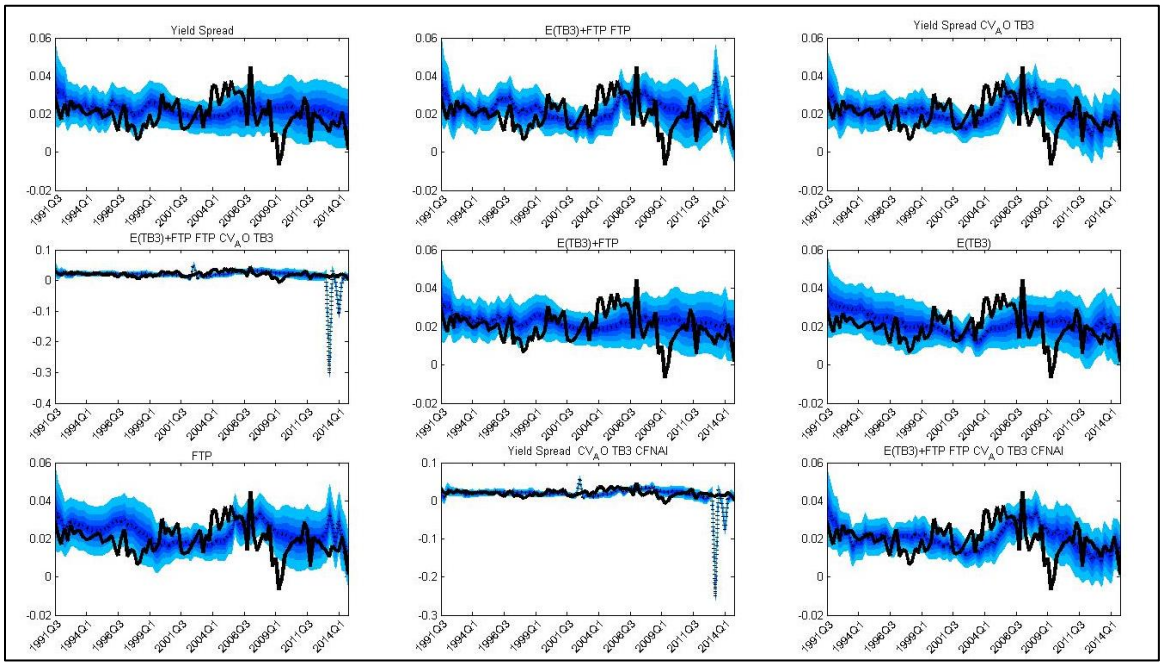

Figure 53: 40-quarter ahead fan charts for inflation.

The Fan charts and RS test results for the RBF, the polynomial kernel as well as for the bias corrected VAR estimation of all methods are available from the authors upon request.

4.9 Q-test p-values

Table 12: Q test p-values of the OLS VAR estimates based on the first moments (out-of-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.002	0.000	0.000	0.011	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.006	0.010
2	0.000	0.000	0.002	0.013	0.005	0.007	0.017	0.032	0.000	0.006	0.117	0.971	0.000	0.001	0.009	0.035	0.000	0.000	0.022	0.664	0.000	0.002	0.019	0.271
3	0.000	0.000	0.038	0.005	0.000	0.000	0.025	0.044	0.001	0.016	0.006	0.014	0.000	0.001	0.022	0.004	0.000	0.000	0.009	0.004	0.000	0.001	0.002	0.017
4	0.000	0.002	0.032	0.037	0.011	0.011	0.021	0.021	0.002	0.013	0.047	0.021	0.001	0.007	0.004	0.130	0.001	0.000	0.022	0.043	0.001	0.022	0.160	0.165
5	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.026	0.004	0.000	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.005
6	0.000	0.000	0.000	0.000	0.000	0.001	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.012	0.055	0.052	0.012	0.219	0.040
7	0.000	0.000	0.001	0.035	0.001	0.002	0.012	0.017	0.002	0.011	0.113	0.217	0.000	0.001	0.008	0.198	0.000	0.000	0.001	0.002	0.000	0.001	0.001	0.015
8	0.005	0.005	0.009	0.058	0.036	0.057	0.048	0.328	0.000	0.014	0.272	0.939	0.001	0.001	0.044	0.141	0.000	0.000	0.029	0.211	0.006	0.014	0.031	0.859
9	0.000	0.000	0.002	0.010	0.000	0.000	0.003	0.018	0.000	0.007	0.017	0.459	0.000	0.001	0.050	0.061	0.000	0.000	0.094	0.012	0.000	0.001	0.173	0.412

Table 13: Q test p-values of the OLS VAR estimates based on the second moments (out-of-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.052	0.033	0.006	0.000	0.047	0.030	0.055	0.009	0.017	0.053	0.984	0.229	0.350	0.356	0.017	0.376	0.420	0.412	0.933	0.339	0.683	0.508	0.241	0.633
2	0.024	0.014	0.045	0.026	0.008	0.021	0.339	0.194	0.000	0.000	0.287	0.000	0.029	0.010	0.003	0.035	0.013	0.069	0.109	0.044	0.660	0.620	0.818	0.169
3	0.083	0.157	0.001	0.006	0.232	0.361	0.000	0.012	0.000	0.001	0.264	0.268	0.033	0.008	0.005	0.673	0.066	0.140	0.048	0.839	0.337	0.143	0.616	0.245
4	0.354	0.156	0.003	0.148	0.198	0.191	0.000	0.570	0.006	0.002	0.768	0.814	0.092	0.029	0.014	0.098	0.130	0.032	0.007	0.030	0.095	0.313	0.810	0.817
5	0.077	0.044	0.066	0.002	0.053	0.049	0.021	0.013	0.017	0.049	0.353	0.061	0.347	0.339	0.156	0.572	0.464	0.372	0.625	0.292	0.640	0.476	0.672	0.597
6	0.001	0.008	0.540	0.058	0.004	0.006	0.118	0.004	0.000	0.005	0.001	0.000	0.242	0.290	0.915	0.081	0.071	0.228	0.352	0.480	0.628	0.674	0.774	0.486
7	0.021	0.024	0.039	0.060	0.009	0.041	0.809	0.009	0.005	0.005	0.832	0.238	0.011	0.004	0.003	0.000	0.002	0.010	0.014	0.007	0.149	0.388	0.541	0.905
8	0.832	0.162	0.001	0.288	0.047	0.137	0.003	0.107	0.003	0.000	0.141	0.174	0.090	0.028	0.204	0.278	0.019	0.132	0.001	0.407	0.176	0.229	0.636	0.879
9	0.195	0.138	0.003	0.025	0.122	0.186	0.035	0.122	0.000	0.001	0.268	0.002	0.296	0.088	0.031	0.393	0.087	0.082	0.050	0.868	0.422	0.232	0.671	0.888

Table 14: Q test p-values of the BC VAR estimates based on the first moments (out-of-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.002	0.000	0.000	0.011	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.006	0.010
2	0.000	0.000	0.000	0.005	0.005	0.008	0.404	0.072	0.000	0.000	0.000	0.501	0.000	0.000	0.040	0.029	0.000	0.001	0.002	0.060	0.000	0.006	0.016	0.012
3	0.000	0.000	0.038	0.005	0.000	0.000	0.025	0.044	0.001	0.016	0.006	0.014	0.000	0.001	0.022	0.004	0.000	0.000	0.009	0.004	0.000	0.001	0.002	0.017
4	0.000	0.002	0.019	0.005	0.011	0.010	0.060	0.018	0.002	0.013	0.091	0.205	0.001	0.016	0.016	0.205	0.001	0.001	0.014	0.220	0.001	0.018	0.631	0.955
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.025	0.005	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.024	0.023
6	0.000	0.000	0.001	0.000	0.000	0.000	0.002	0.010	0.000	0.000	0.001	0.001	0.000	0.000	0.003	0.116	0.000	0.000	0.085	0.029	0.052	0.037	0.347	0.173
7	0.000	0.000	0.000	0.003	0.001	0.001	0.074	0.231	0.002	0.002	0.009	0.177	0.000	0.001	0.002	0.030	0.000	0.003	0.000	0.005	0.000	0.001	0.003	0.054
8	0.005	0.030	0.007	0.046	0.036	0.013	0.066	0.316	0.000	0.003	0.300	0.847	0.001	0.002	0.058	0.064	0.000	0.002	0.058	0.352	0.006	0.012	0.019	0.859
9	0.000	0.000	0.002	0.010	0.000	0.000	0.003	0.018	0.000	0.007	0.017	0.459	0.000	0.001	0.050	0.061	0.000	0.000	0.094	0.012	0.000	0.001	0.173	0.412

Table 15: Q test p-values of the BC VAR estimates based on the second moments (out-of-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.052	0.033	0.006	0.000	0.047	0.030	0.055	0.009	0.017	0.053	0.984	0.229	0.350	0.356	0.017	0.376	0.420	0.412	0.933	0.339	0.683	0.508	0.241	0.633
2	0.024	0.032	0.033	0.242	0.008	0.027	0.443	0.436	0.000	0.019	0.660	0.001	0.029	0.096	0.239	0.219	0.013	0.334	0.312	0.501	0.660	0.893	0.442	0.746
3	0.083	0.157	0.001	0.006	0.232	0.361	0.000	0.012	0.000	0.001	0.264	0.268	0.033	0.008	0.005	0.673	0.066	0.140	0.048	0.839	0.337	0.143	0.616	0.245
4	0.354	0.099	0.268	0.096	0.198	0.186	0.002	0.456	0.006	0.007	0.968	0.058	0.092	0.156	0.004	0.142	0.130	0.390	0.011	0.246	0.095	0.665	0.964	0.832
5	0.077	0.040	0.242	0.001	0.053	0.051	0.005	0.039	0.017	0.053	0.599	0.039	0.347	0.324	0.094	0.535	0.464	0.439	0.582	0.343	0.640	0.526	0.356	0.494
6	0.001	0.066	0.987	0.320	0.004	0.114	0.017	0.063	0.000	0.021	0.006	0.184	0.242	0.237	0.117	0.024	0.071	0.539	0.175	0.159	0.628	0.904	0.870	0.999
7	0.021	0.012	0.019	0.002	0.009	0.041	0.042	0.034	0.005	0.113	0.095	0.021	0.011	0.043	0.040	0.206	0.002	0.154	0.636	0.975	0.149	0.989	0.396	0.198
8	0.832	0.066	0.003	0.248	0.047	0.248	0.007	0.006	0.003	0.008	0.441	0.348	0.090	0.069	0.042	0.509	0.019	0.268	0.005	0.481	0.176	0.884	0.948	0.528
9	0.195	0.138	0.003	0.025	0.122	0.186	0.035	0.122	0.000	0.001	0.268	0.002	0.296	0.088	0.031	0.393	0.087	0.082	0.050	0.868	0.422	0.232	0.671	0.888

Table 16: Q test p-values of the OLS VAR estimates based on the first moments (in-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.002	0.000	0.000	0.011	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.006	0.010
2	0.000	0.001	0.014	0.003	0.005	0.011	0.027	0.035	0.001	0.008	0.629	0.895	0.000	0.005	0.038	0.001	0.000	0.000	0.009	0.012	0.001	0.003	0.004	0.130
3	0.000	0.000	0.038	0.005	0.000	0.000	0.025	0.044	0.001	0.016	0.006	0.014	0.000	0.001	0.022	0.004	0.000	0.000	0.009	0.004	0.000	0.001	0.002	0.017
4	0.003	0.002	0.018	0.012	0.005	0.005	0.029	0.626	0.017	0.158	0.044	0.499	0.013	0.018	0.031	0.257	0.005	0.001	0.010	0.016	0.000	0.007	0.084	0.936
5	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.001	0.000	0.000	0.017	0.002	0.000	0.000	0.005	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.002	0.005
6	0.000	0.000	0.006	0.001	0.000	0.000	0.004	0.005	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.041	0.026	0.038	0.038	0.090	0.133
7	0.000	0.001	0.000	0.001	0.000	0.001	0.143	0.077	0.004	0.018	0.649	0.417	0.000	0.002	0.010	0.000	0.000	0.002	0.000	0.016	0.001	0.007	0.002	0.003
8	0.108	0.024	0.026	0.071	0.005	0.019	0.003	0.631	0.014	0.072	0.018	0.049	0.016	0.014	0.006	0.659	0.005	0.002	0.010	0.046	0.000	0.011	0.015	0.394
9	0.000	0.000	0.002	0.010	0.000	0.000	0.003	0.018	0.000	0.007	0.017	0.459	0.000	0.001	0.050	0.061	0.000	0.000	0.094	0.012	0.000	0.001	0.173	0.412

Table 17: Q test p-values of the OLS VAR estimates based on the second moments (in-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.052	0.033	0.006	0.000	0.047	0.030	0.055	0.009	0.017	0.053	0.984	0.229	0.350	0.356	0.017	0.376	0.420	0.412	0.933	0.339	0.683	0.508	0.241	0.633
2	0.021	0.002	0.026	0.001	0.014	0.024	0.449	0.174	0.000	0.000	0.003	0.228	0.000	0.010	0.039	0.000	0.000	0.002	0.381	0.000	0.892	0.967	0.962	0.230
3	0.083	0.157	0.001	0.006	0.232	0.361	0.000	0.012	0.000	0.001	0.264	0.268	0.033	0.008	0.005	0.673	0.066	0.140	0.048	0.839	0.337	0.143	0.616	0.245
4	0.136	0.011	0.001	0.000	0.101	0.015	0.002	0.373	0.009	0.001	0.135	0.001	0.011	0.010	0.004	0.844	0.099	0.145	0.003	0.348	0.911	0.307	0.813	0.372
5	0.060	0.048	0.012	0.000	0.057	0.061	0.000	0.042	0.017	0.064	0.690	0.139	0.355	0.403	0.038	0.553	0.480	0.393	0.730	0.298	0.696	0.591	0.436	0.544
6	0.000	0.000	0.012	0.001	0.009	0.026	0.042	0.000	0.000	0.002	0.035	0.002	0.078	0.089	0.380	0.268	0.005	0.037	0.617	0.009	0.674	0.680	0.703	0.774
7	0.001	0.002	0.000	0.003	0.001	0.035	0.330	0.274	0.000	0.000	0.076	0.004	0.000	0.000	0.000	0.000	0.000	0.002	0.020	0.000	0.503	0.724	0.462	0.006
8	0.125	0.014	0.002	0.000	0.123	0.092	0.006	0.027	0.009	0.000	0.490	0.011	0.042	0.034	0.012	0.767	0.145	0.041	0.045	0.154	0.967	0.742	0.521	0.914
9	0.195	0.138	0.003	0.025	0.122	0.186	0.035	0.122	0.000	0.001	0.268	0.002	0.296	0.088	0.031	0.393	0.087	0.082	0.050	0.868	0.422	0.232	0.671	0.888

Table 18: Q test p-values of the BC VAR estimates based on the first moments (in-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.002	0.000	0.000	0.011	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.006	0.010
2	0.002	0.002	0.073	0.206	0.002	0.002	0.041	0.526	0.000	0.002	0.005	0.362	0.001	0.004	0.013	0.012	0.000	0.000	0.017	0.001	0.001	0.002	0.021	0.457
3	0.000	0.000	0.038	0.005	0.000	0.000	0.025	0.044	0.001	0.016	0.006	0.014	0.000	0.001	0.022	0.004	0.000	0.000	0.009	0.004	0.000	0.001	0.002	0.017
4	0.004	0.004	0.121	0.033	0.002	0.002	0.016	0.601	0.005	0.133	0.007	0.126	0.011	0.025	0.007	0.247	0.012	0.000	0.000	0.005	0.021	0.051	0.796	0.602
5	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.018	0.002	0.000	0.000	0.009	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.005	0.020
6	0.000	0.000	0.000	0.002	0.000	0.000	0.001	0.008	0.000	0.000	0.000	0.005	0.000	0.000	0.005	0.007	0.000	0.000	0.007	0.001	0.005	0.016	0.009	0.034
7	0.000	0.000	0.031	0.003	0.000	0.000	0.001	0.001	0.008	0.015	0.016	0.290	0.003	0.003	0.069	0.002	0.000	0.001	0.003	0.004	0.000	0.000	0.063	0.023
8	0.027	0.027	0.026	0.198	0.006	0.006	0.011	0.611	0.003	0.052	0.023	0.160	0.014	0.015	0.037	0.249	0.011	0.000	0.007	0.254	0.016	0.030	0.065	0.581
9	0.000	0.000	0.002	0.010	0.000	0.000	0.003	0.018	0.000	0.007	0.017	0.459	0.000	0.001	0.050	0.061	0.000	0.000	0.094	0.012	0.000	0.001	0.173	0.412

Table 19: Q test p-values of the BC VAR estimates based on the second moments (in-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.052	0.033	0.006	0.000	0.047	0.030	0.055	0.009	0.017	0.053	0.984	0.229	0.350	0.356	0.017	0.376	0.420	0.412	0.933	0.339	0.683	0.508	0.241	0.633
2	0.017	0.003	0.039	0.001	0.016	0.010	0.147	0.393	0.001	0.001	0.131	0.014	0.026	0.008	0.008	0.104	0.178	0.181	0.554	0.187	0.357	0.711	0.879	0.720
3	0.083	0.157	0.001	0.006	0.232	0.361	0.000	0.012	0.000	0.001	0.264	0.268	0.033	0.008	0.005	0.673	0.066	0.140	0.048	0.839	0.337	0.143	0.616	0.245
4	0.018	0.008	0.000	0.000	0.122	0.063	0.000	0.146	0.008	0.004	0.034	0.306	0.007	0.002	0.001	0.267	0.019	0.068	0.002	0.408	0.712	0.802	0.560	0.569
5	0.107	0.033	0.017	0.001	0.051	0.063	0.002	0.013	0.016	0.050	0.529	0.065	0.339	0.326	0.168	0.479	0.482	0.428	0.264	0.401	0.680	0.508	0.429	0.751
6	0.000	0.004	0.057	0.000	0.001	0.003	0.109	0.000	0.010	0.006	0.051	0.393	0.105	0.284	0.224	0.166	0.058	0.092	0.160	0.042	0.459	0.628	0.832	0.743
7	0.000	0.003	0.015	0.000	0.003	0.002	0.009	0.016	0.002	0.007	0.171	0.002	0.024	0.042	0.305	0.020	0.044	0.055	0.001	0.111	0.827	0.788	0.566	0.216
8	0.146	0.006	0.001	0.000	0.112	0.137	0.017	0.143	0.000	0.000	0.284	0.042	0.021	0.010	0.007	0.107	0.064	0.307	0.004	0.936	0.609	0.539	0.635	0.162
9	0.195	0.138	0.003	0.025	0.122	0.186	0.035	0.122	0.000	0.001	0.268	0.002	0.296	0.088	0.031	0.393	0.087	0.082	0.050	0.868	0.422	0.232	0.671	0.888

4.10 K_P^{CS} test statistics

Table 20: K_P^{CS} test statistics of the OLS VAR estimates (out-of-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.686	0.840	0.561	0.467	1.200	1.201	1.513	1.624	1.894	3.043	0.541	1.641	0.824	0.894	0.380	0.993	0.829	1.154	0.290	0.449	0.865	1.464	0.954	0.683
2	1.282	1.415	2.165	1.712	1.352	1.300	2.450	1.512	0.755	0.599	3.924	0.381	2.099	1.194	4.129	1.597	0.370	0.736	3.151	0.862	0.276	0.340	4.934	1.580
3	1.394	1.394	4.562	0.974	0.578	1.300	8.580	1.250	0.747	0.833	4.677	0.784	2.221	1.471	2.717	0.452	0.355	0.359	3.494	0.342	0.480	0.178	2.346	1.215
4	0.840	1.009	6.390	3.504	0.512	0.760	7.080	1.625	0.260	0.460	5.931	0.993	3.027	1.877	3.708	1.586	0.461	0.241	6.389	2.050	1.247	0.443	3.648	2.917
5	0.548	1.194	0.304	0.914	1.200	1.404	0.612	1.458	2.153	3.043	0.858	1.208	0.824	0.894	0.517	0.894	0.829	1.154	0.583	0.449	0.865	1.378	0.334	0.735
6	1.415	2.350	1.072	2.062	1.404	1.800	0.882	0.648	1.104	1.208	1.676	0.858	0.728	1.694	0.435	0.682	0.906	1.094	1.205	1.094	1.366	1.619	0.735	1.366
7	1.610	1.841	0.931	1.282	1.352	1.860	0.924	1.104	1.198	1.188	1.007	1.869	1.505	0.711	0.742	1.471	0.829	1.226	0.696	1.046	0.404	0.471	0.553	0.130
8	0.816	0.437	7.795	1.700	0.545	0.480	8.064	2.738	0.260	0.361	4.677	1.657	3.358	2.099	3.412	2.085	0.469	0.342	6.084	1.620	1.090	1.026	2.557	2.144
9	0.738	1.262	5.952	1.363	0.612	1.152	9.112	1.985	0.613	0.675	5.079	2.035	2.333	1.372	3.762	0.937	0.342	0.583	5.923	0.864	0.634	0.450	3.133	1.865

Table 21: K_P^{CS} test statistics of the BC VAR estimates (out-of-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.686	0.840	0.561	0.467	1.200	1.201	1.513	1.624	1.894	3.043	0.541	1.641	0.824	0.894	0.380	0.993	0.829	1.154	0.290	0.449	0.865	1.464	0.954	0.683
2	1.282	0.992	3.998	0.754	1.352	1.860	4.512	2.178	0.755	1.016	4.292	0.312	2.099	0.850	1.440	1.086	0.370	0.845	2.826	0.696	0.276	1.366	3.530	2.039
3	1.394	1.394	4.562	0.974	0.578	1.300	8.580	1.250	0.747	0.833	4.677	0.784	2.221	1.471	2.717	0.452	0.355	0.359	3.494	0.342	0.480	0.178	2.346	1.215
4	0.840	0.931	6.390	3.841	0.512	0.968	5.724	1.105	0.260	0.585	5.497	1.377	3.027	1.632	3.361	1.194	0.461	0.201	4.233	0.933	1.247	0.493	3.263	4.055
5	0.548	1.194	0.178	0.914	1.200	1.404	0.924	1.682	2.153	2.735	0.841	1.218	0.824	0.894	0.544	0.728	0.829	1.154	0.673	0.449	0.865	1.452	0.225	0.735
6	1.415	1.610	0.974	1.302	1.404	2.380	1.013	1.301	1.104	1.416	1.919	1.427	0.728	1.731	0.399	0.393	0.906	1.523	1.046	0.961	1.366	1.145	0.924	1.134
7	1.610	1.511	0.701	0.561	1.352	1.922	1.513	2.664	1.198	1.652	0.683	0.841	1.505	0.894	0.452	0.585	0.829	1.365	0.777	1.094	0.404	1.294	0.836	0.771
8	0.816	0.561	7.575	2.309	0.545	1.013	9.113	3.362	0.260	0.242	6.360	1.431	3.358	1.405	4.854	1.865	0.469	0.355	5.474	1.389	1.090	0.649	2.899	2.899
9	0.738	1.262	5.952	1.363	0.612	1.152	9.112	1.985	0.613	0.675	5.079	2.035	2.333	1.372	3.762	0.937	0.342	0.583	5.923	0.864	0.634	0.450	3.133	1.865

Table 22: K_P^{CS} test statistics of the OLS VAR estimates (in-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.686	0.840	0.561	0.467	1.200	1.201	1.513	1.624	1.894	3.043	0.541	1.641	0.824	0.894	0.380	0.993	0.829	1.154	0.290	0.449	0.865	1.464	0.954	0.683
2	0.931	1.109	3.841	0.473	1.405	0.925	1.458	0.761	1.114	1.124	2.316	0.631	2.333	1.438	2.464	1.256	0.265	0.681	8.988	0.924	0.377	0.995	3.788	1.247
3	1.394	1.394	4.562	0.974	0.578	1.300	8.580	1.250	0.747	0.833	4.677	0.784	2.221	1.471	2.717	0.452	0.355	0.359	3.494	0.342	0.480	0.178	2.346	1.215
4	0.816	0.931	6.843	1.576	0.288	0.761	6.160	1.682	1.356	0.498	5.079	2.048	2.669	1.704	3.361	1.460	1.124	0.527	5.923	0.924	3.024	1.101	4.484	4.484
5	0.539	1.027	0.214	0.754	1.200	1.104	0.722	2.178	2.153	2.442	0.415	1.438	0.665	1.078	0.416	0.705	0.829	1.154	0.475	0.527	0.865	1.632	0.471	1.069
6	1.712	1.587	0.622	0.548	1.568	1.352	0.481	0.544	1.752	1.208	0.332	0.875	0.543	1.078	0.370	0.615	0.494	0.906	0.650	0.541	1.005	1.619	0.885	0.856
7	1.511	1.194	0.309	0.758	1.405	1.105	0.242	0.924	1.114	1.114	0.502	0.404	1.740	1.471	0.742	0.875	0.785	1.594	1.789	0.862	0.178	0.683	0.443	0.316
8	0.529	0.992	6.390	2.309	0.450	0.392	7.080	2.450	1.367	0.356	5.931	3.538	2.979	2.099	4.073	2.276	1.185	0.924	6.389	1.779	3.024	1.415	2.557	3.648
9	0.738	1.262	5.952	1.363	0.612	1.152	9.112	1.985	0.613	0.675	5.079	2.035	2.333	1.372	3.762	0.937	0.342	0.583	5.923	0.864	0.634	0.450	3.133	1.865

Table 23: K_P^{CS} test statistics of the BC VAR estimates (in-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.686	0.840	0.561	0.467	1.200	1.201	1.513	1.624	1.894	3.043	0.541	1.641	0.824	0.894	0.380	0.993	0.829	1.154	0.290	0.449	0.865	1.464	0.954	0.683
2	0.609	0.840	3.182	1.165	1.405	1.301	1.568	0.613	0.599	1.208	4.274	0.784	1.471	0.752	3.412	1.632	0.295	1.154	1.802	0.598	0.493	1.145	3.024	1.672
3	1.394	1.394	4.562	0.974	0.578	1.300	8.580	1.250	0.747	0.833	4.677	0.784	2.221	1.471	2.717	0.452	0.355	0.359	3.494	0.342	0.480	0.178	2.346	1.215
4	0.548	1.009	6.637	1.576	0.265	0.761	6.612	1.861	1.153	0.620	4.677	2.061	2.461	1.308	3.361	1.551	0.598	0.785	5.474	1.547	1.659	0.762	5.898	4.484
5	0.379	1.027	0.227	0.609	1.200	1.404	0.722	1.682	2.153	3.043	0.683	2.166	0.824	0.894	0.544	0.517	0.829	1.154	0.897	0.527	0.865	1.452	0.377	1.366
6	1.489	1.712	0.754	1.817	0.968	1.152	0.265	0.578	0.833	1.652	0.683	0.841	0.868	1.278	1.694	1.049	0.853	1.606	0.810	0.785	0.633	1.366	0.985	0.865
7	1.380	1.719	0.816	0.368	1.625	1.152	1.105	0.480	0.668	1.208	0.792	0.472	1.438	0.894	1.029	1.256	0.681	1.443	0.696	0.681	0.211	1.005	0.578	0.450
8	0.609	0.672	6.390	2.050	0.450	0.968	7.080	2.965	0.966	0.260	5.909	3.538	3.257	2.099	5.269	2.006	0.650	0.400	5.923	1.321	1.753	0.762	3.648	4.055
9	0.738	1.262	5.952	1.363	0.612	1.152	9.112	1.985	0.613	0.675	5.079	2.035	2.333	1.372	3.762	0.937	0.342	0.583	5.923	0.864	0.634	0.450	3.133	1.865

4.10 C_P^{CS} test statistics

Table 24: C_P^{CS} test statistics of the OLS VAR estimates (out-of-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.240	0.325	0.159	0.166	0.410	0.510	0.380	0.472	0.500	0.722	0.143	0.406	0.294	0.314	0.147	0.248	0.190	0.346	0.122	0.149	0.237	0.401	0.240	0.175
2	0.282	0.382	0.336	0.395	0.403	0.422	0.471	0.542	0.200	0.240	1.358	0.127	0.531	0.316	1.016	0.413	0.121	0.204	1.073	0.246	0.075	0.101	1.687	0.340
3	0.366	0.396	1.873	0.369	0.187	0.407	1.944	0.431	0.190	0.218	1.220	0.170	0.665	0.430	0.694	0.161	0.098	0.125	0.801	0.130	0.120	0.039	1.011	0.417
4	0.370	0.300	1.992	0.672	0.166	0.252	2.036	0.357	0.102	0.104	1.634	0.347	1.025	0.456	0.957	0.646	0.125	0.065	1.465	0.482	0.374	0.115	1.199	1.299
5	0.205	0.358	0.088	0.201	0.386	0.492	0.247	0.445	0.520	0.748	0.180	0.365	0.283	0.308	0.161	0.246	0.189	0.296	0.143	0.153	0.223	0.385	0.140	0.221
6	0.380	0.578	0.472	0.461	0.479	0.518	0.225	0.260	0.444	0.497	0.300	0.223	0.198	0.345	0.098	0.175	0.179	0.325	0.502	0.527	0.339	0.409	0.316	0.447
7	0.370	0.483	0.236	0.440	0.502	0.493	0.319	0.295	0.319	0.462	0.264	0.394	0.291	0.234	0.120	0.313	0.221	0.354	0.159	0.336	0.067	0.140	0.157	0.038
8	0.244	0.141	2.183	0.501	0.193	0.137	2.376	0.629	0.093	0.078	1.721	0.591	1.214	0.500	1.160	0.707	0.187	0.105	1.514	0.549	0.354	0.199	0.634	0.929
9	0.210	0.407	1.674	0.303	0.218	0.347	2.514	0.469	0.122	0.153	1.393	0.619	0.658	0.313	1.485	0.346	0.074	0.149	1.568	0.375	0.178	0.129	1.097	0.884

Table 25: C_P^{CS} test statistics of the BC VAR estimates (out-of-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.240	0.325	0.159	0.166	0.410	0.510	0.380	0.472	0.500	0.722	0.143	0.406	0.294	0.314	0.147	0.248	0.190	0.346	0.122	0.149	0.237	0.401	0.240	0.175
2	0.282	0.347	0.759	0.177	0.403	0.555	0.995	0.724	0.200	0.354	1.355	0.072	0.531	0.211	0.418	0.312	0.121	0.269	0.864	0.124	0.075	0.400	1.178	0.769
3	0.366	0.396	1.873	0.369	0.187	0.407	1.944	0.431	0.190	0.218	1.220	0.170	0.665	0.430	0.694	0.161	0.098	0.125	0.801	0.130	0.120	0.039	1.011	0.417
4	0.370	0.233	1.967	0.914	0.166	0.291	1.730	0.369	0.102	0.100	1.479	0.540	1.025	0.389	1.014	0.495	0.125	0.091	1.214	0.366	0.374	0.145	0.958	1.613
5	0.205	0.359	0.063	0.196	0.386	0.498	0.236	0.427	0.520	0.726	0.170	0.371	0.283	0.302	0.161	0.239	0.189	0.300	0.153	0.140	0.223	0.379	0.104	0.216
6	0.380	0.485	0.323	0.335	0.479	0.584	0.189	0.343	0.444	0.513	0.378	0.364	0.198	0.430	0.119	0.124	0.179	0.396	0.231	0.240	0.339	0.347	0.393	0.328
7	0.370	0.431	0.184	0.209	0.502	0.560	0.505	0.802	0.319	0.592	0.134	0.251	0.291	0.317	0.136	0.128	0.221	0.360	0.241	0.274	0.067	0.357	0.311	0.228
8	0.244	0.177	2.318	0.642	0.193	0.276	2.251	0.756	0.093	0.056	2.055	0.687	1.214	0.385	1.805	0.818	0.187	0.118	1.669	0.498	0.354	0.178	0.710	0.609
9	0.210	0.407	1.674	0.303	0.218	0.347	2.514	0.469	0.122	0.153	1.393	0.619	0.658	0.313	1.485	0.346	0.074	0.149	1.568	0.375	0.178	0.129	1.097	0.884

Table 26: C_P^{CS} test statistics of the OLS VAR estimates (in-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.240	0.325	0.159	0.166	0.410	0.510	0.380	0.472	0.500	0.722	0.143	0.406	0.294	0.314	0.147	0.248	0.190	0.346	0.122	0.149	0.237	0.401	0.240	0.175
2	0.270	0.256	1.158	0.161	0.346	0.308	0.425	0.259	0.352	0.303	0.649	0.096	0.766	0.418	0.722	0.469	0.101	0.174	2.210	0.193	0.104	0.227	1.013	0.538
3	0.366	0.396	1.873	0.369	0.187	0.407	1.944	0.431	0.190	0.218	1.220	0.170	0.665	0.430	0.694	0.161	0.098	0.125	0.801	0.130	0.120	0.039	1.011	0.417
4	0.232	0.299	2.416	0.298	0.096	0.183	1.998	0.412	0.501	0.150	1.962	0.850	0.953	0.587	0.859	0.663	0.328	0.157	1.471	0.340	0.790	0.287	1.039	1.326
5	0.210	0.348	0.079	0.131	0.393	0.439	0.200	0.525	0.496	0.698	0.147	0.352	0.277	0.324	0.148	0.255	0.194	0.313	0.117	0.150	0.229	0.384	0.138	0.307
6	0.508	0.522	0.210	0.184	0.509	0.431	0.073	0.188	0.398	0.430	0.102	0.270	0.180	0.354	0.138	0.200	0.119	0.243	0.225	0.168	0.345	0.408	0.330	0.345
7	0.580	0.438	0.104	0.210	0.435	0.275	0.050	0.258	0.292	0.292	0.112	0.092	0.455	0.285	0.189	0.164	0.269	0.394	0.292	0.215	0.047	0.185	0.164	0.069
8	0.190	0.256	2.260	0.518	0.099	0.120	1.815	0.622	0.396	0.099	1.894	1.051	1.023	0.522	1.116	0.529	0.355	0.281	1.377	0.447	0.825	0.399	0.669	1.097
9	0.210	0.407	1.674	0.303	0.218	0.347	2.514	0.469	0.122	0.153	1.393	0.619	0.658	0.313	1.485	0.346	0.074	0.149	1.568	0.375	0.178	0.129	1.097	0.884

Table 27: C_P^{CS} test statistics of the BC VAR estimates (in-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.240	0.325	0.159	0.166	0.410	0.510	0.380	0.472	0.500	0.722	0.143	0.406	0.294	0.314	0.147	0.248	0.190	0.346	0.122	0.149	0.237	0.401	0.240	0.175
2	0.194	0.315	0.882	0.305	0.265	0.293	0.575	0.235	0.184	0.371	1.039	0.165	0.469	0.203	0.681	0.351	0.057	0.236	0.563	0.155	0.108	0.239	1.058	0.412
3	0.366	0.396	1.873	0.369	0.187	0.407	1.944	0.431	0.190	0.218	1.220	0.170	0.665	0.430	0.694	0.161	0.098	0.125	0.801	0.130	0.120	0.039	1.011	0.417
4	0.221	0.263	2.358	0.355	0.072	0.204	1.982	0.493	0.381	0.139	1.573	0.597	0.908	0.483	0.992	0.532	0.140	0.200	1.219	0.269	0.523	0.189	1.800	1.313
5	0.181	0.321	0.088	0.195	0.389	0.483	0.229	0.454	0.494	0.755	0.151	0.466	0.281	0.308	0.122	0.199	0.190	0.312	0.225	0.153	0.228	0.405	0.110	0.323
6	0.510	0.555	0.240	0.535	0.400	0.359	0.066	0.187	0.327	0.447	0.273	0.302	0.265	0.286	0.369	0.204	0.222	0.398	0.186	0.149	0.187	0.315	0.413	0.298
7	0.429	0.487	0.298	0.118	0.397	0.316	0.330	0.144	0.266	0.368	0.235	0.112	0.417	0.336	0.153	0.296	0.227	0.414	0.135	0.222	0.062	0.238	0.176	0.126
8	0.139	0.283	2.101	0.414	0.069	0.187	2.230	0.801	0.254	0.069	1.742	1.350	0.993	0.550	1.629	0.716	0.151	0.191	1.671	0.601	0.588	0.245	1.133	1.074
9	0.210	0.407	1.674	0.303	0.218	0.347	2.514	0.469	0.122	0.153	1.393	0.619	0.658	0.313	1.485	0.346	0.074	0.149	1.568	0.375	0.178	0.129	1.097	0.884

5. GDP Density Forecasts

5.1 RS test OLS forecasts with macroeconomic and financial state variables

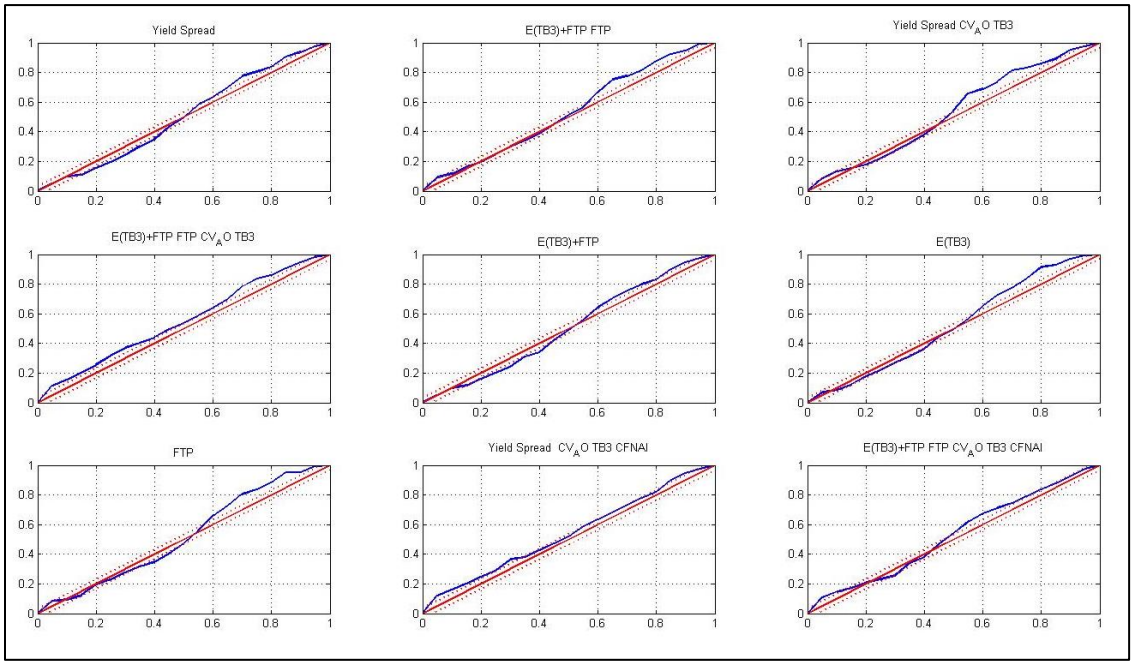

Figure 54: 4-quarter ahead conditional predictive density for GDP.

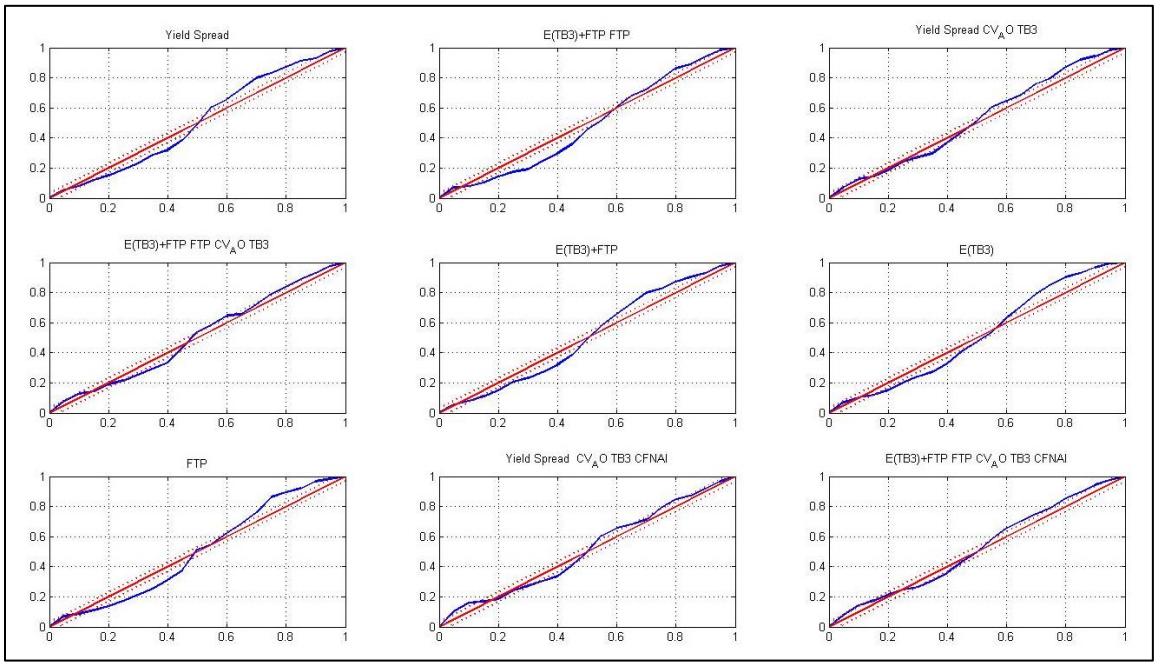

Figure 55: 8-quarter ahead conditional predictive density for GDP.

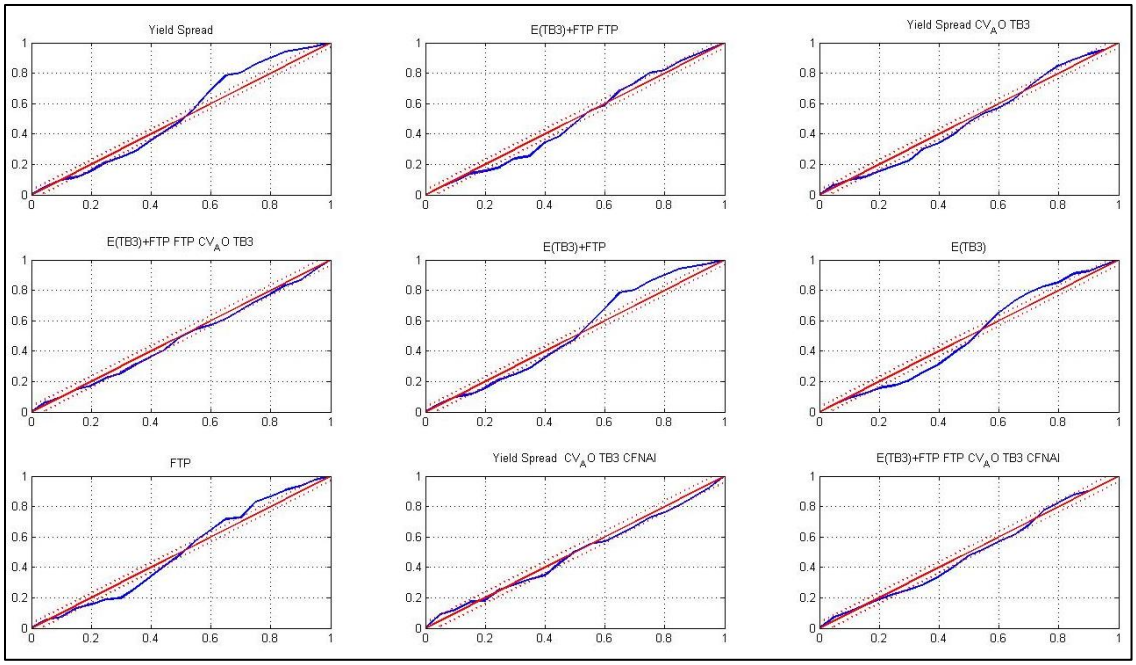

Figure 56: 12-quarter ahead conditional predictive density for GDP.

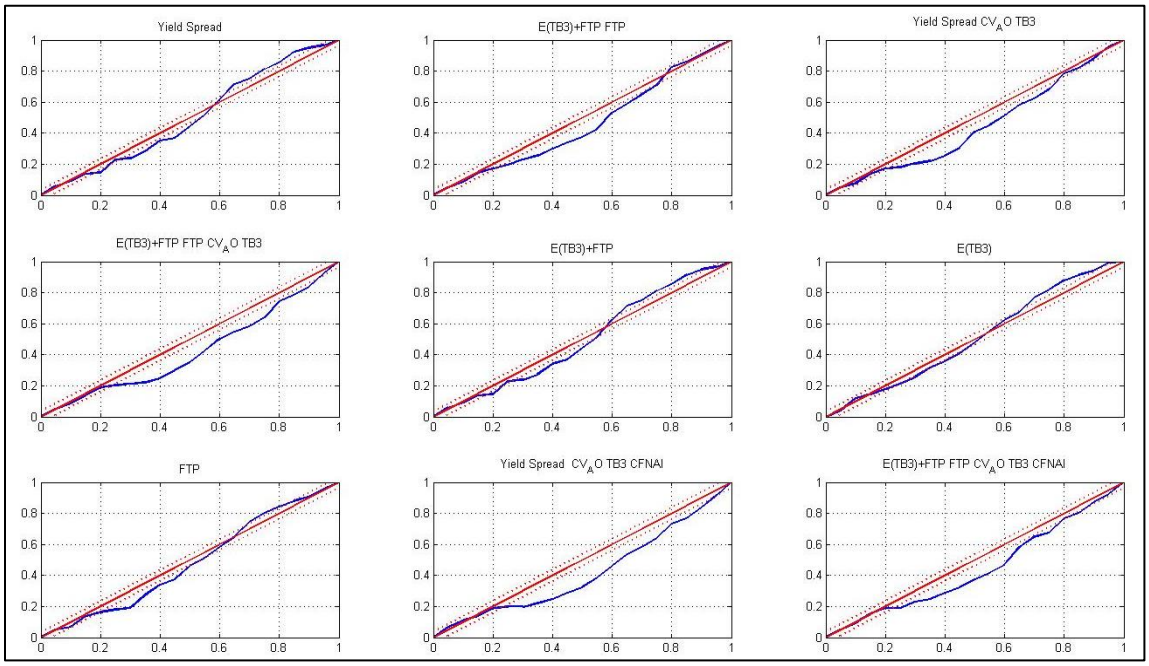

Figure 57: 16-quarter ahead conditional predictive density for GDP.

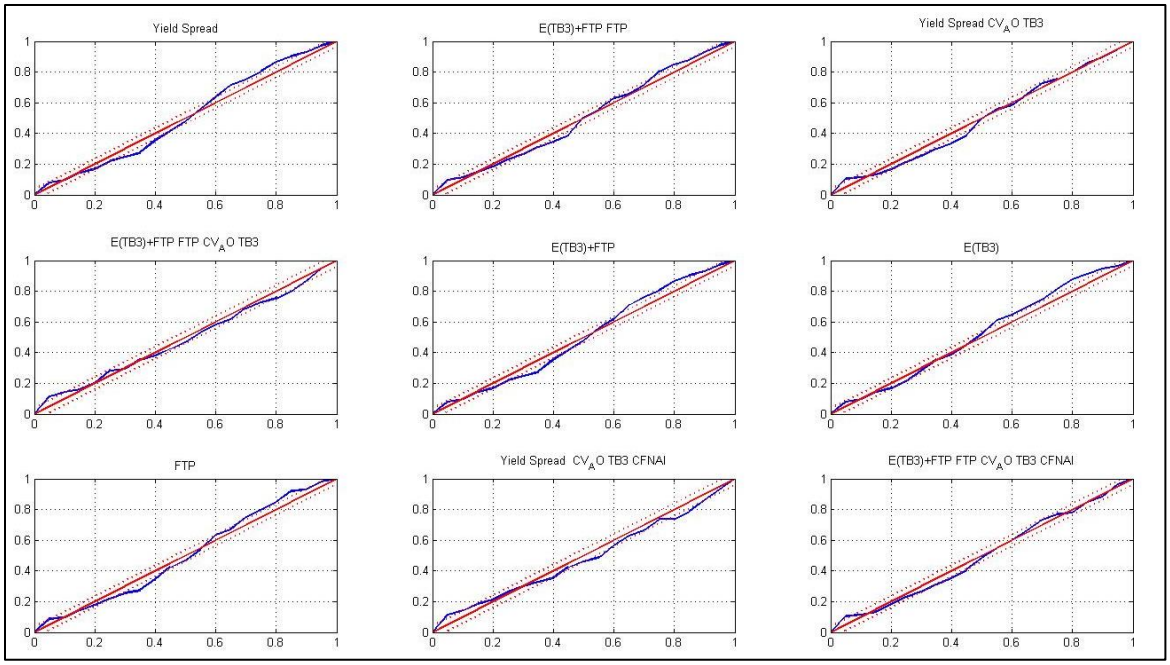

Figure 58: 20-quarter ahead conditional predictive density for GDP.

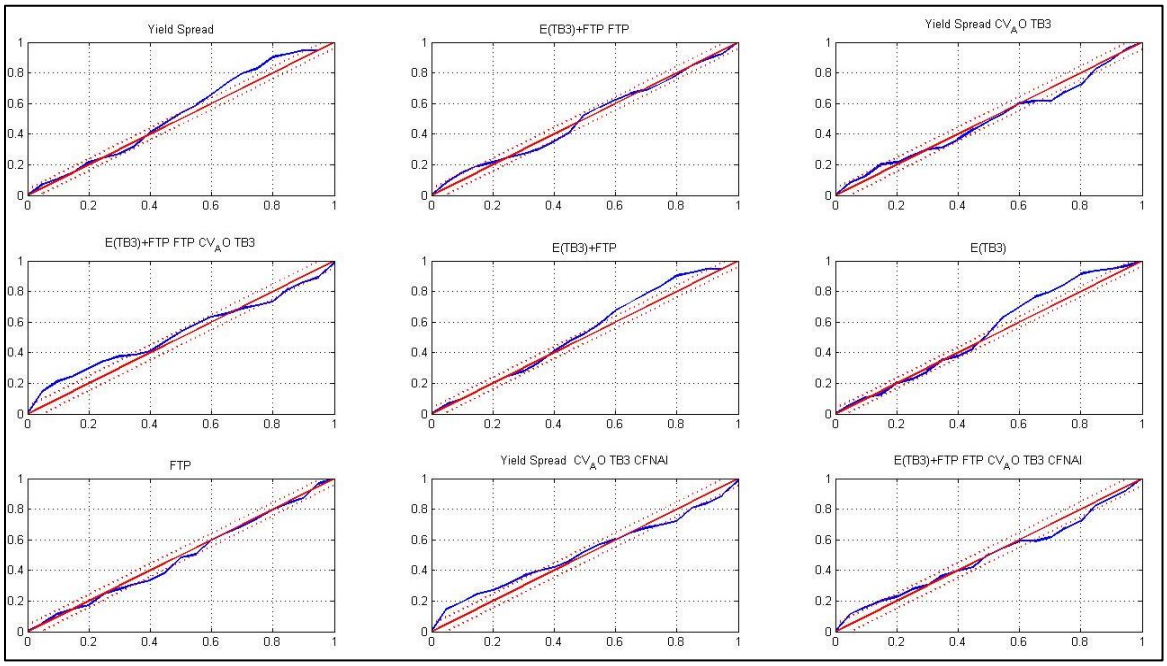

Figure 59: 40-quarter ahead conditional predictive density for GDP.

5.2 RS test OLS forecasts only with financial state variables

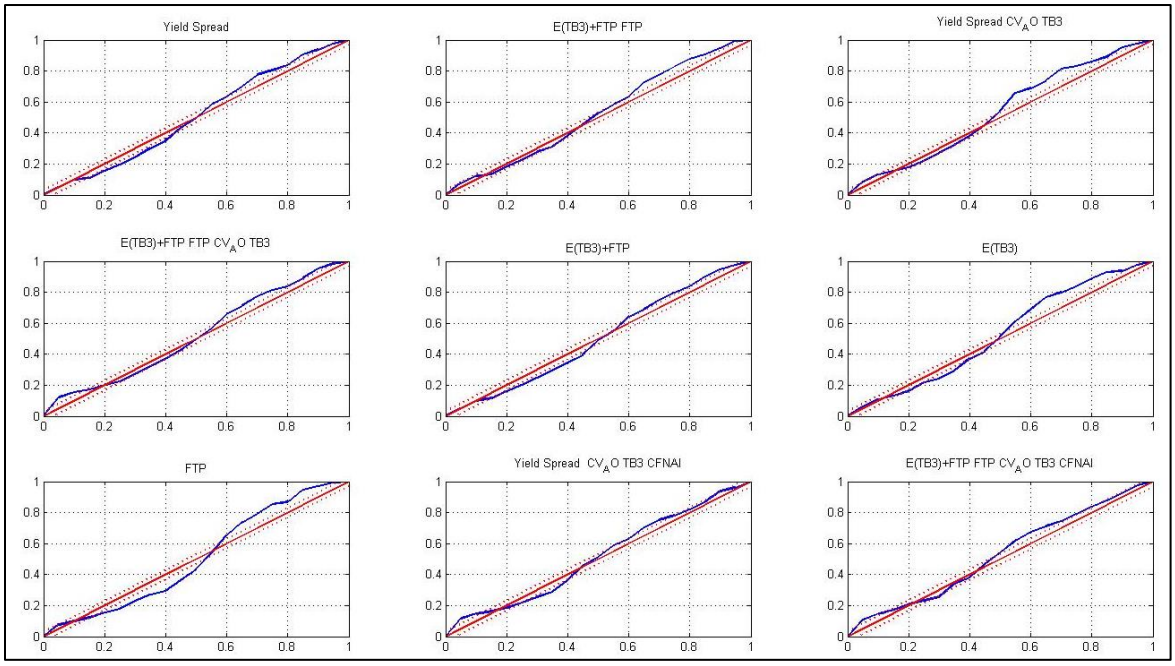

Figure 60: 4-quarter ahead conditional predictive density for GDP.

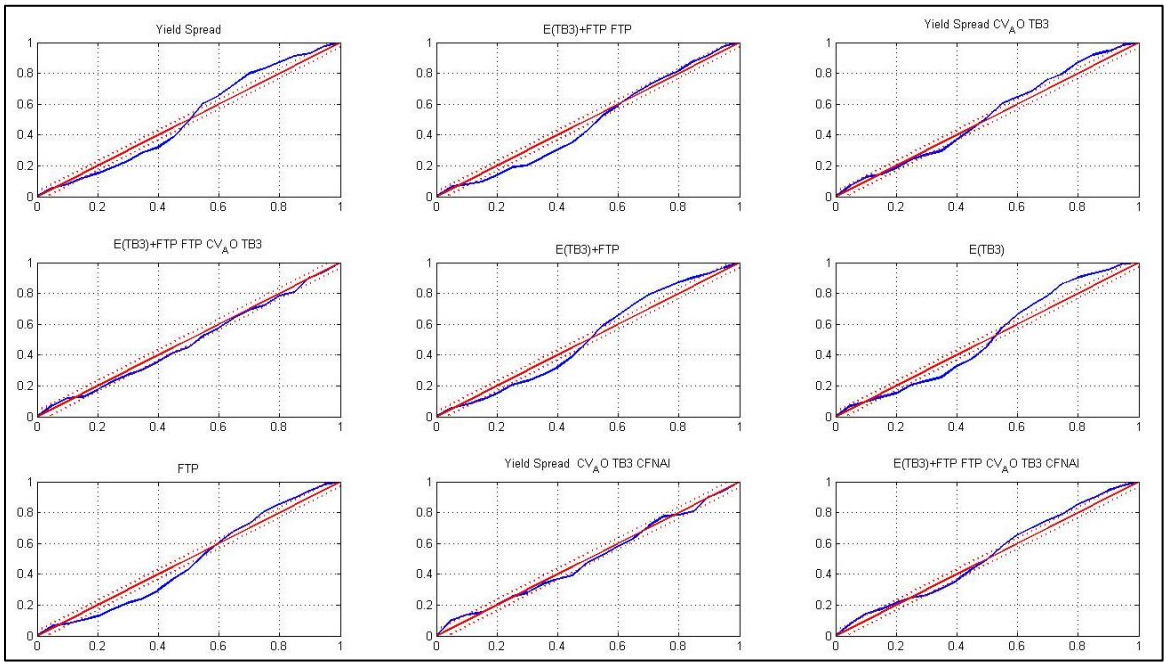

Figure 61: 8-quarter ahead conditional predictive density for GDP.

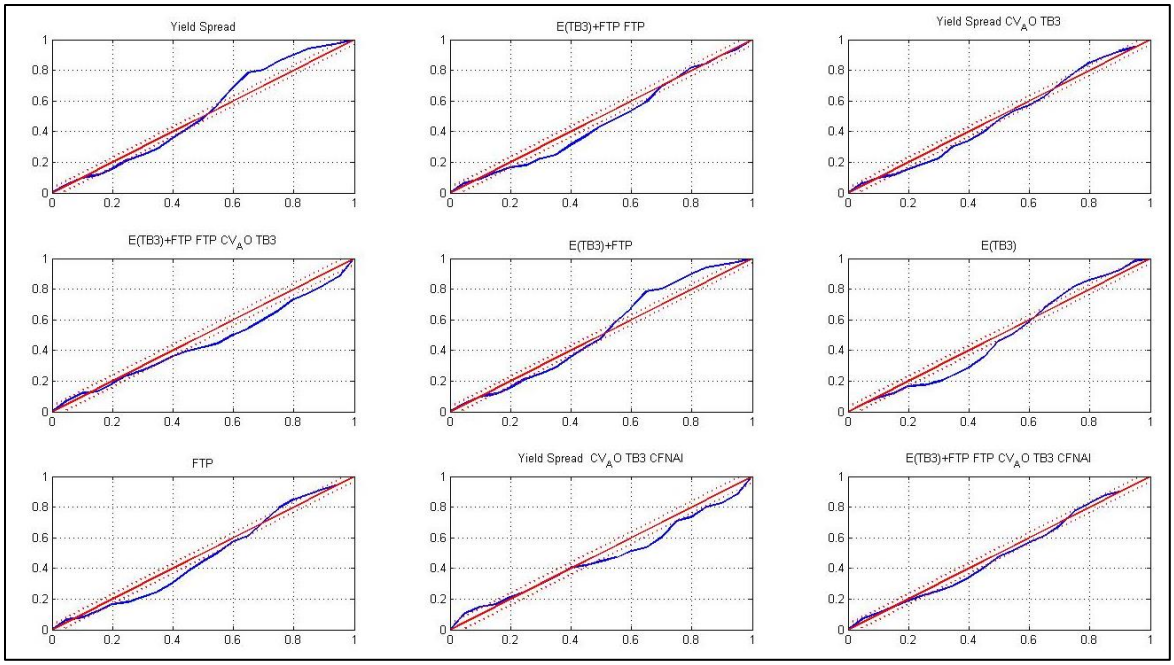

Figure 62: 12-quarter ahead conditional predictive density for GDP.

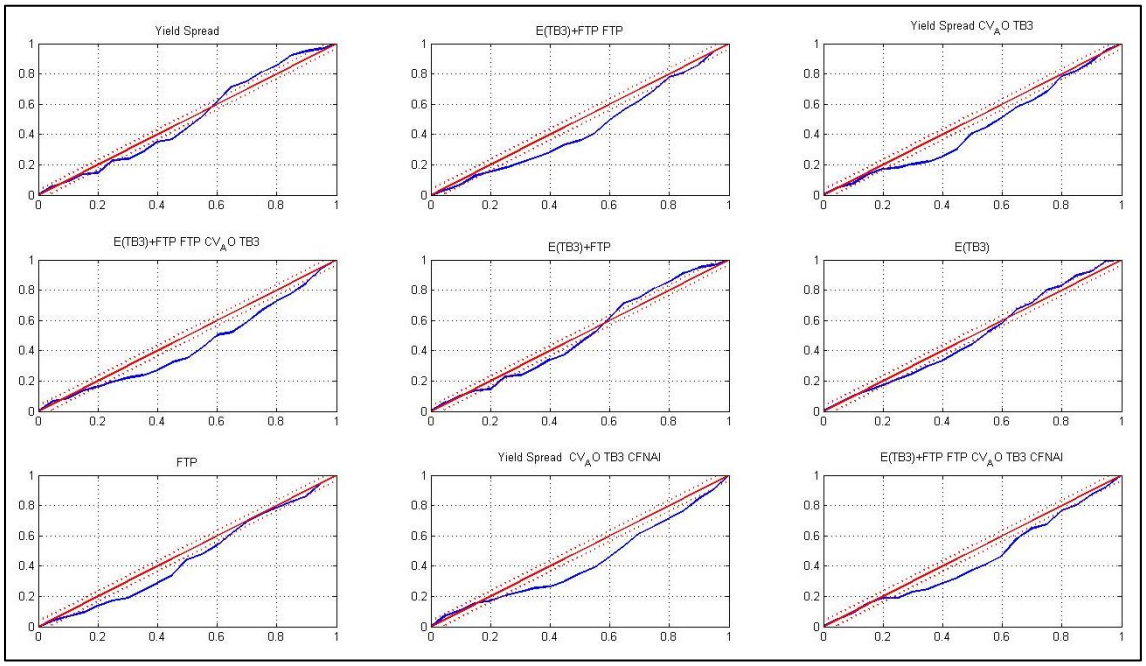

Figure 63: 16-quarter ahead conditional predictive density for GDP.

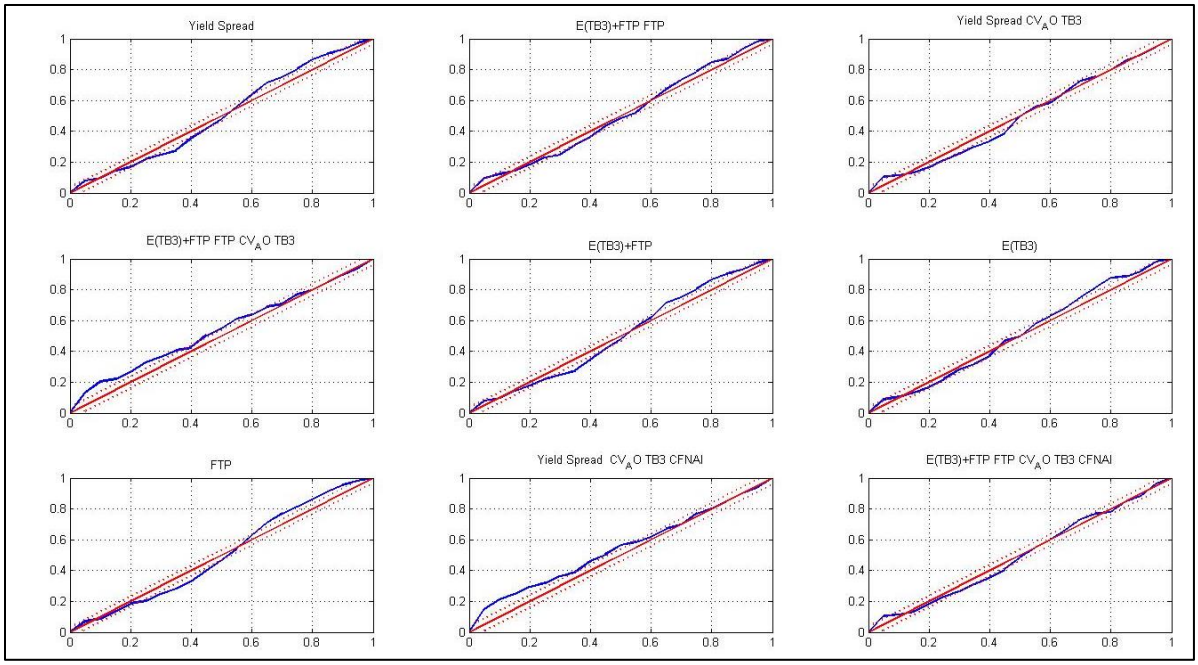

Figure 64: 20-quarter ahead conditional predictive density for GDP.

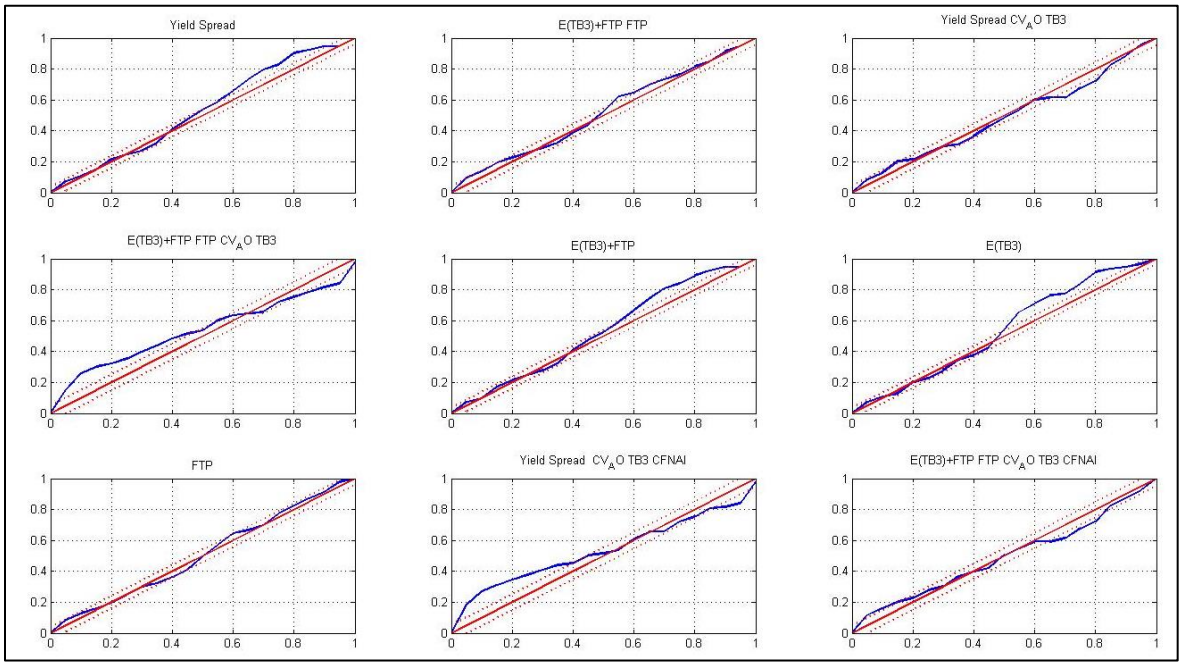

Figure 65: 40-quarter ahead conditional predictive density for GDP.

5.3 RS test SVR forecasts with macroeconomic and financial state variables and the linear kernel

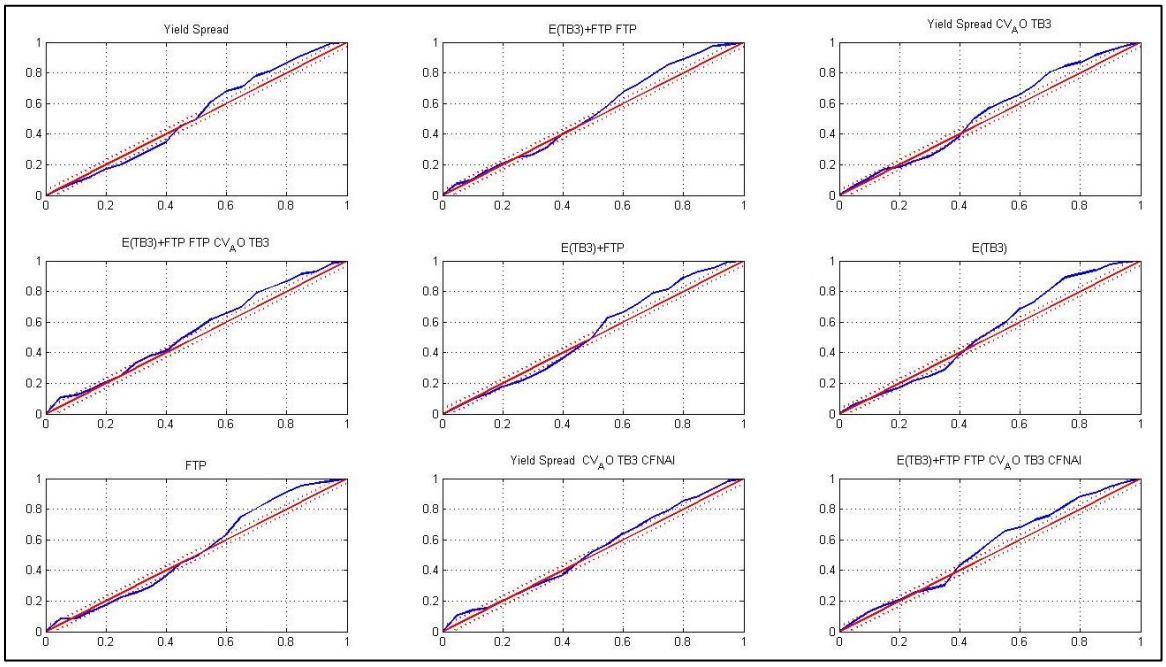

Figure 66: 4-quarter ahead conditional predictive density for GDP.

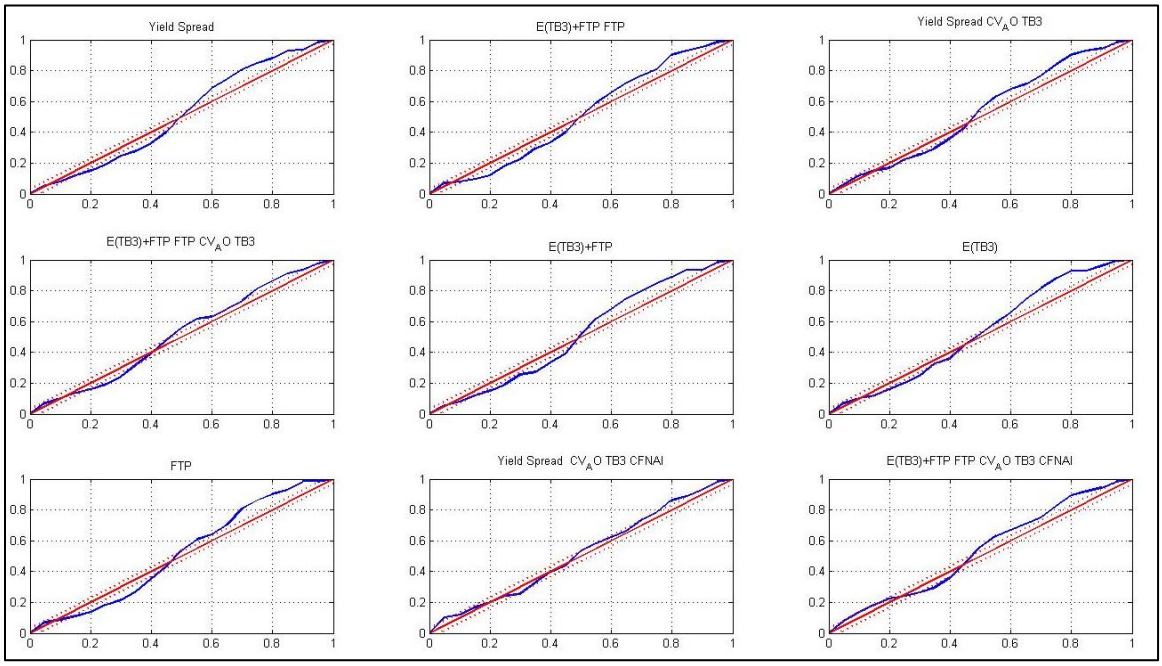

Figure 67: 8-quarter ahead conditional predictive density for GDP.

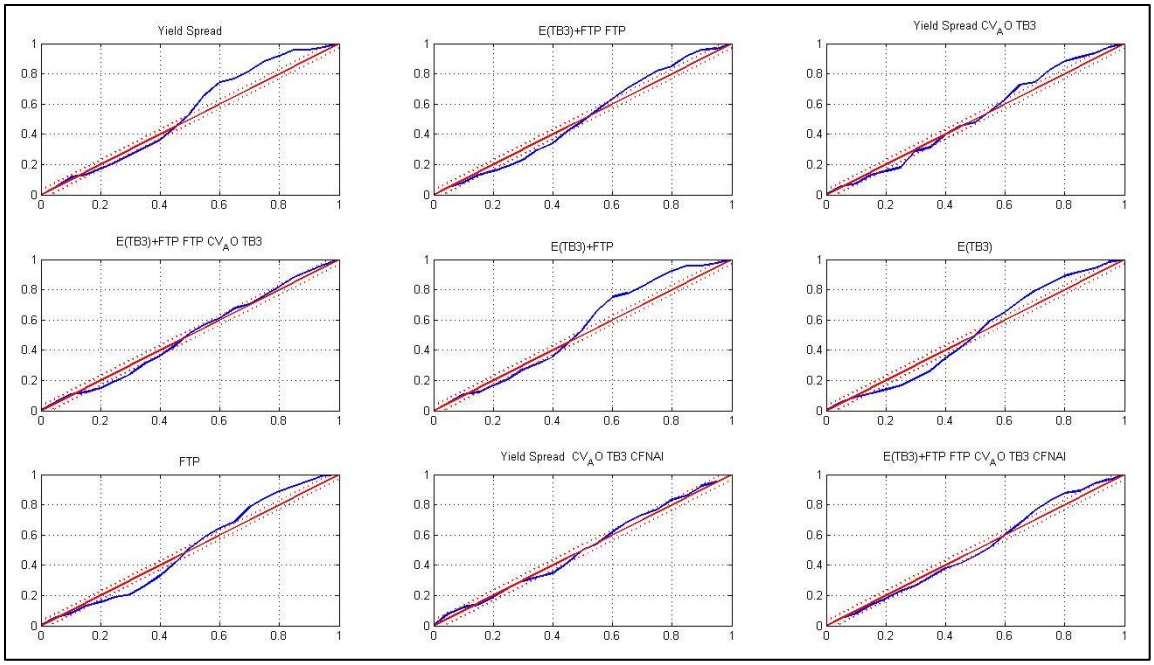

Figure 68: 12-quarter ahead conditional predictive density for GDP.

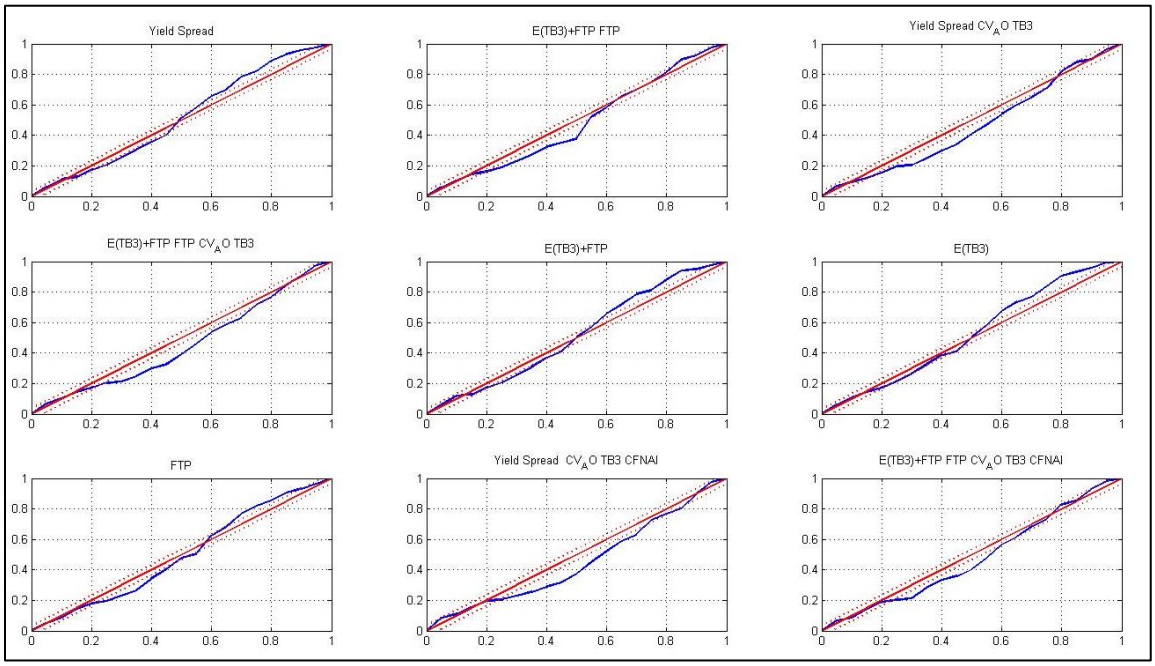

Figure 69: 16-quarter ahead conditional predictive density for GDP.

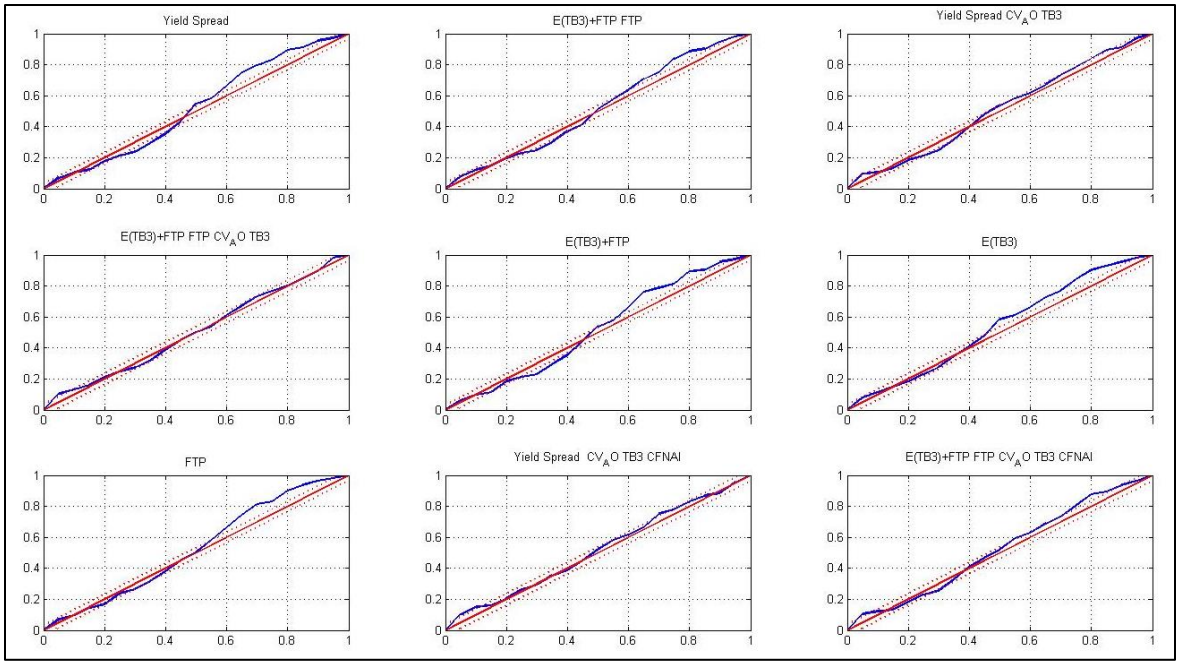

Figure 70: 20-quarter ahead conditional predictive density for GDP.

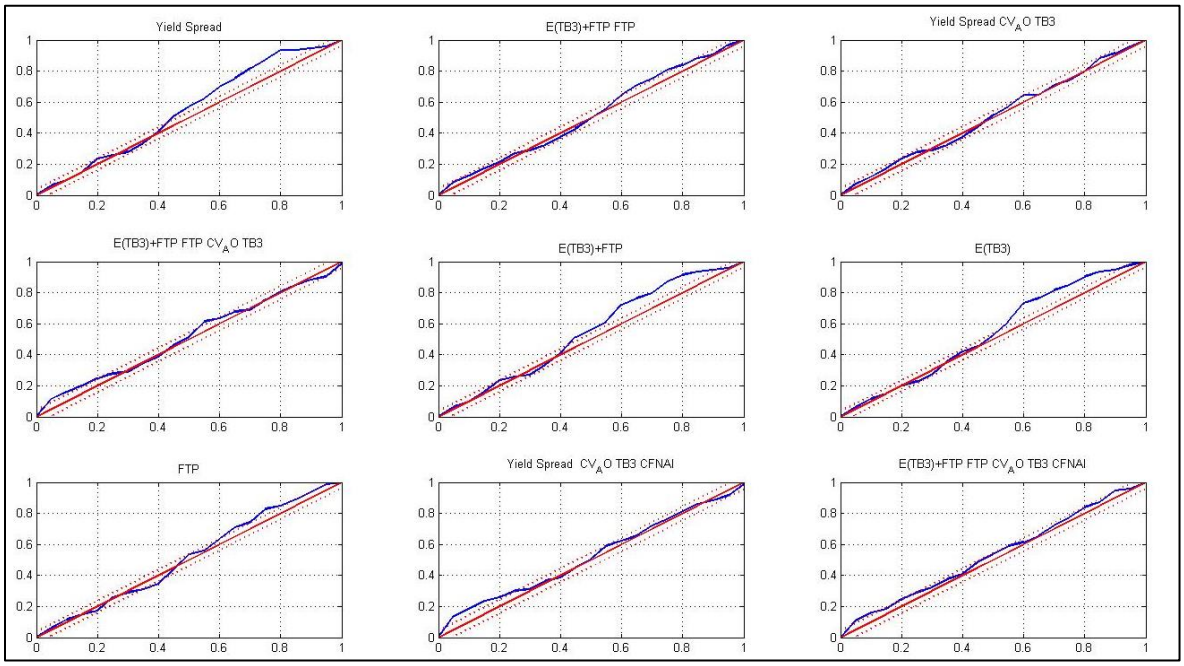

Figure 71: 40-quarter ahead conditional predictive density for GDP.

5.4 RS test SVR forecasts only with financial state variables and the linear kernel

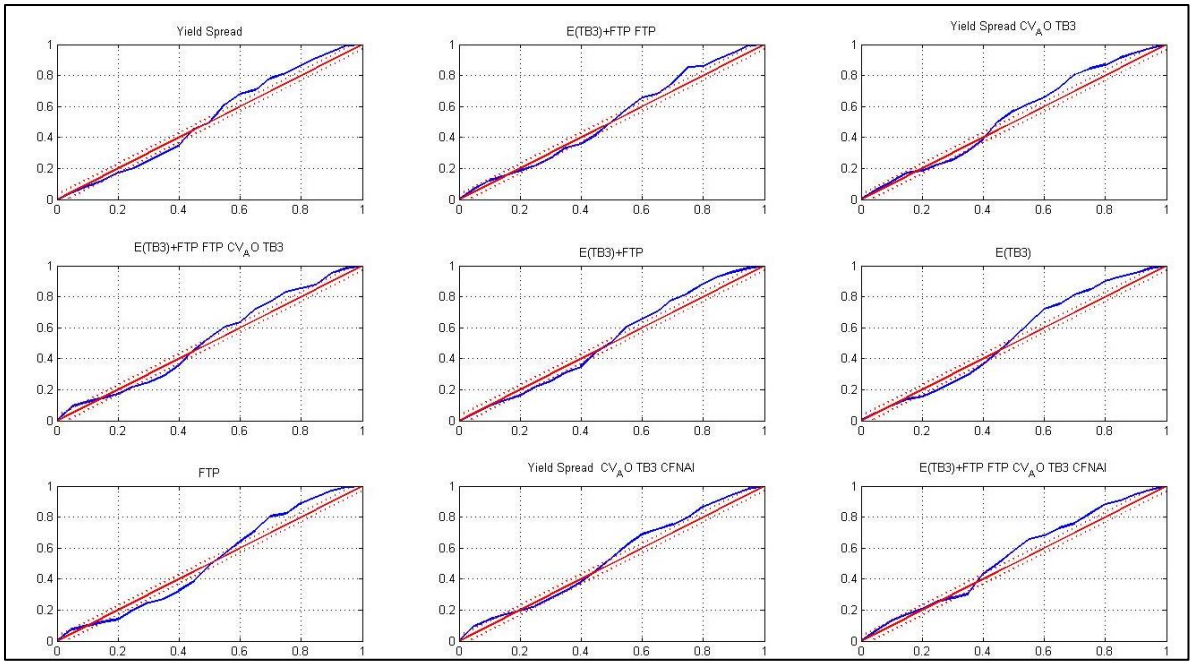

Figure 72: 4-quarter ahead conditional predictive density for GDP.

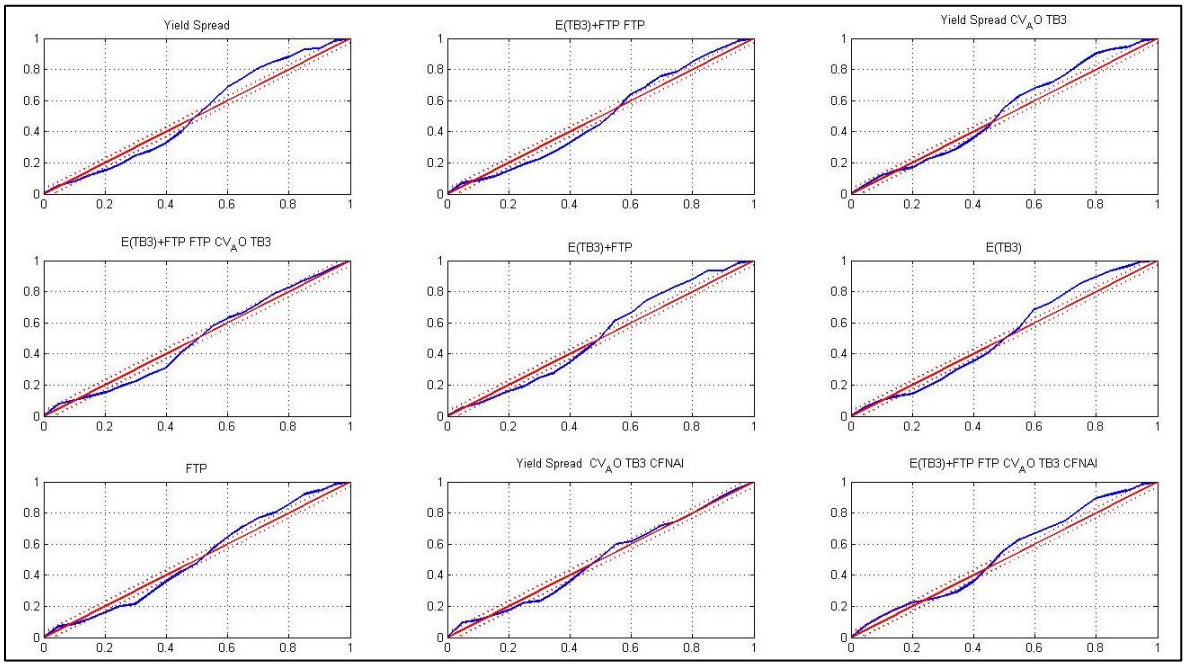

Figure 73: 8-quarter ahead conditional predictive density for GDP.

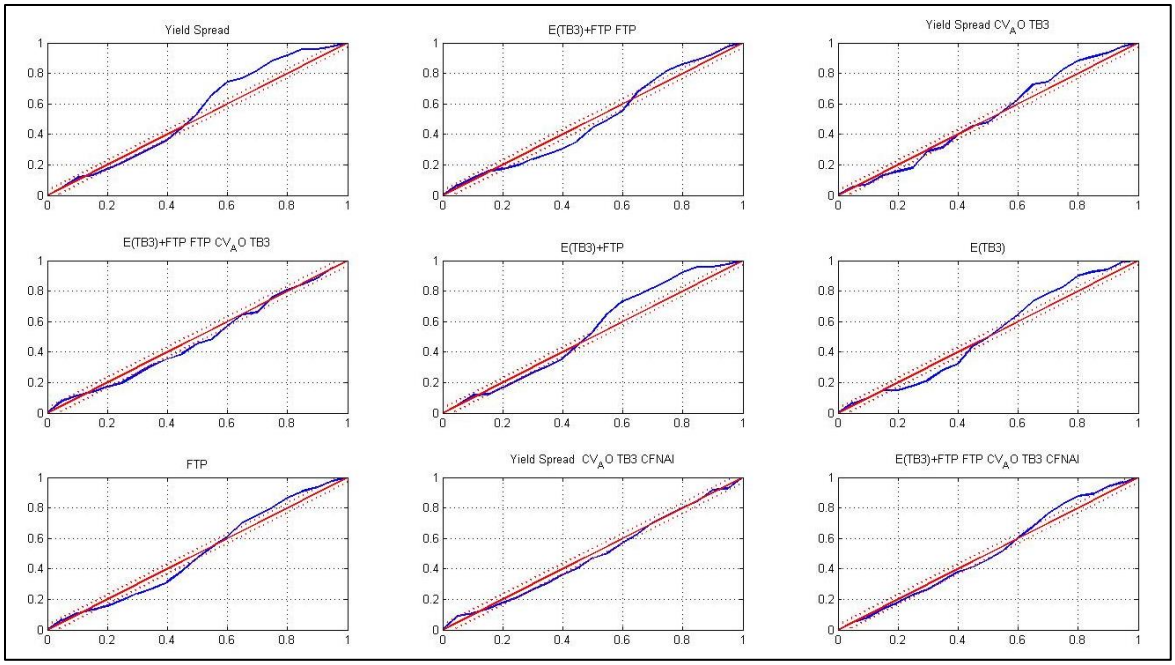

Figure 74: 12-quarter ahead conditional predictive density for GDP.

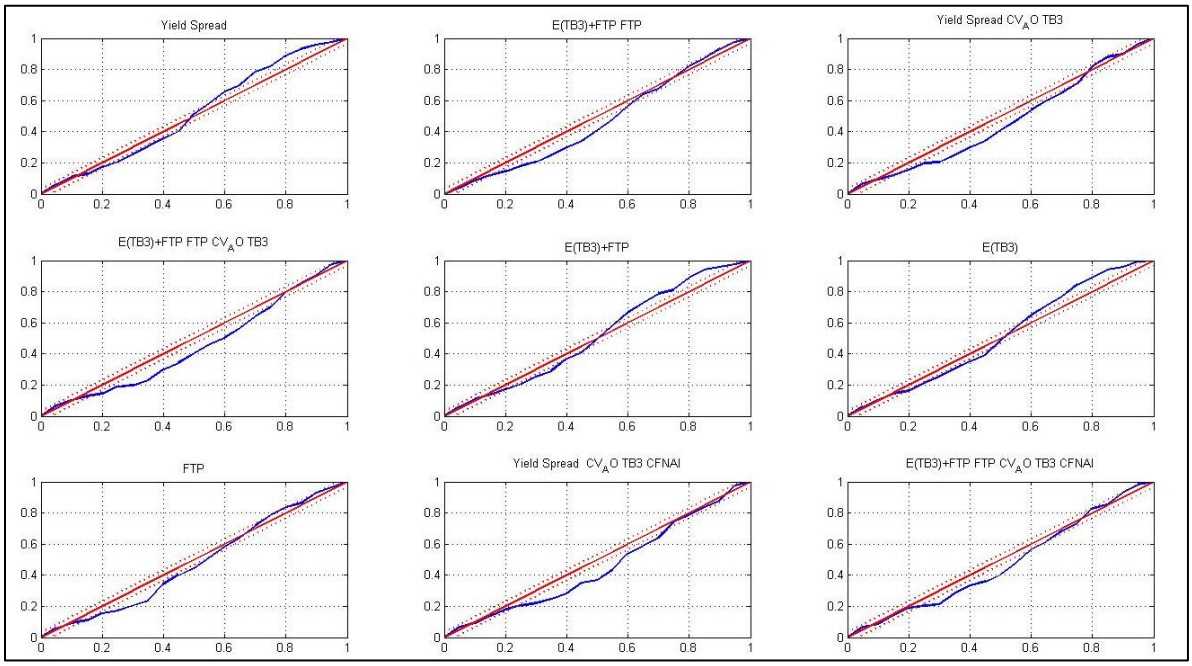

Figure 75: 16-quarter ahead conditional predictive density for GDP.

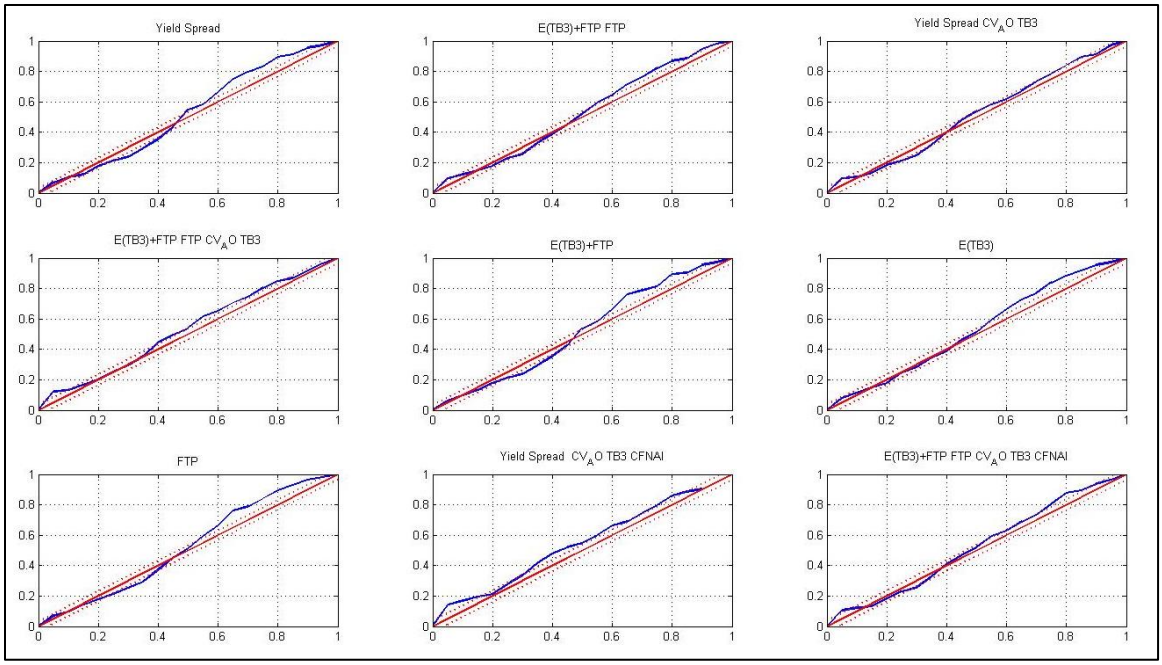

Figure 76: 20-quarter ahead conditional predictive density for GDP.

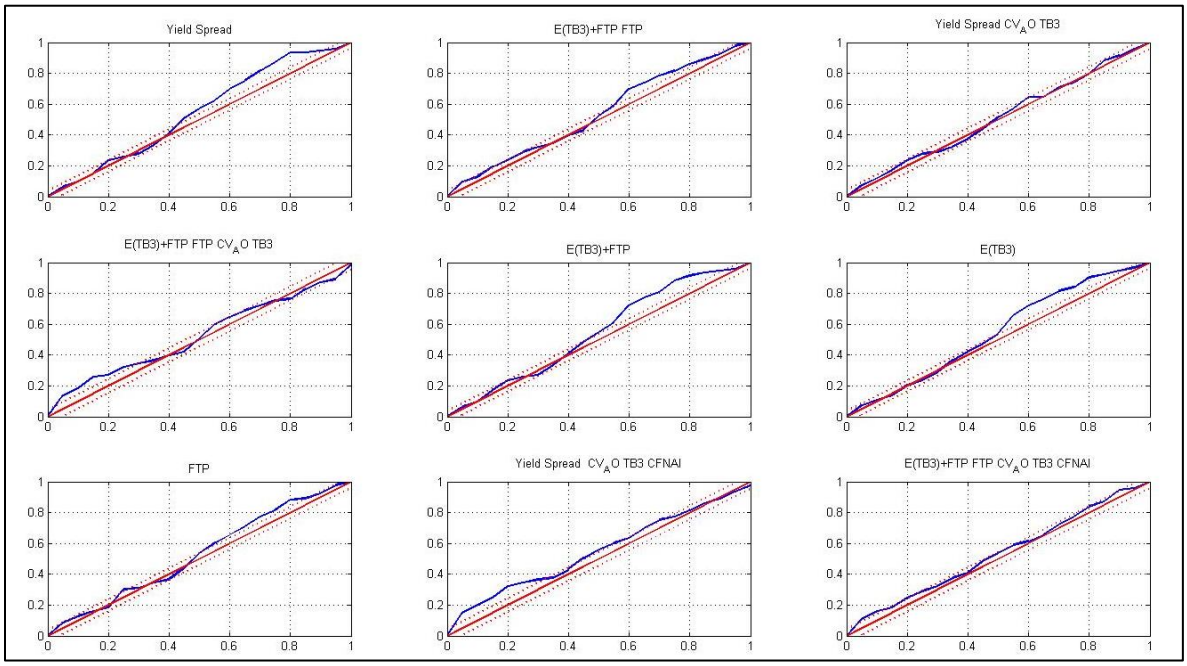

Figure 77: 40-quarter ahead conditional predictive density for GDP.

5.5 Fan Charts for OLS forecasts with macroeconomic and financial state variables

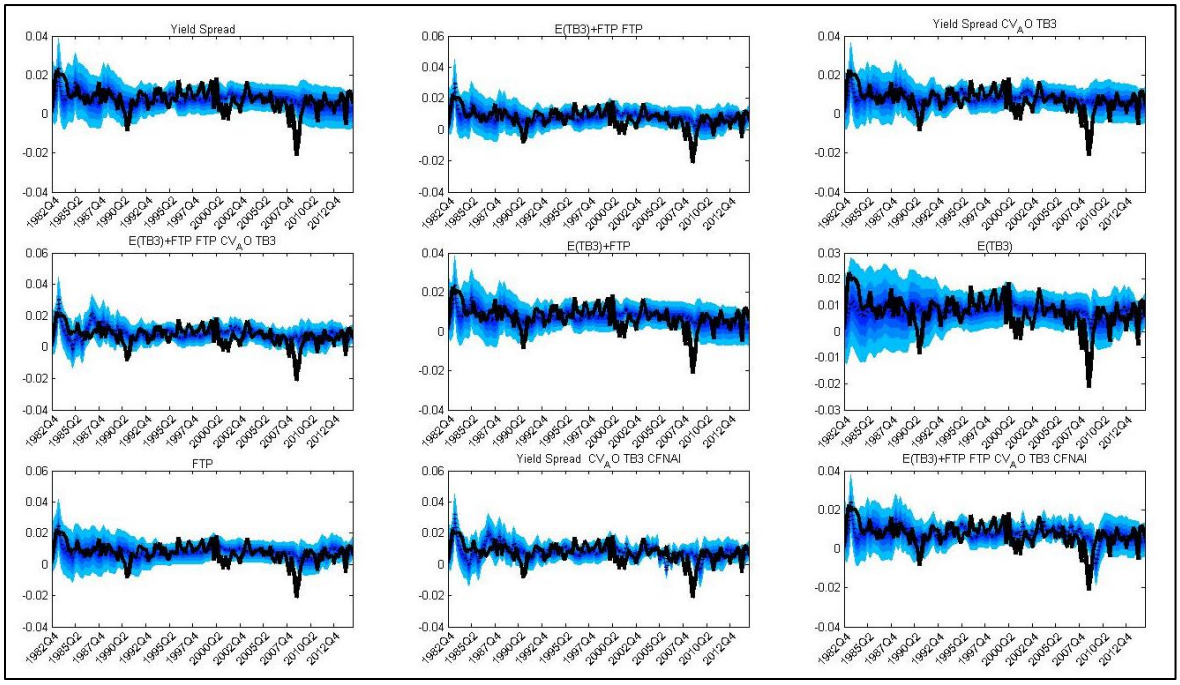

Figure 78: Fan Charts for 4-quarter ahead conditional predictive densities of GDP.

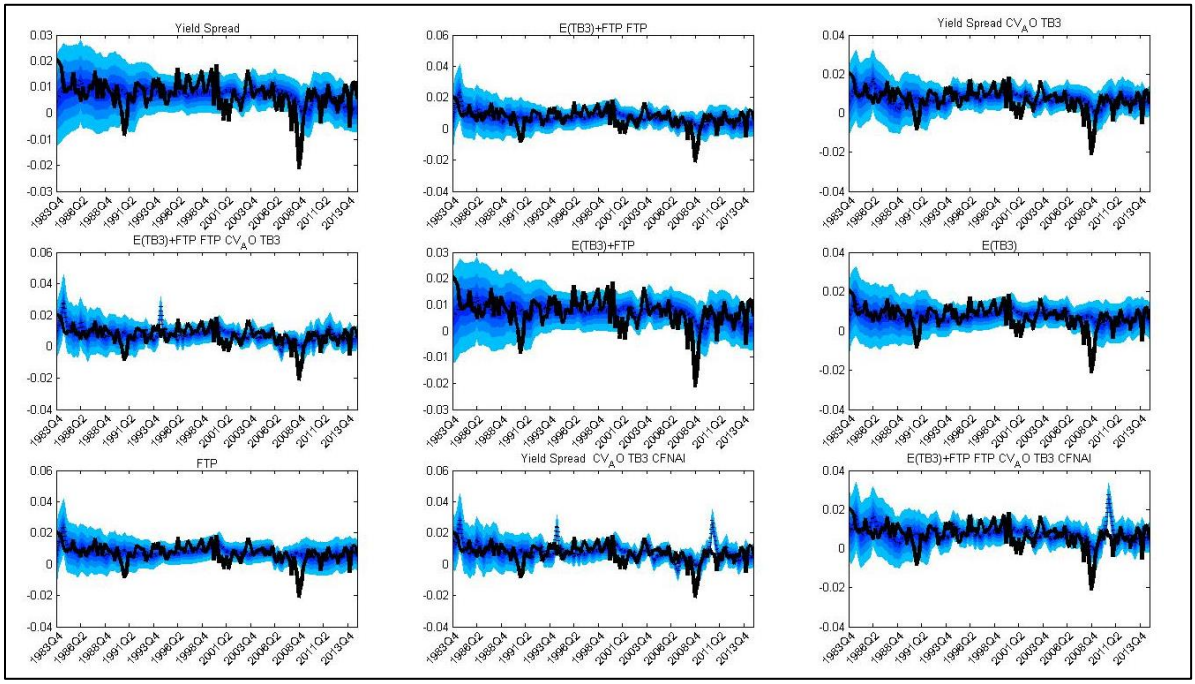

Figure 79: Fan Charts for 8-quarter ahead conditional predictive densities of GDP.

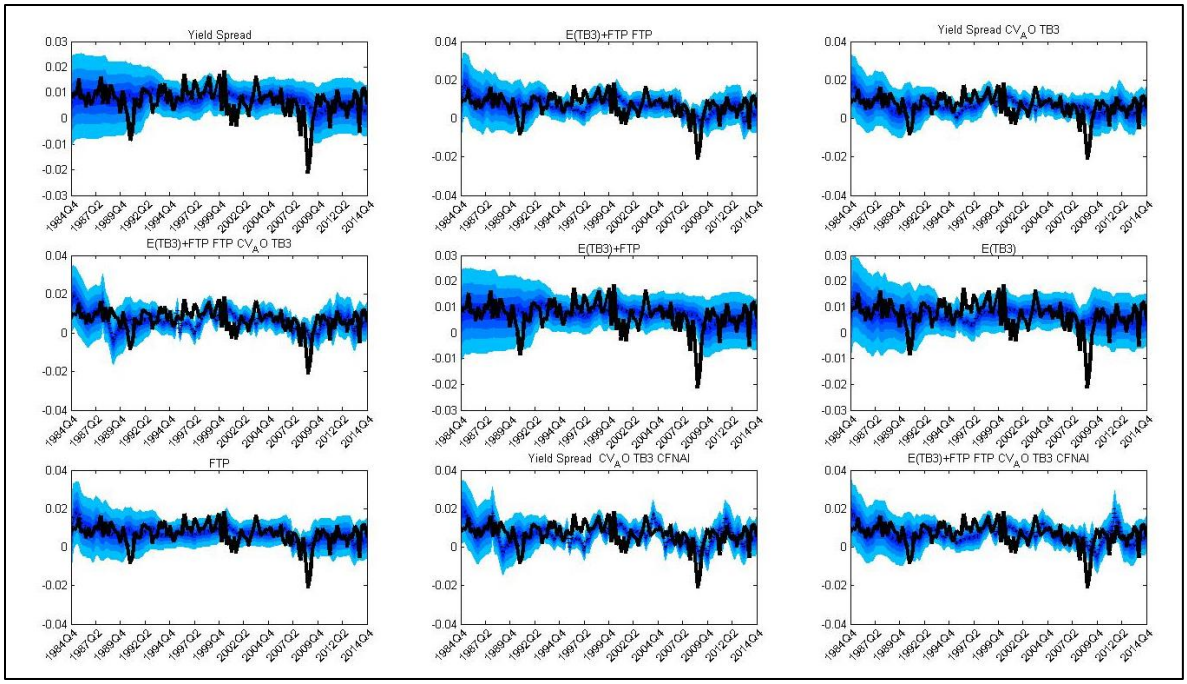

Figure 80: Fan Charts for 12-quarter ahead conditional predictive densities of GDP.

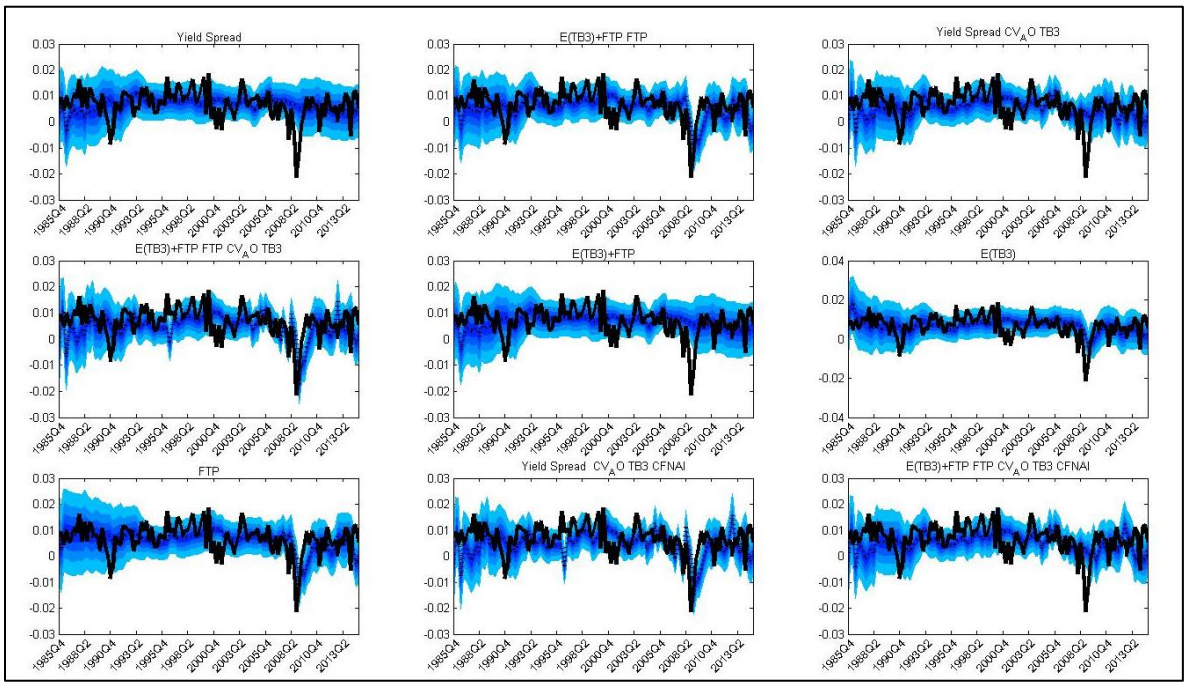

Figure 81: Fan Charts for 16-quarter ahead conditional predictive densities of GDP.

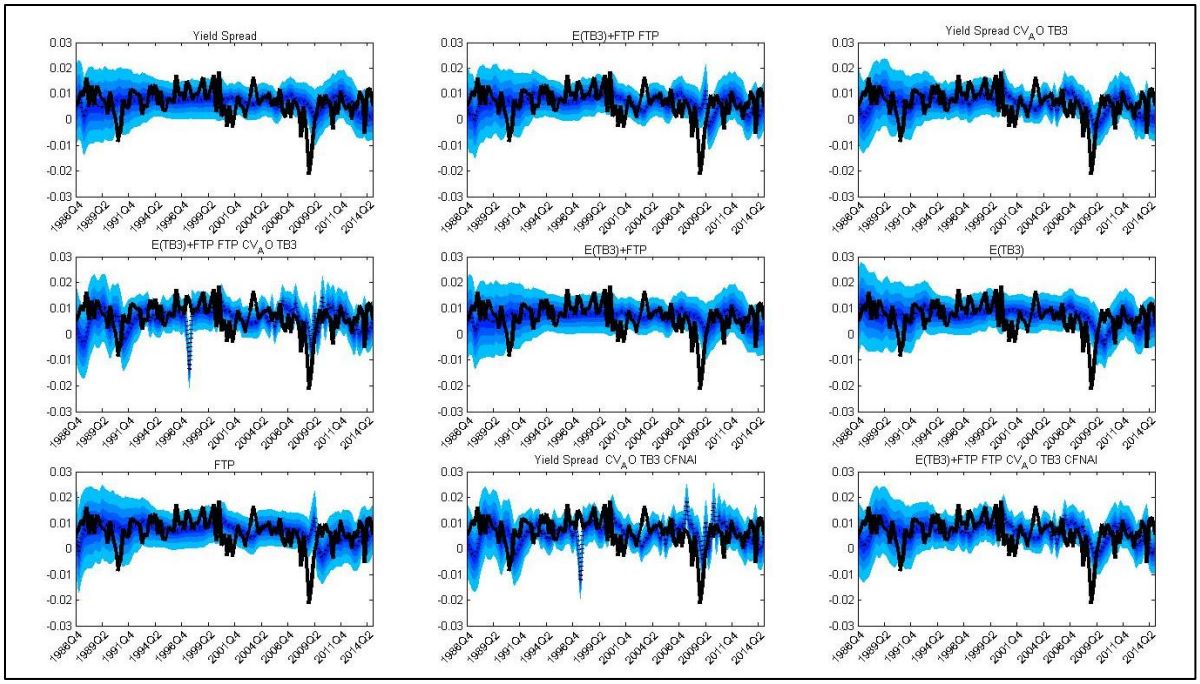

Figure 82: Fan Charts for 20-quarter ahead conditional predictive densities of GDP.

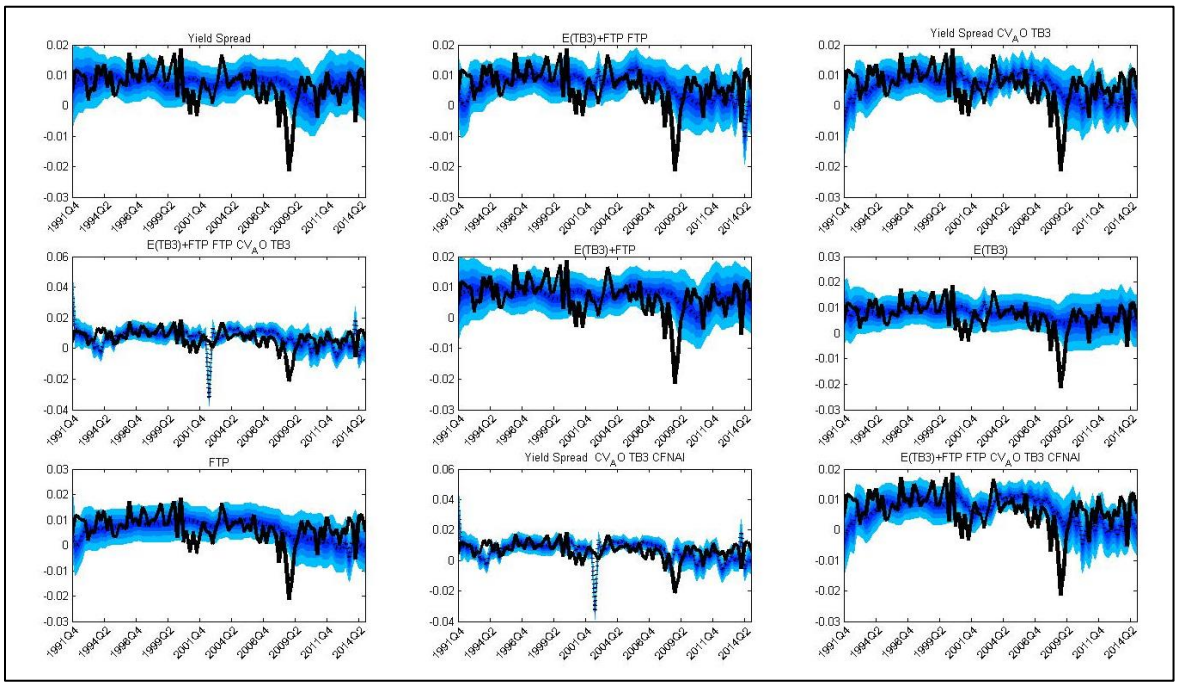

Figure 83: Fan Charts for 40-quarter ahead conditional predictive densities of GDP.

5.6 Fan Charts for OLS forecasts with only financial state variables

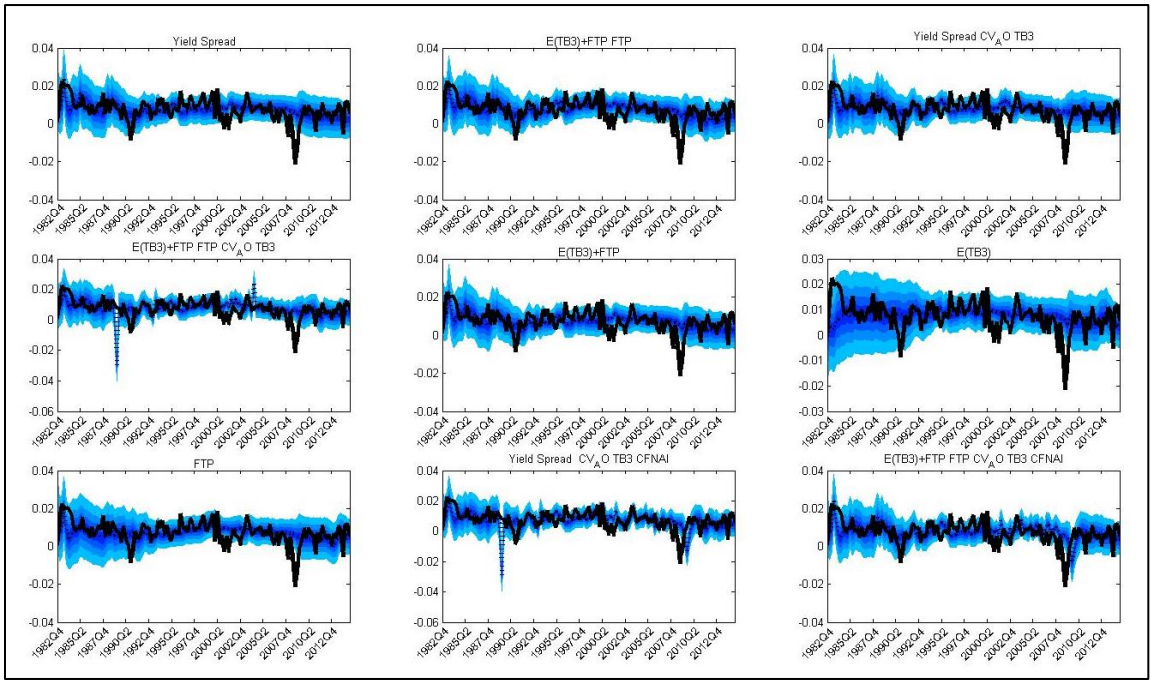

Figure 84: Fan Charts for 4-quarter ahead conditional predictive densities of GDP.

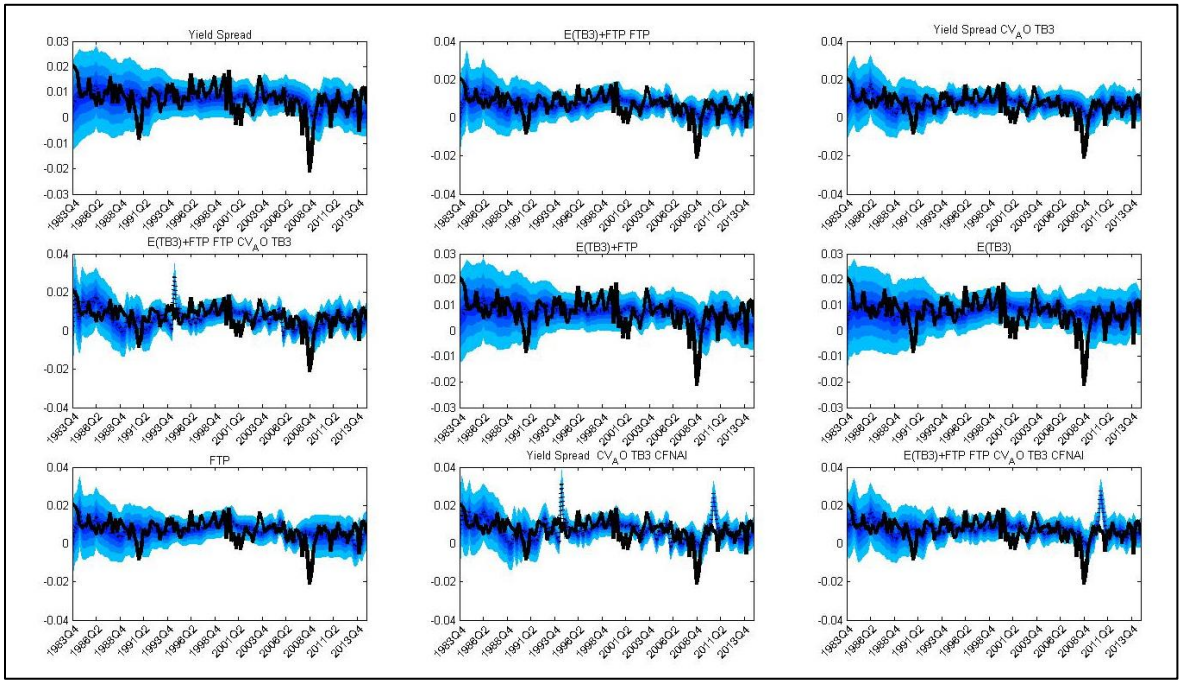

Figure 85: Fan Charts for 8-quarter ahead conditional predictive densities of GDP.

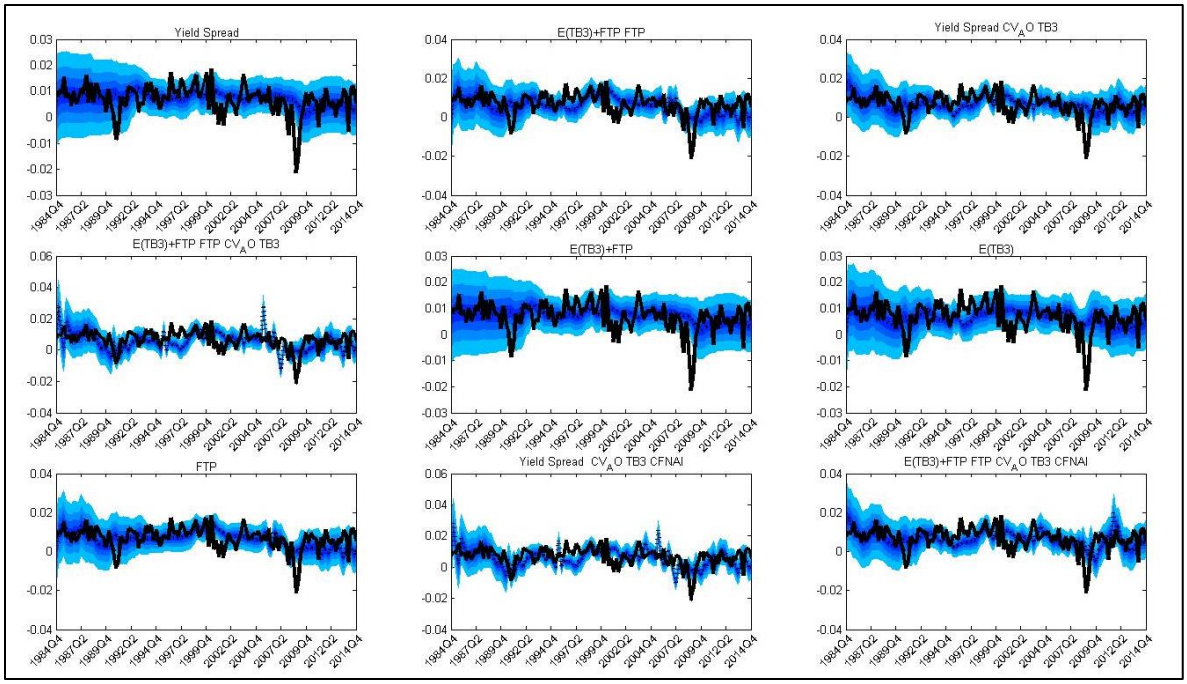

Figure 86: Fan Charts for 12-quarter ahead conditional predictive densities of GDP.

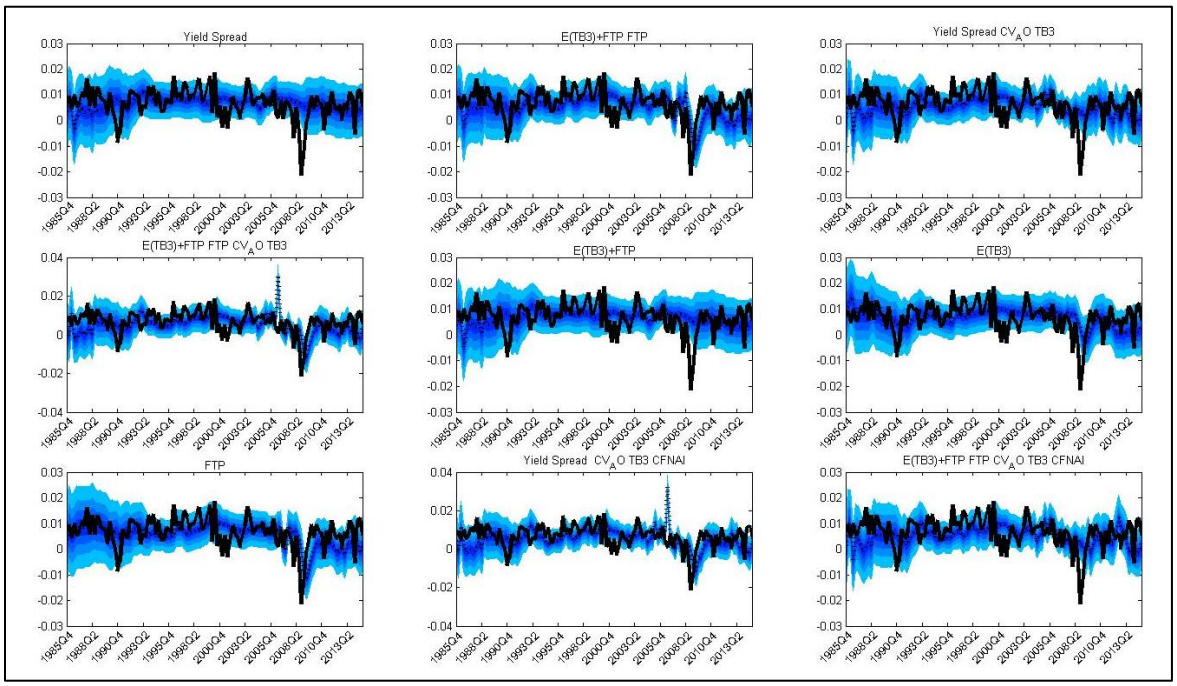

Figure 87: Fan Charts for 16-quarter ahead conditional predictive densities of GDP.

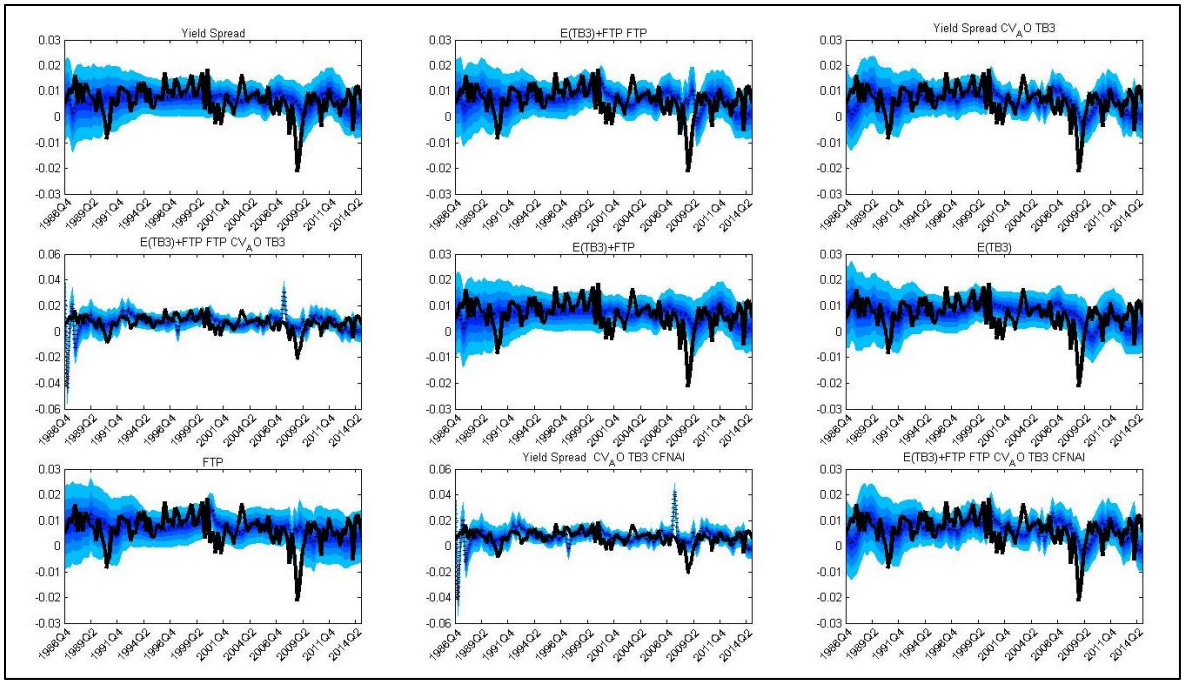

Figure 88: Fan Charts for 20-quarter ahead conditional predictive densities of GDP.

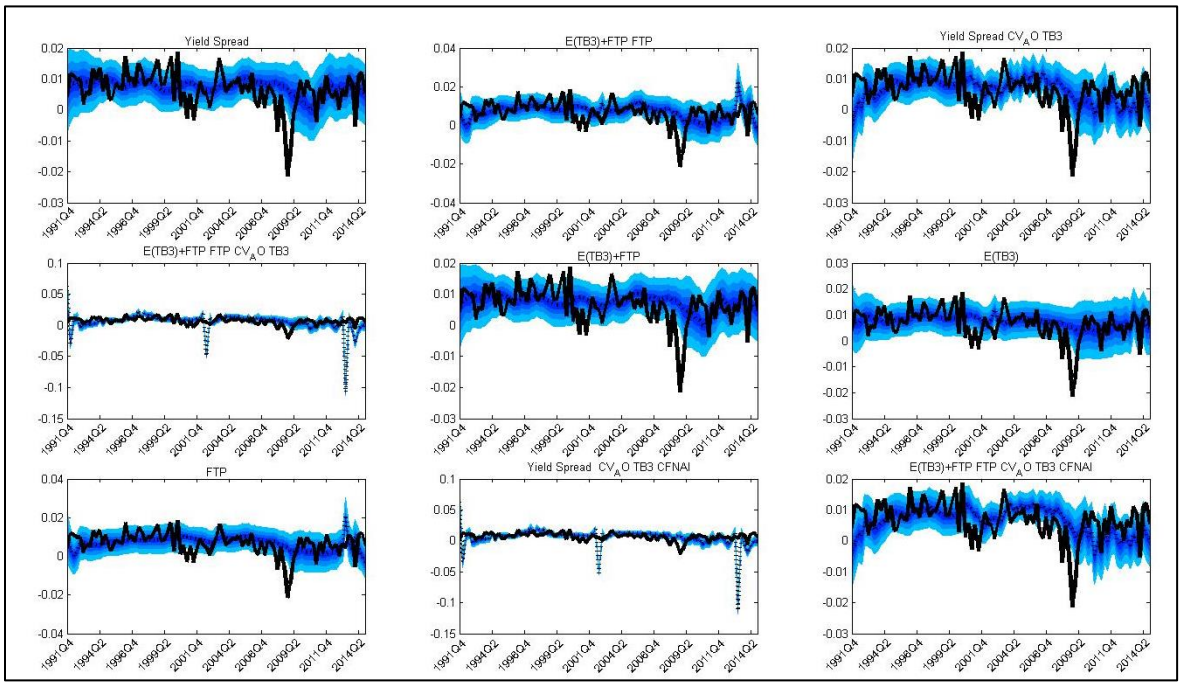

Figure 89: Fan Charts for 40-quarter ahead conditional predictive densities of GDP.

5.7 Fan Charts for SVR forecasts with macroeconomic and financial state variables based on the linear kernel

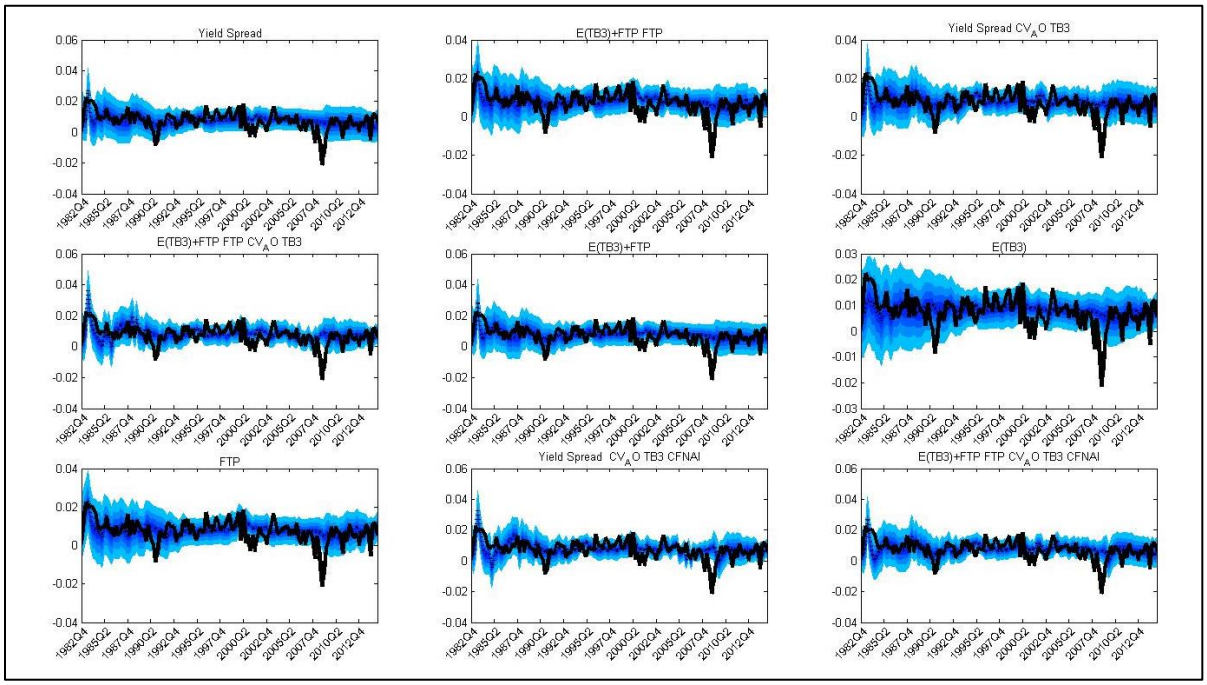

Figure 90: Fan Charts for 4-quarter ahead conditional predictive densities of GDP.

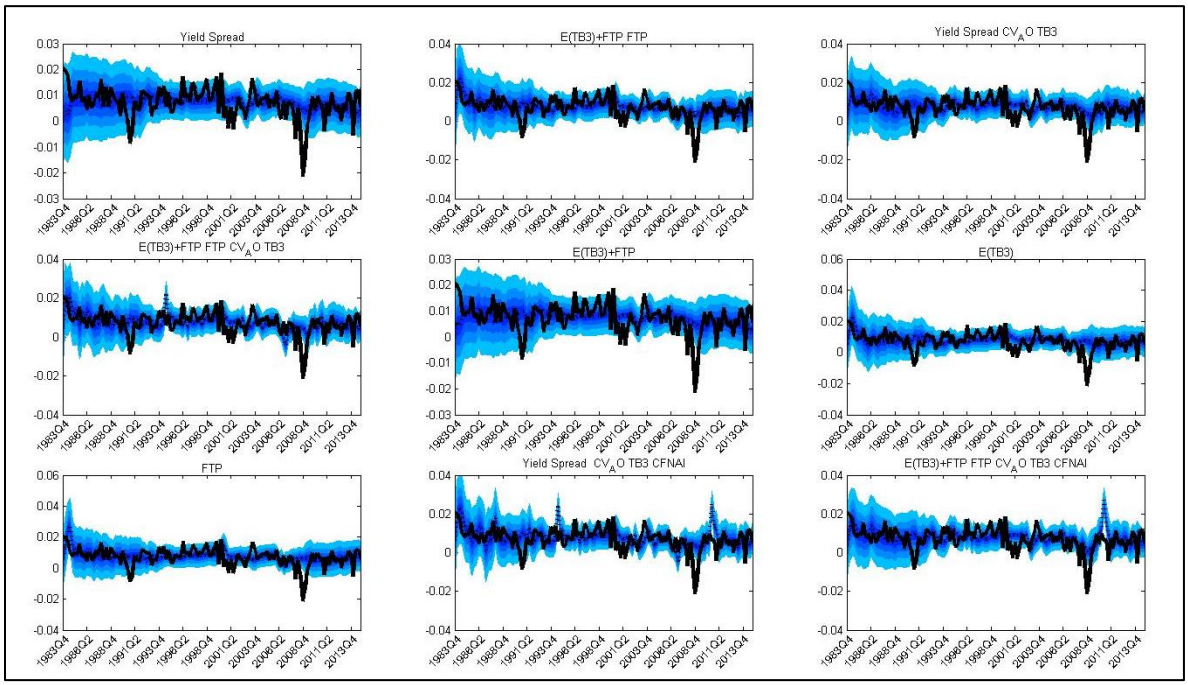

Figure 91: Fan Charts for 8-quarter ahead conditional predictive densities of GDP.

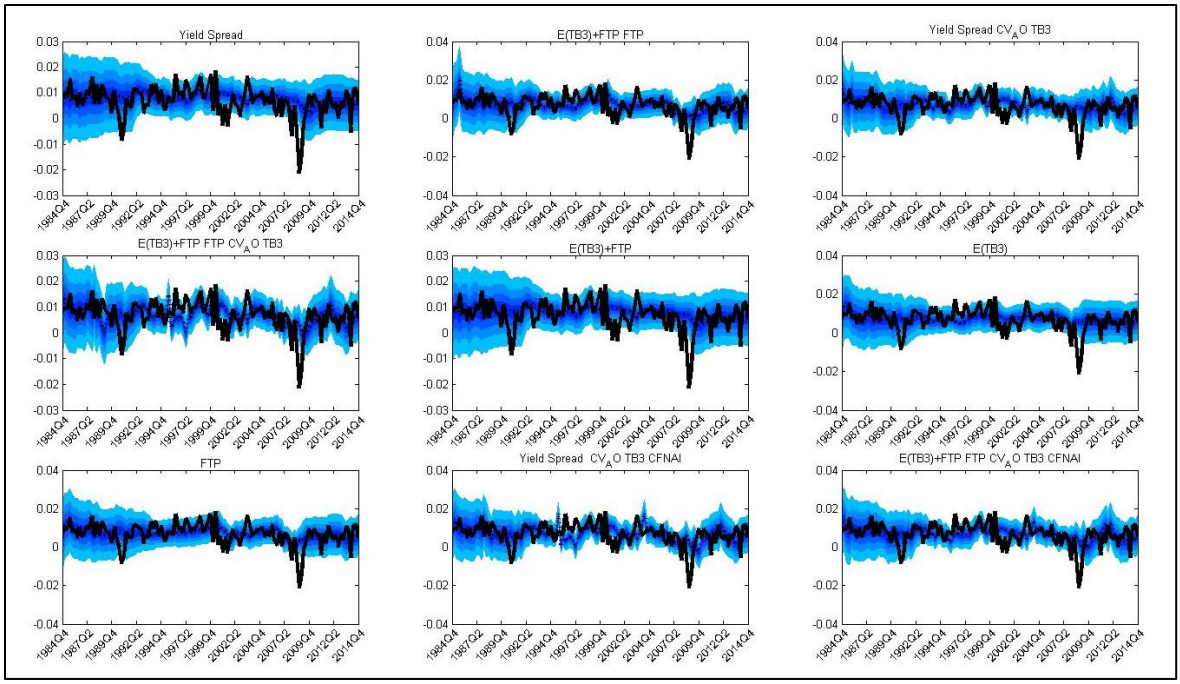

Figure 92: Fan Charts for 12-quarter ahead conditional predictive densities of GDP.

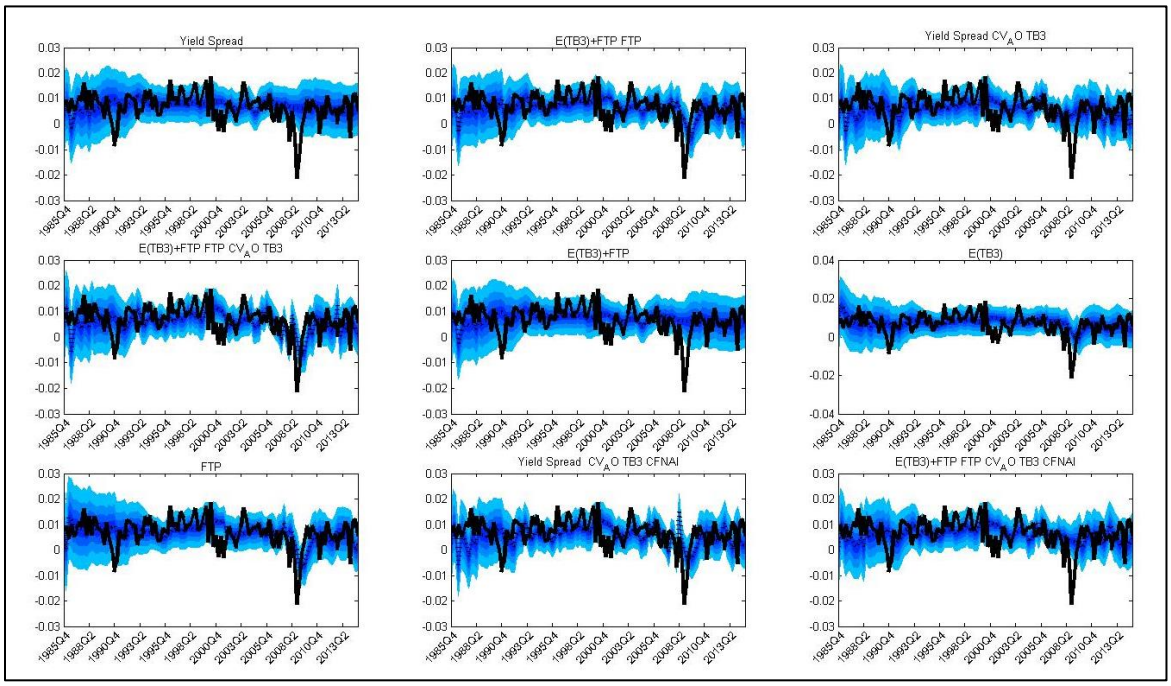

Figure 93: Fan Charts for 16-quarter ahead conditional predictive densities of GDP.

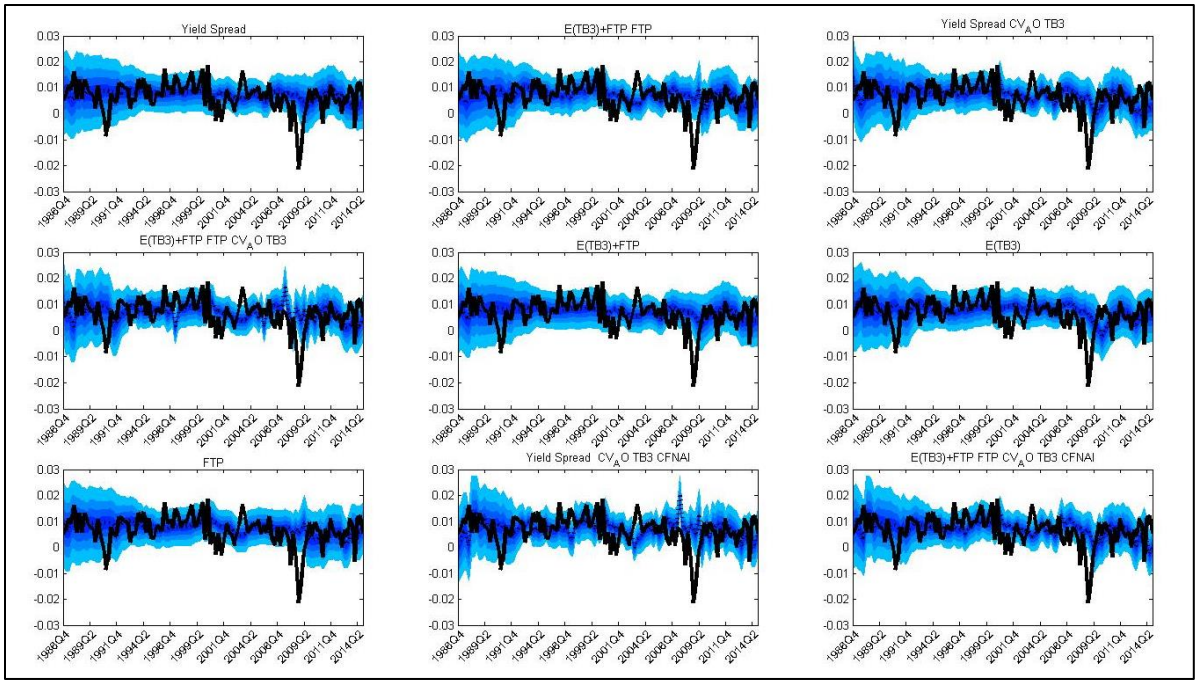

Figure 94: Fan Charts for 20-quarter ahead conditional predictive densities of GDP.

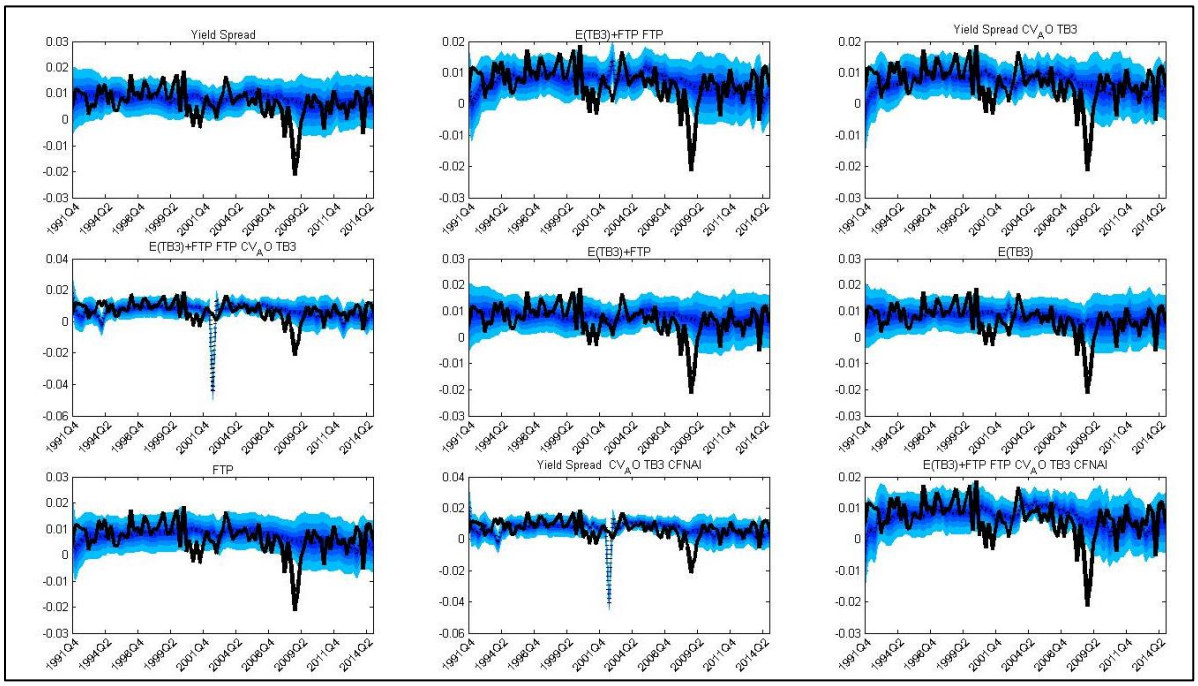

Figure 95: Fan Charts for 40-quarter ahead conditional predictive densities of GDP.

5.8 Fan Charts for SVR forecasts with only financial state variables based on the linear kernel

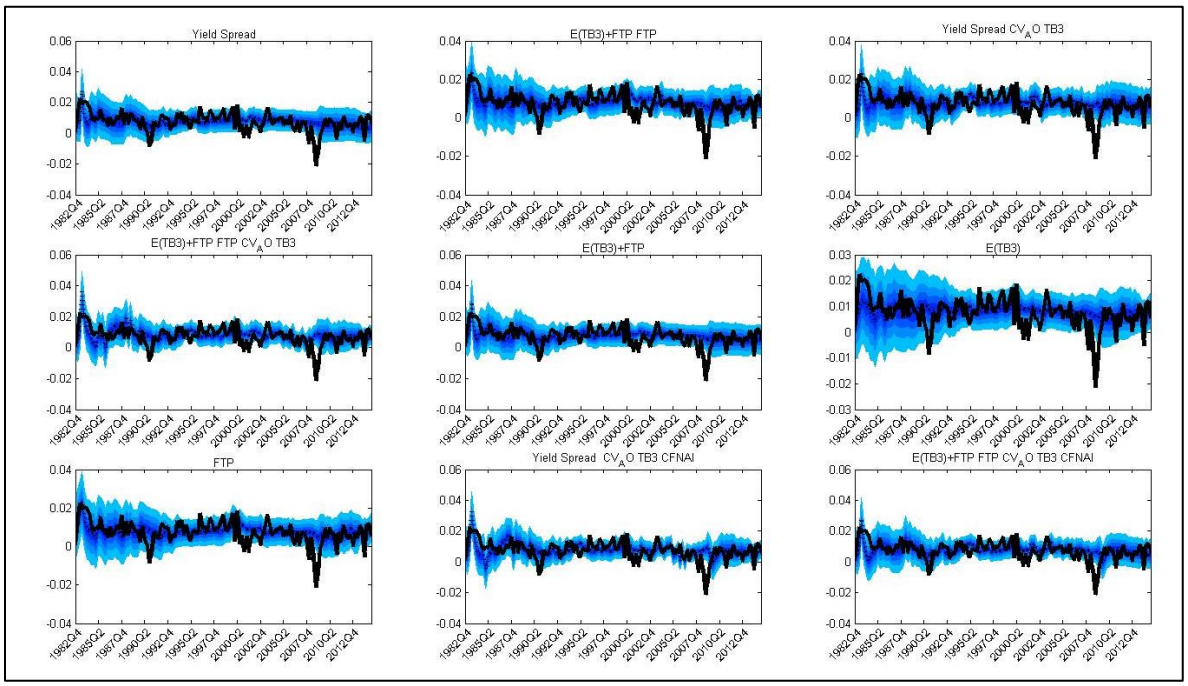

Figure 96: Fan Charts for 4-quarter ahead conditional predictive densities of GDP.

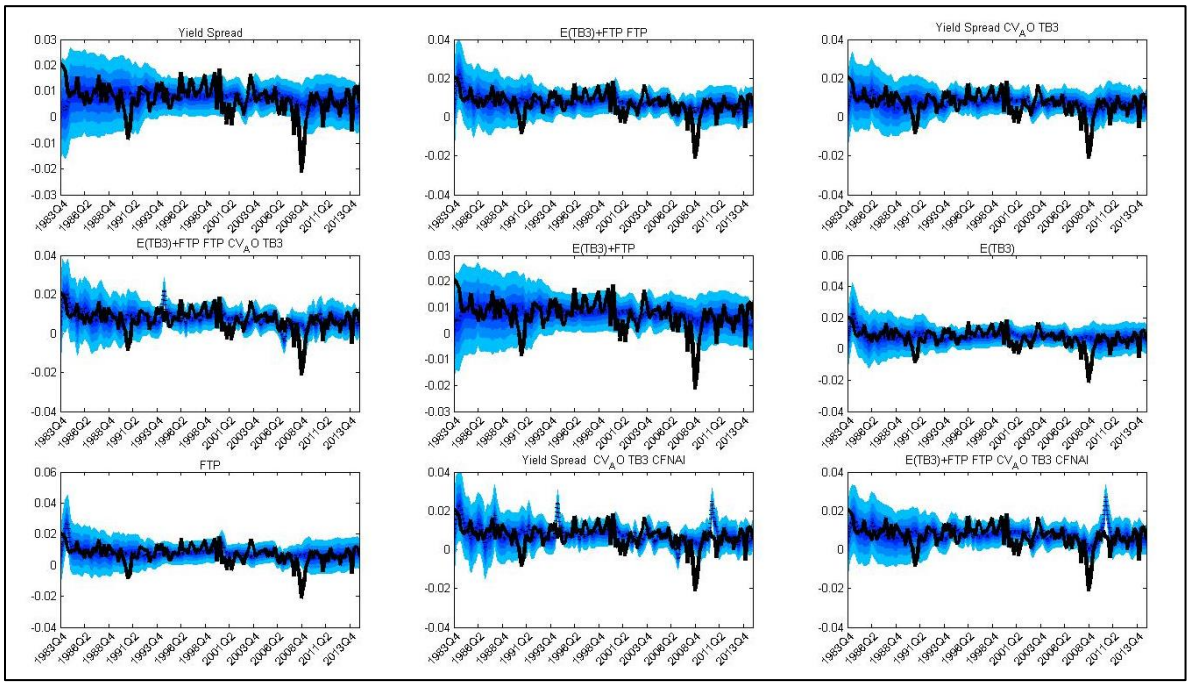

Figure 97: Fan Charts for 8-quarter ahead conditional predictive densities of GDP.

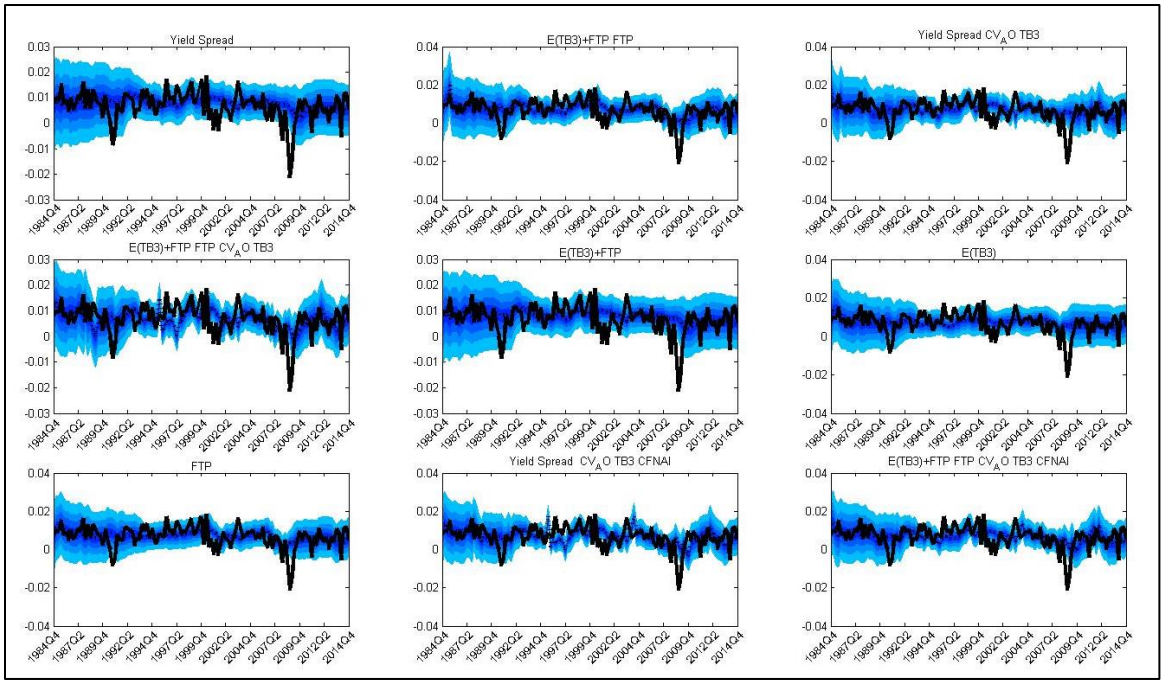

Figure 98: Fan Charts for 12-quarter ahead conditional predictive densities of GDP.

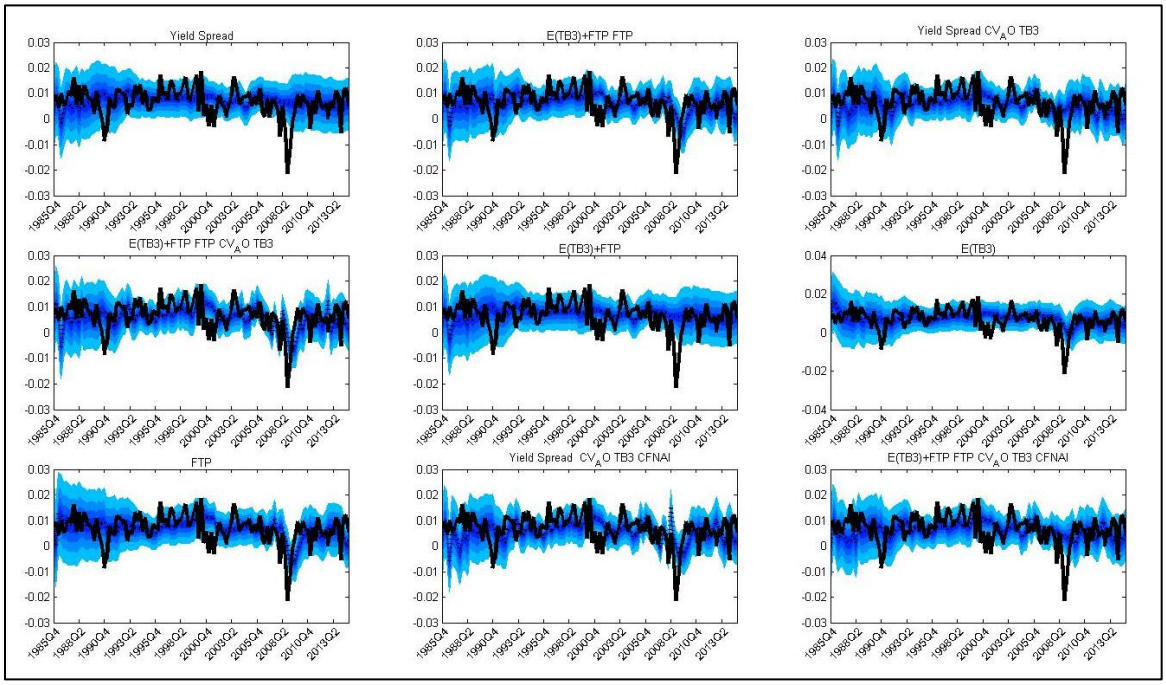

Figure 99: Fan Charts for 16-quarter ahead conditional predictive densities of GDP.

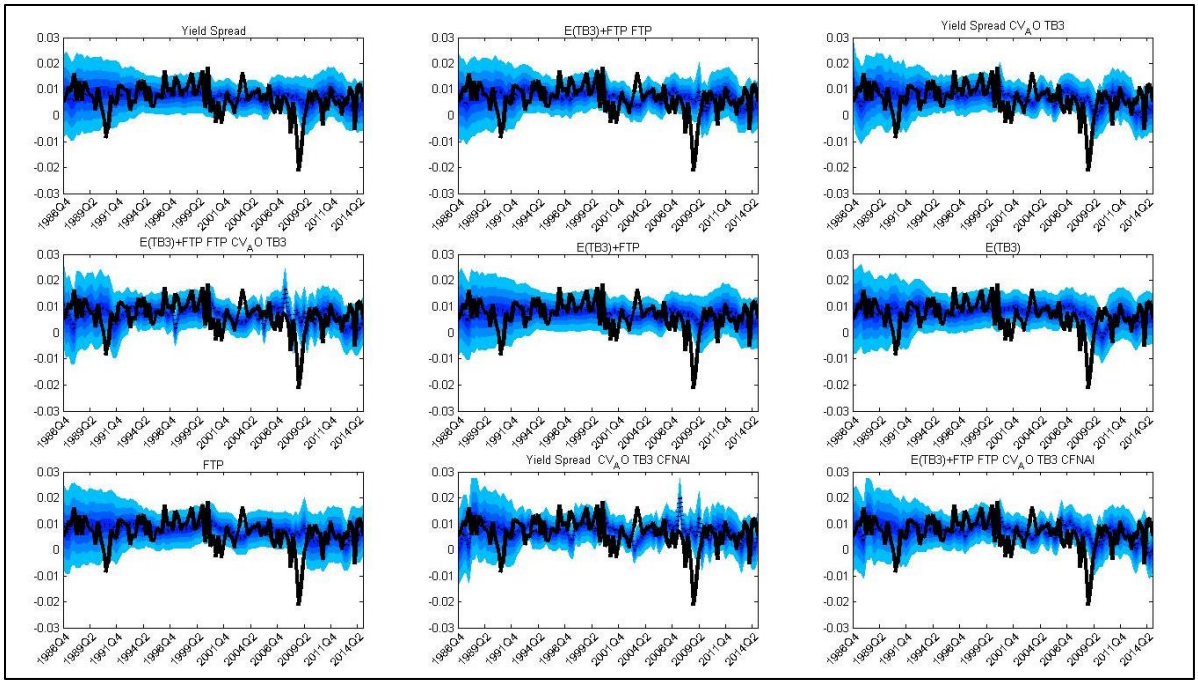

Figure 100: Fan Charts for 20-quarter ahead conditional predictive densities of GDP.

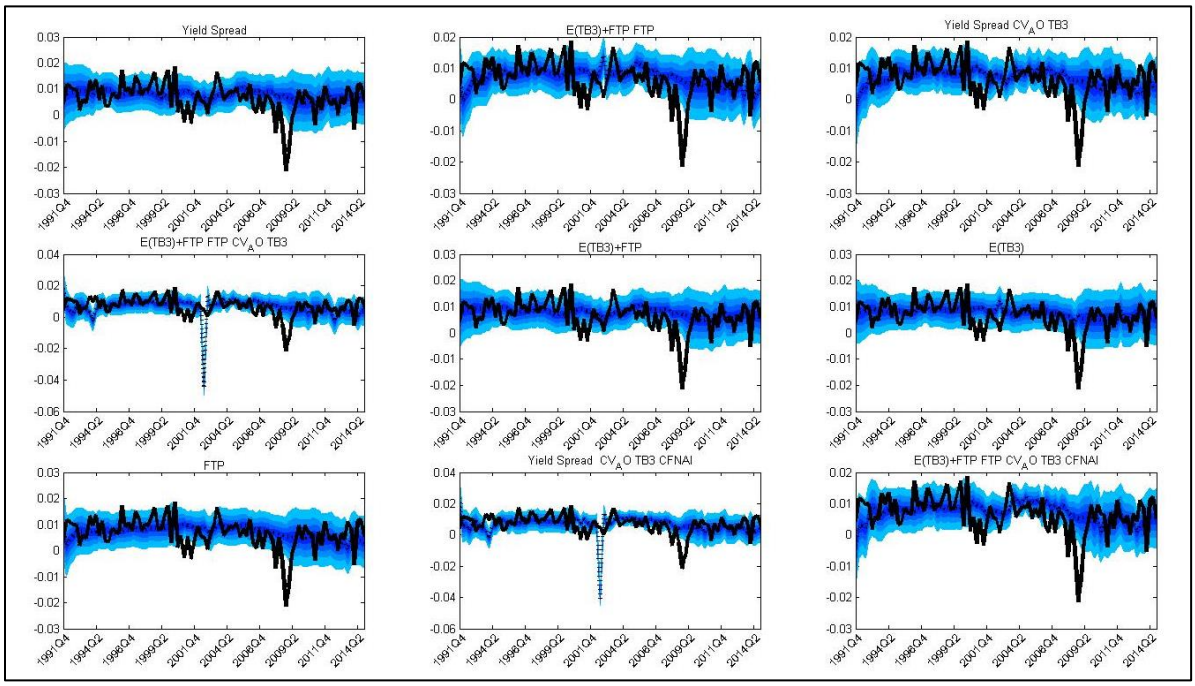

Figure 101: Fan Charts for 40-quarter ahead conditional predictive densities of GDP.

The Fan charts and RS test results for the RBF, the polynomial kernel as well as for the bias corrected VAR estimation of all methods are available from the authors upon request.

6. Structural break and Unit root tests

Since the GDP appears to exhibit structural breaks we apply the Bai-Perron (2003) multiple structural breaks test in order to test for the null hypothesis of no structural breaks against the alternative of the existence of a fixed number of structural breaks (Table 28).

Table 28: Bai-Perron Multiple Break test results

	Breaks	Schwartz	LWZ	Schwartz	LWZ
		Levels		First Differences	
GDP deflator	0	6.437	6.467	-3.030	-2.999
	1	5.201	5.291	-3.134	-3.044
	2	4.436	4.587	-3.199	-3.048^{+}
	3	3.690	3.901	-3.172	-2.960
	4^{+}	3.370	3.641	-3.224^{+}	-2.952
	5*	3.176*	3.508*	-3.215	-2.882
GDP	0^{+}	-1.978	-1.948	-9.588^{+}	-9.558^{+}
	1	-3.397	-3.307	-9.582	-9.492
	2	-4.374	-4.224	-9.543	-9.393
	3	-4.746	-4.536	-9.509	-9.297
	4	-5.239	-4.968	-9.458	-9.186
	5*	-5.573*	-5.241*	-9.395	-9.062
TB3	0^{+}	-6.752	-6.721	-9.540^{+}	-9.510^{+}
	1	-7.474	-7.383	-9.522	-9.431
	2	-7.755	-7.603	-9.482	-9.330
	3	-8.075	-7.863	-9.426	-9.213
	4	-8.271	-7.997	-9.368	-9.094
	5*	-8.413*	-8.078*	-9.310	-8.974
CFNAI	0*$^{+}$	-9.594*	-9.564*	-9.349^{+}	-9.318^{+}
	1	-9.588	-9.498	-9.292	-9.201
	2	-9.550	-9.399	-9.235	-9.084
	3	-9.514	-9.303	-9.177	-8.965
	4	-9.463	-9.192	-9.119	-8.847
	5	-9.386	-9.054	-9.059	-8.726

Note: Selected number of breaks for each criterion are denoted with an * for the levels and $^{+}$ for the first differences.

As we observe from Table 1, the GDP, GDP deflator and the TB3 present multiple structure breaks. According to the Schwarz Information Criterion (Schwarz, 1978) and the Liu-Wu-Zidek (LWZ) criterion (Liu *et al.,* 1997) the first three series exhibit 5 structural breaks while the CFNAI does not exhibit structural breaks in levels. In first differences no series

has structural breaks. The existence of structural breaks renders common unit root tests such as the Augmented Dickey-Fuller (Dickey-Fuller, 1981), the Phillips-Perron (Phillips and Perron, 1988) or the Kwiatkowski–Phillips–Schmidt–Shin test (Kwiatkowski *et al.*, 1992) irrelevant. Moreover, the existence of more than one structural break does not allow for the application of the commonly cited in literature Zivot-Andrews (Zivot and Andrews, 1992) and Perron (Perron, 1997) unit root tests. Both these tests examine the null hypothesis of the existence of a unit root in the presence of only one unknown structural break, which is not suitable to our cause. Thus, we apply the recently proposed unit root test of Enders and Lee (2012).

In contrast to Zivot-Andrews and Perron tests, the Enders and Lee (2012) test approximates the series with low frequency components of the Fourier expansion without the need to define the points of the breaks. Moreover, the test is able to capture unit root processes in the presence of multiple linear and nonlinear forms of structural breaks. Following Enders and Lee (2012) we use a small number of frequency components to avoid over-fitting the series and allow the evolution of the nonlinear trend to be gradual. In Table 29 we report the Lagrange Multiplier (LM) test statistic of the unit root test for up to three frequency components.

Table 29: LM statistics of the Enders and Lee Unit Root Test

		Frequency Components			Decision
		1	2	3	
GDP deflator	Levels	-0.930	-1.311	-1.865	I(1)
	First Differences	-5.877***	-6.369***	-6.997***	I(0)
GDP	Levels	-1.930	-2.268	-2.700**	I(1)
	First Differences	-8.877***	-9.015***	-9.187***	I(0)
TB3	Levels	-2.761	-3.288*	-3.439***	I(1)
	First Differences	-11.532***	-11.827***	-11.882***	I(0)
CFNAI	Levels	-9.085***	-9.103***	-9.267***	I(0)
	First Differences	-9.267***	-19.679***	-19.583***	I(0)

Note: *, ** and *** denotes rejection of the null hypothesis about non-stationarity at 10%, 5% and 1% level of significance, respectively.

As we observe from Table 29, the GDP deflator, the GDP and TB3 exhibit a unit root in levels at 5% level of significance for up to 2 frequency components, but are stationary in first differences. In contrast the CFNAI variable is stationary in levels.

5.9 Q-test p-values

Table 30: Q test p-values of the OLS VAR estimates based on the first moments (out-of-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.028	0.000	0.000	0.000	0.045	0.000	0.000	0.000	0.000
4	0.004	0.000	0.000	0.019	0.000	0.000	0.007	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.006
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	0.002	0.000	0.000	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8	0.000	0.000	0.000	0.168	0.000	0.000	0.015	0.011	0.000	0.000	0.000	0.491	0.000	0.000	0.000	0.011	0.000	0.000	0.000	0.061	0.000	0.000	0.005	0.002
9	0.000	0.000	0.000	0.002	0.000	0.000	0.002	0.125	0.000	0.000	0.000	0.019	0.000	0.000	0.000	0.017	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.000

Table 31: Q test p-values of the OLS VAR estimates based on the second moments (out-of-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.813	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.026	0.002	0.000	0.003
3	0.001	0.001	0.000	0.000	0.000	0.000	0.287	0.047	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.015	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000
4	0.709	0.290	0.003	0.055	0.000	0.000	0.479	0.013	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.109	0.014	0.000	0.000	0.317	0.002	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7	0.000	0.003	0.392	0.060	0.000	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.017	0.003
8	0.197	0.283	0.002	0.004	0.000	0.000	0.386	0.425	0.051	0.000	0.000	0.051	0.017	0.009	0.000	0.136	0.429	0.000	0.000	0.126	0.013	0.002	0.025	0.001
9	0.003	0.083	0.000	0.000	0.000	0.000	0.283	0.360	0.003	0.000	0.000	0.000	0.034	0.013	0.002	0.047	0.036	0.002	0.005	0.033	0.000	0.000	0.000	0.000

Table 32: Q test p-values of the BC VAR estimates with based on the first moments (out-of-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.028	0.000	0.000	0.000	0.045	0.000	0.000	0.000	0.000
4	0.000	0.000	0.000	0.261	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.116	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.054	0.000	0.000	0.052	0.000
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8	0.000	0.000	0.000	0.080	0.000	0.000	0.009	0.092	0.000	0.000	0.000	0.309	0.000	0.000	0.000	0.023	0.000	0.000	0.000	0.031	0.000	0.000	0.002	0.006
9	0.000	0.000	0.000	0.002	0.000	0.000	0.002	0.125	0.000	0.000	0.000	0.019	0.000	0.000	0.000	0.017	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.000

Table 33: Q test p-values of the BC VAR estimates based on the second moments (out-of-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.036	0.088
3	0.001	0.001	0.000	0.000	0.000	0.000	0.287	0.047	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.015	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000
4	0.246	0.091	0.000	0.074	0.000	0.000	0.158	0.004	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.075	0.007	0.000	0.000	0.010	0.026	0.000	0.000	0.005
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000
8	0.033	0.175	0.000	0.144	0.000	0.000	0.289	0.075	0.105	0.000	0.000	0.218	0.000	0.000	0.000	0.043	0.026	0.000	0.000	0.007	0.133	0.001	0.002	0.000
9	0.003	0.083	0.000	0.000	0.000	0.000	0.283	0.360	0.003	0.000	0.000	0.000	0.034	0.013	0.002	0.047	0.036	0.002	0.005	0.033	0.000	0.000	0.000	0.000

Table 34: Q test p-values of the OLS VAR estimates based on the first moments (in-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.000
9	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table 35: Q test p-values of the OLS VAR estimates based on the second moments (in-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.003	0.000	0.004	0.000	0.000	0.000
3	0.001	0.001	0.000	0.000	0.000	0.000	0.287	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000
4	0.014	0.008	0.000	0.000	0.000	0.000	0.776	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000
8	0.002	0.019	0.005	0.000	0.000	0.000	0.303	0.000	0.012	0.000	0.000	0.000	0.026	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.199	0.000
9	0.003	0.083	0.000	0.000	0.000	0.000	0.283	0.000	0.003	0.000	0.000	0.000	0.034	0.013	0.002	0.000	0.036	0.002	0.005	0.000	0.000	0.000	0.000	0.000

Table 36: Q test p-values of the BC VAR estimates based on the first moments (in-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.002	0.000
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000
9	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table 37: Q test p-values of the BC VAR estimates based on the second moments (in-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3	0.001	0.001	0.000	0.000	0.001	0.000	0.287	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000
4	0.000	0.001	0.000	0.000	0.000	0.000	0.441	0.000	0.000	0.000	0.004	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.064	0.002	0.004	0.000
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.037	0.000
8	0.000	0.024	0.000	0.000	0.000	0.000	0.010	0.000	0.005	0.000	0.000	0.000	0.111	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.243	0.000	0.002	0.000
9	0.003	0.083	0.000	0.000	0.003	0.000	0.283	0.000	0.003	0.000	0.000	0.000	0.034	0.013	0.002	0.000	0.036	0.002	0.005	0.000	0.000	0.000	0.000	0.000

5.10 K_P^{CS} test statistics

Table 38: K_P^{CS} test statistics of the OLS VAR estimates (out-of-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	9.804	7.250	7.488	6.117	9.196	7.162	8.981	6.374	6.789	5.922	5.575	5.967	9.017	6.050	10.752	7.485	14.218	9.880	5.776	6.376	3.625	2.882	2.445	1.705
2	14.025	11.521	12.431	4.885	12.660	10.655	11.606	6.972	9.520	6.932	11.514	5.197	7.335	3.638	14.329	3.534	3.022	2.206	6.760	1.709	0.624	0.854	5.319	1.673
3	4.505	3.622	20.960	2.410	11.484	6.832	17.937	4.779	7.318	6.371	7.715	2.146	4.648	3.888	12.379	1.245	0.736	0.853	13.178	3.891	0.378	1.373	6.842	1.446
4	8.479	5.902	16.065	2.548	16.750	12.283	18.931	7.258	7.867	9.464	12.137	2.891	4.930	3.568	14.963	3.888	1.734	1.759	9.414	5.509	1.030	0.854	4.410	2.008
5	8.997	6.336	8.479	6.785	9.196	6.693	5.889	6.510	6.979	5.967	5.156	5.967	9.017	6.942	11.994	8.581	14.218	8.737	6.376	5.291	3.625	3.243	3.393	1.471
6	11.820	8.997	9.531	7.976	11.066	7.500	11.424	8.611	11.331	8.331	8.915	7.816	8.962	6.005	4.260	3.925	3.022	1.451	1.885	2.705	3.096	2.224	2.642	1.842
7	13.699	10.933	5.691	5.484	14.634	9.523	8.822	7.451	7.367	6.837	4.753	4.329	5.095	3.034	3.329	1.836	1.384	0.802	1.152	0.488	2.445	1.815	2.255	0.952
8	7.488	6.117	20.561	3.296	13.302	12.034	25.641	9.634	4.442	5.967	15.639	6.280	4.569	2.844	17.870	3.431	1.473	1.451	13.178	3.891	1.094	0.912	7.336	3.017
9	4.885	3.622	13.699	2.690	9.196	7.795	17.116	9.088	5.661	3.888	8.226	2.253	4.971	1.762	10.334	3.397	0.720	0.643	13.867	4.153	0.515	0.515	5.463	1.417

Table 39: K_P^{CS} test statistics of the BC VAR estimates (out-of-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	9.804	7.250	7.488	6.117	9.196	7.162	8.981	6.374	6.789	5.922	5.575	5.967	9.017	6.050	10.752	7.485	14.218	9.880	5.776	6.376	3.625	2.882	2.445	1.705
2	12.124	9.804	10.361	6.559	8.981	6.832	10.025	5.382	6.463	4.366	9.576	6.463	7.435	5.606	11.677	5.179	8.032	5.731	9.243	6.235	3.625	2.778	5.805	1.705
3	4.505	3.622	20.960	2.410	11.484	6.832	17.937	4.779	7.318	6.371	7.715	2.146	4.648	3.888	12.379	1.245	0.736	0.853	13.178	3.891	0.378	1.373	6.842	1.446
4	8.479	5.902	19.385	2.145	16.750	11.066	16.896	8.097	6.417	8.861	12.137	3.505	4.688	3.925	13.573	3.163	1.276	1.566	10.236	5.248	0.573	0.417	4.410	3.125
5	8.997	6.117	8.479	6.336	9.744	6.693	6.063	6.240	6.979	5.967	5.197	5.532	9.017	6.942	11.365	7.894	14.218	9.880	6.376	4.869	3.625	3.625	3.393	1.471
6	9.262	7.250	7.250	7.250	9.744	6.374	5.218	4.702	7.318	5.878	4.713	4.216	7.946	5.137	5.519	4.728	5.163	3.965	4.746	4.869	6.006	4.281	6.896	3.356
7	12.124	9.262	7.488	6.785	8.981	6.240	5.760	4.976	5.156	4.674	4.713	4.635	5.221	5.179	4.849	5.650	5.036	3.254	2.291	1.860	3.905	4.629	2.576	1.732
8	8.736	6.117	19.385	3.139	14.228	10.889	21.576	9.250	4.442	6.932	11.028	4.596	5.826	2.015	18.816	3.131	1.297	1.276	14.573	4.544	0.576	0.608	6.842	3.657
9	4.885	3.622	13.699	2.690	9.196	7.795	17.116	9.088	5.661	3.888	8.226	2.253	4.971	1.762	10.334	3.397	0.720	0.643	13.867	4.153	0.515	0.515	5.463	1.417

Table 40: K_P^{CS} test statistics of the OLS VAR estimates (in-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	9.804	7.250	7.488	6.117	9.196	7.162	8.981	6.374	6.789	5.922	5.575	5.967	9.017	6.050	10.752	7.485	14.218	9.880	5.776	6.376	3.625	2.882	2.445	1.705
2	7.488	6.559	16.419	6.559	8.822	7.162	9.523	5.382	6.011	6.011	10.908	6.463	4.648	3.196	10.453	5.179	1.937	1.451	5.553	6.235	1.471	1.164	5.463	1.705
3	4.505	3.622	20.960	2.410	11.484	6.832	17.937	4.779	7.318	6.371	7.715	2.146	4.648	3.888	12.379	1.245	0.736	0.853	13.178	3.891	0.378	1.373	6.842	1.446
4	10.933	7.730	18.244	2.145	15.323	10.081	16.896	8.097	7.466	5.575	9.858	3.505	5.012	3.163	11.056	3.163	1.759	1.519	8.139	5.248	1.594	0.908	5.319	3.125
5	8.736	7.016	8.997	6.336	8.664	7.020	6.510	6.240	6.789	5.490	5.197	5.532	9.017	6.559	10.752	7.894	14.933	9.300	4.624	4.869	3.625	3.865	3.280	1.471
6	10.361	8.225	10.361	7.250	13.563	10.481	9.359	4.702	13.167	8.331	5.532	4.216	5.960	4.413	5.650	4.728	2.319	1.318	2.464	4.869	3.356	2.642	3.905	3.356
7	8.736	7.976	6.559	6.785	9.689	8.301	9.035	4.976	5.074	4.254	2.363	4.635	3.888	1.619	2.285	5.650	0.689	0.853	1.937	1.860	4.029	3.586	4.154	1.732
8	12.124	7.730	23.016	3.139	12.660	11.424	15.463	9.250	4.519	4.366	11.638	4.596	5.433	2.572	12.837	3.131	1.519	1.362	9.762	4.544	1.950	0.854	9.170	3.657
9	4.885	3.622	13.699	2.690	9.196	7.795	17.116	9.088	5.661	3.888	8.226	2.253	4.971	1.762	10.334	3.397	0.720	0.643	13.867	4.153	0.515	0.515	5.463	1.417

Table 41: K_P^{CS} test statistics of the BC VAR estimates (in-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	3.907	2.682	3.021	3.021	3.501	2.581	3.742	3.742	2.983	2.606	2.558	2.558	3.435	2.440	3.675	3.675	4.043	2.940	2.436	2.436	1.240	1.018	1.026	1.026
2	3.526	2.961	6.313	6.313	3.292	2.091	4.600	4.600	2.821	1.965	4.472	4.472	3.152	2.004	5.068	5.068	2.837	2.197	5.083	5.083	1.025	0.912	2.751	2.751
3	1.950	1.470	7.743	7.743	4.931	3.097	7.468	7.468	3.478	2.968	2.792	2.792	2.235	1.341	5.223	5.223	0.314	0.293	4.373	4.373	0.116	0.220	2.015	2.015
4	4.101	2.620	6.768	6.768	5.718	3.464	5.452	5.452	2.578	2.380	2.334	2.334	1.293	1.195	4.956	4.956	0.274	0.260	4.963	4.963	0.184	0.178	1.921	1.921
5	3.645	2.605	3.348	3.348	3.418	2.495	2.673	2.673	3.007	2.406	2.460	2.460	3.419	2.501	3.656	3.656	4.062	2.891	2.779	2.779	1.282	1.056	1.528	1.528
6	3.923	3.074	3.651	3.651	3.862	2.535	3.171	3.171	2.861	1.819	2.752	2.752	2.703	1.540	2.422	2.422	1.906	1.425	1.829	1.829	1.460	1.186	1.124	1.124
7	3.800	3.338	2.443	2.443	3.039	2.035	2.411	2.411	2.736	2.053	2.151	2.151	2.418	1.637	3.228	3.228	2.252	1.571	2.566	2.566	1.389	1.258	0.594	0.594
8	4.854	2.720	6.839	6.839	5.079	3.388	6.306	6.306	2.337	2.257	3.219	3.219	1.240	0.586	5.602	5.602	0.279	0.357	6.898	6.898	0.264	0.211	3.052	3.052
9	1.929	1.304	5.033	5.033	4.353	3.374	7.246	7.246	2.815	2.328	2.911	2.911	1.457	0.560	4.423	4.423	0.259	0.212	5.853	5.853	0.098	0.099	2.232	2.232

5.11 C_P^{CS} test statistics

Table 42: C_P^{CS} test statistics of the OLS VAR estimates (out-of-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	3.907	2.682	3.021	2.646	3.501	2.581	3.742	2.678	2.983	2.606	2.558	2.331	3.435	2.440	3.675	2.938	4.043	2.940	2.436	2.290	1.240	1.018	1.026	0.721
2	6.320	5.152	5.968	2.592	5.630	4.070	5.743	3.080	3.657	2.918	4.661	2.066	2.386	1.302	5.756	1.029	1.102	0.804	2.851	0.788	0.245	0.279	1.584	0.362
3	1.950	1.470	7.743	0.815	4.931	3.097	7.468	1.775	3.478	2.968	2.792	0.688	2.235	1.341	5.223	0.464	0.314	0.293	4.373	1.374	0.116	0.220	2.015	0.361
4	4.407	2.924	5.782	1.079	6.678	4.743	7.997	2.746	3.675	3.535	4.233	0.981	2.453	1.426	6.058	1.556	0.632	0.667	3.502	1.963	0.357	0.238	1.590	0.903
5	3.737	2.419	2.801	2.539	3.475	2.450	2.757	2.479	3.008	2.497	2.092	2.299	3.433	2.483	4.526	3.378	4.009	2.779	2.546	2.065	1.266	1.083	1.350	0.536
6	4.360	3.437	3.882	3.419	4.671	3.375	4.311	4.189	4.234	3.017	3.867	3.401	2.788	1.714	1.754	1.339	0.963	0.449	0.839	1.104	0.922	0.605	0.850	0.641
7	6.284	5.221	3.328	2.900	5.456	4.056	3.691	3.215	3.156	2.549	1.924	1.448	1.526	0.931	1.154	0.443	0.404	0.250	0.530	0.132	0.811	0.667	1.055	0.331
8	3.805	2.596	6.695	1.433	5.667	4.879	10.146	3.241	2.491	2.494	5.457	1.836	1.753	0.672	6.496	1.320	0.511	0.416	5.438	1.653	0.421	0.290	2.834	0.970
9	1.929	1.304	5.033	0.989	4.353	3.374	7.246	3.404	2.815	2.328	2.911	1.122	1.457	0.560	4.423	1.214	0.259	0.212	5.853	1.143	0.098	0.099	2.232	0.494

Table 43: C_P^{CS} test statistics of the BC VAR estimates (out-of-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	3.907	2.682	3.021	2.646	3.501	2.581	3.742	2.678	2.983	2.606	2.558	2.331	3.435	2.440	3.675	2.938	4.043	2.940	2.436	2.290	1.240	1.018	1.026	0.721
2	5.315	4.500	4.613	2.909	3.511	2.368	4.865	1.916	2.563	1.822	4.973	1.907	2.769	1.488	5.126	1.660	2.532	1.565	4.117	2.869	1.471	1.252	2.023	0.655
3	1.950	1.470	7.743	0.815	4.931	3.097	7.468	1.775	3.478	2.968	2.792	0.688	2.235	1.341	5.223	0.464	0.314	0.293	4.373	1.374	0.116	0.220	2.015	0.361
4	4.194	2.790	6.950	0.895	6.749	4.710	7.429	3.209	3.337	3.197	3.711	1.121	2.150	1.448	5.460	1.336	0.414	0.564	3.896	2.135	0.192	0.126	1.428	0.942
5	3.707	2.430	2.984	2.419	3.498	2.416	2.752	2.457	2.984	2.447	2.128	2.266	3.419	2.489	4.178	3.341	3.984	2.846	2.670	2.000	1.255	1.029	1.230	0.517
6	3.708	2.861	3.024	2.501	3.406	2.489	2.433	2.152	2.732	2.166	2.214	1.655	2.478	1.484	2.024	1.205	1.518	1.059	1.692	1.587	1.822	1.298	2.049	0.843
7	5.149	4.332	3.494	3.360	3.520	2.250	2.356	1.930	2.320	1.821	2.605	1.590	1.966	1.324	1.623	1.369	1.614	1.026	0.941	0.543	1.701	1.459	1.209	0.633
8	3.661	2.670	7.129	1.447	5.938	4.354	8.414	3.613	2.210	2.792	4.119	1.548	1.693	0.611	7.133	1.429	0.454	0.514	5.734	1.482	0.211	0.208	2.212	1.124
9	1.929	1.304	5.033	0.989	4.353	3.374	7.246	3.404	2.815	2.328	2.911	1.122	1.457	0.560	4.423	1.214	0.259	0.212	5.853	1.143	0.098	0.099	2.232	0.494

Table 44: C_P^{CS} test statistics of the OLS VAR estimates (in-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	3.907	2.682	3.021	3.021	3.501	2.581	3.742	3.742	2.983	2.606	2.558	2.558	3.435	2.440	3.675	3.675	4.043	2.940	2.436	2.436	1.240	1.018	1.026	1.026
2	3.723	3.450	6.758	6.758	3.730	2.569	4.726	4.726	2.374	2.122	3.652	3.652	1.463	0.936	4.373	4.373	0.698	0.460	2.060	2.060	0.613	0.518	2.315	2.315
3	1.950	1.470	7.743	7.743	4.931	3.097	7.468	7.468	3.478	2.968	2.792	2.792	2.235	1.341	5.223	5.223	0.314	0.293	4.373	4.373	0.116	0.220	2.015	2.015
4	4.747	3.578	7.303	7.303	5.989	4.543	7.190	7.190	2.837	2.347	3.372	3.372	1.687	1.252	4.255	4.255	0.396	0.368	2.980	2.980	0.418	0.212	1.939	1.939
5	3.795	2.749	3.583	3.583	3.427	2.523	2.692	2.692	2.985	2.483	2.270	2.270	3.445	2.440	3.895	3.895	4.044	2.839	2.091	2.091	1.252	1.115	1.506	1.506
6	4.001	3.614	4.354	4.354	5.088	3.810	3.774	3.774	4.308	2.747	2.801	2.801	2.299	1.507	2.028	2.028	0.775	0.394	0.785	0.785	1.048	0.642	1.262	1.262
7	3.694	3.488	3.370	3.370	3.589	2.897	3.173	3.173	1.861	1.274	1.012	1.012	0.930	0.501	1.113	1.113	0.245	0.223	0.696	0.696	1.608	1.347	1.593	1.593
8	5.482	3.677	7.690	7.690	5.441	4.842	6.792	6.792	2.467	2.002	4.273	4.273	1.569	0.671	4.297	4.297	0.447	0.337	4.182	4.182	0.557	0.347	3.187	3.187
9	1.929	1.304	5.033	5.033	4.353	3.374	7.246	7.246	2.815	2.328	2.911	2.911	1.457	0.560	4.423	4.423	0.259	0.212	5.853	5.853	0.098	0.099	2.232	2.232

Table 45: C_P^{CS} test statistics of the BC VAR estimates (in-sample)

Quarters	4				8				12				16				20				40			
Model	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly	OLS	Linear	RBF	Poly
1	3.907	2.682	3.021	3.021	3.501	2.581	3.742	3.742	2.983	2.606	2.558	2.558	3.435	2.440	3.675	3.675	4.043	2.940	2.436	2.436	1.240	1.018	1.026	1.026
2	3.526	2.961	6.313	6.313	3.292	2.091	4.600	4.600	2.821	1.965	4.472	4.472	3.152	2.004	5.068	5.068	2.837	2.197	5.083	5.083	1.025	0.912	2.751	2.751
3	1.950	1.470	7.743	7.743	4.931	3.097	7.468	7.468	3.478	2.968	2.792	2.792	2.235	1.341	5.223	5.223	0.314	0.293	4.373	4.373	0.116	0.220	2.015	2.015
4	4.101	2.620	6.768	6.768	5.718	3.464	5.452	5.452	2.578	2.380	2.334	2.334	1.293	1.195	4.956	4.956	0.274	0.260	4.963	4.963	0.184	0.178	1.921	1.921
5	3.645	2.605	3.348	3.348	3.418	2.495	2.673	2.673	3.007	2.406	2.460	2.460	3.419	2.501	3.656	3.656	4.062	2.891	2.779	2.779	1.282	1.056	1.528	1.528
6	3.923	3.074	3.651	3.651	3.862	2.535	3.171	3.171	2.861	1.819	2.752	2.752	2.703	1.540	2.422	2.422	1.906	1.425	1.829	1.829	1.460	1.186	1.124	1.124
7	3.800	3.338	2.443	2.443	3.039	2.035	2.411	2.411	2.736	2.053	2.151	2.151	2.418	1.637	3.228	3.228	2.252	1.571	2.566	2.566	1.389	1.258	0.594	0.594
8	4.854	2.720	6.839	6.839	5.079	3.388	6.306	6.306	2.337	2.257	3.219	3.219	1.240	0.586	5.602	5.602	0.279	0.357	6.898	6.898	0.264	0.211	3.052	3.052
9	1.929	1.304	5.033	5.033	4.353	3.374	7.246	7.246	2.815	2.328	2.911	2.911	1.457	0.560	4.423	4.423	0.259	0.212	5.853	5.853	0.098	0.099	2.232	2.232