

On-line Appendix for “Forecasting Tail Risks”

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I. DESCRIPTIVE STATISTICS AND CORRELATIONS

Table A1

A. Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
IPG	503	0.176	0.731	-4.299	2.068
EMG	503	0.114	0.276	-0.852	1.502
CDI	504	0.083	0.032	0.014	0.241
BDI	504	0.082	0.044	0.008	0.316
DNFCI	504	0.025	1.000	-4.515	1.053

B. Correlations

	IPG	EMG	CDI	BDI	DNFCI
IPG	1				
EMG	0.3823*	1			
CDI	0.1798*	0.1287*	1		
BDI	0.1390*	0.2230*	0.5916*	1	
DNFCI	-0.2351*	-0.1572*	0.0323	0.046	1

note: * indicates significance at 5% probability

II. NUMBER OF SERIES IN THE DATASET BY GROUP

Table A2. Series in the dataset by group

Group	Summary description	# of series
1	Real output and income	17
2	Employment and hours	30
3	Housing starts and permits	10
4	Consumption expenditures, retail sales, ISM and consumer confidence indexes	13
5	Money and credit quantities	14
6	Interest rates, spreads and exchange rates	22
7	Goods and commodity prices	21
8	Equity market (stock prices, dividend yields, price-earnings ratios)	27
9	Risks in the financial and corporate sectors (Distance to Insolvency, NFCI)	10
	Total number of series	164

III. EXPLANATORY POWER OF FACTORS

Table A3. R2 of regressions of variables on each factor, factor combination, and factor combinations with AR(5) terms

	<i>F1</i>	<i>F2</i>	<i>F3</i>	<i>F4</i>	<i>F5</i>	<i>F1-F3</i>	<i>F1-F5</i>	<i>F1-F3+AR(5)</i>	<i>F1-F5+AR(5)</i>
<i>IPG</i>	0.48	0.16	0.07	0.01	0.03	0.71	0.76	0.73	0.76
<i>EMG</i>	0.28	0.04	0.00	0.01	0.01	0.32	0.33	0.33	0.35
<i>CDI</i>	0.06	0.12	0.01	0.00	0.16	0.20	0.36	0.46	0.51
<i>BDI</i>	0.13	0.01	0.10	0.01	0.15	0.24	0.40	0.57	0.61
<i>DNFCI</i>	0.13	0.02	0.01	0.12	0.00	0.16	0.28	0.51	0.56

IV. B(L)=0 TESTS FOR THE FAVAR MODEL

Recall the FAVAR specification for each $y_t \in Y_t$:

$$\begin{bmatrix} F_t \\ y_t \end{bmatrix} = \begin{pmatrix} A(L) & B(L) \\ a(L) & b(L) \end{pmatrix} \begin{bmatrix} F_{t-1} \\ y_{t-1} \end{bmatrix} + \begin{bmatrix} \eta_t \\ u_{yt} \end{bmatrix} \quad (A1)$$

$$\begin{aligned} u_{yt} &= \sigma_{yt} \varepsilon_{yt} \\ \sigma_{yt} &= a + b\sigma_{yt-1} + c |u_{yt-1}| \end{aligned} \quad (A2),$$

We test $B(L) = 0$. Table A1 reports the results of exclusion tests similar to those carried out by Stock and Watson (2005): it shows the percentiles of the distribution of p -values of chi-square tests of including a lag of the 5 variables in Y_t in each equation of a VAR(4) with 5 factors, and the associated increase in R^2 . Estimations were carried out using an expanding data window starting from an initial estimation period of 120 month (370 regressions for each factor and each variable), resulting in a total of 1850 tests. It can be seen that for the entire set of tests, 25% of the p -values are less than .002 and 50% are less than .09. These rejections are associated with economically significant improvements in the ability to predict the PCA factors, since about 25% of the total number of the regressions is

associated with improvements in the R^2 greater than or equal to 0.09, with the financial variables CDI , BDI and $DNFCI$ yielding improvements in the R^2 greater than or equal to 0.26.

Table A4. Tests of FAVAR exclusion restrictions

	percentiles	0.01	0.05	0.1	0.25	0.5	0.75	0.9	0.95	0.99
All series	p-values	0.00	0.00	0.00	0.01	0.09	0.41	0.70	0.80	0.93
	marginal R2	0.00	0.00	0.00	0.01	0.02	0.09	0.52	0.70	0.89
IPG	p-values	0.00	0.00	0.00	0.00	0.02	0.10	0.24	0.39	0.61
	marginal R2	0.00	0.00	0.00	0.00	0.01	0.02	0.04	0.10	0.16
EMG	p-values	0.02	0.02	0.04	0.10	0.32	0.66	0.82	0.89	0.94
	marginal R2	0.00	0.01	0.01	0.02	0.03	0.08	0.24	0.39	0.61
CDI	p-values	0.01	0.01	0.01	0.04	0.18	0.52	0.76	0.84	0.95
	marginal R2	0.00	0.00	0.00	0.01	0.02	0.51	0.81	0.88	0.93
BDI	p-values	0.01	0.01	0.02	0.05	0.26	0.58	0.75	0.83	0.94
	marginal R2	0.00	0.00	0.00	0.01	0.04	0.26	0.62	0.68	0.81
DNFCI	p-values	0.00	0.00	0.00	0.00	0.00	0.04	0.17	0.27	0.57
	marginal R2	0.00	0.00	0.00	0.01	0.04	0.33	0.67	0.76	0.94

V. SPECIFICATIONS OF AR AND QP MODELS AND RELEVANT EQUALLY WEIGHTED POOLS

Table A5. Model specifications

Panel A. AR MODELS							<i>Equally Weighted Pools</i>	
#	model identifier	volatility	estimation	# of factors	AR lags	est. window	<i>pools</i>	<i>EWPs</i>
<i>AR models (no factors)</i>								
1	AR-I-RW	linear GARCH(1,1)	iterated	0	5	rolling	(1,2)	AR-I
2	AR-I-EW	linear GARCH(1,1)	iterated	0	5	expanding	(3,4)	AR-D
3	AR-D-RW	in-sample	direct	0	5	rolling	(5,6,7,8)	FAAR - D
4	AR-D-EW	in-sample	direct	0	5	expanding	(9,10,11,12)	FAVAR - I
<i>Factor-augmented models</i>								
5	FAAR-D-AH-RW	in-sample	direct	3	2	rolling		
6	FAAR-D-AH-EW	in-sample	direct	3	2	expanding		
7	FAAR-D-5-RW	in-sample	direct	5	2	rolling		
8	FAAR-D-5-EW	in-sample	direct	5	2	expanding		
9	FAVAR-I-AH-RW	linear GARCH(1,1)	iterated	AH, optimal	2	rolling		
10	FAVAR-I-AH-EW	linear GARCH(1,1)	iterated	AH, optimal	2	expanding		
11	FAVAR-I-5-RW	linear GARCH(1,1)	iterated	5	1	rolling		
12	FAVAR-I-5-EW	linear GARCH(1,1)	iterated	5	1	expanding		
Panel B. QUANTILE PROJECTIONS							<i>Equally Weighted Pools</i>	
<i>QAR models (no factors)</i>								
1	QAR-RW			0	5	rolling	(1,2)	QAR
2	QAR-EW			0	5	expanding	(2,3,5,6)	FAQAR
<i>Factor-augmented models</i>								
3	FAQAR-AH-RW			AH, optimal	2	rolling		
4	FAQAR-5-RW			5	1	rolling		
5	FAQAR-AH-EW			AH, optimal	2	expanding		
6	FAQAR-5-EW			5	1	expanding		

VI. LEFT TAIL QWPS OF AR AND FAVAR MODELS AND DM TESTS

Table A6. Average Left Tail QWPS of AR and FAVAR Models and DM Tests

The values in **bold** indicate a model whose predictive ability as gauged by DM tests at 5% probability level is strictly better than any model in each column. Models with both values indicated in bold have a predictive performance not significantly different according to the relevant DM tests.

Panel A. Real Variables

#		IPG			EMG		
		3m	6m	12m	3m	6m	12m
	AR MODELS (NO FACTORS)						
1	AR-I-RW	19.92	38.62	72.68	8.52	14.20	25.93
2	AR-I-EW	19.41	36.41	68.54	9.60	16.64	30.95
3	AR-D-RW	19.31	37.66	70.73	7.65	12.72	23.58
4	AR-D-EW	19.74	37.80	70.75	7.54	12.50	22.95
	Equally Weighted Pools						
(1,2)	EWP ARG-I	19.39	38.01	70.06	8.44	13.22	26.85
(3,4)	EWP AR-D	19.36	37.58	70.44	7.56	12.53	23.12
	Factor-augmented models						
5	FAAR-D-AH-RW	18.70	37.82	72.46	6.61	10.65	20.92
6	FAAR-D-AH-EW	18.14	35.58	66.81	6.75	11.70	23.16
7	FAAR-D-5-RW	18.95	37.38	68.13	6.62	11.06	22.00
8	FAAR-D-5-EW	18.20	37.08	68.20	6.63	11.15	21.27
9	FAVAR-I-AH-RW	18.98	36.99	66.99	7.22	11.83	20.92
10	FAVAR-I-AH-EW	18.06	34.99	60.64	8.31	14.52	27.04
11	FAVAR-I-5-RW	19.52	38.64	72.83	7.40	12.37	22.73
12	FAVAR-I-5-EW	17.26	33.55	68.50	8.72	15.35	28.72
	Equally Weighted Pools						
(5,6,7,8)	EWP FAAR - D	18.02	36.14	67.32	6.53	10.77	20.96
(9,10,11,12)	EWP FAVAR - I	17.67	34.99	64.05	6.56	10.67	20.19

Table A6. Average Left Tail QWPS of AR and FAVAR Models and DM Tests (cont.)

The values in **bold** indicate a model whose predictive ability as gauged by DM tests at 5% probability level is strictly better than any model in each column. Models with both values indicated in bold have a predictive performance not significantly different according to the relevant DM tests.

Panel B. Financial Variables

#		BDI			CDI			DNFCI		
		3m	6m	12m	3m	6m	12m	3m	6m	12m
	AR MODELS (NO FACTORS)									
1	AR-I-RW	0.559	0.652	0.721	0.554	0.606	0.684	3.907	5.518	7.766
2	AR-I-EW	0.552	0.672	0.830	0.519	0.553	0.619	4.177	5.550	7.769
3	AR-D-RW	0.480	0.537	0.582	0.509	0.543	0.612	5.870	8.847	11.164
4	AR-D-EW	0.475	0.533	0.646	0.494	0.523	0.599	5.724	8.107	10.577
	Equally Weighted Pools									
(1,2)	EWP ARG-I	0.516	0.516	0.714	0.522	0.522	0.627	3.855	4.855	7.644
(3,4)	EWP AR-D	0.473	0.530	0.603	0.499	0.530	0.599	5.716	8.433	10.675
	Factor-augmented models									
5	FAAR-D-AH-RW	0.503	0.569	0.628	0.529	0.560	0.632	4.902	6.890	8.621
6	FAAR-D-AH-EW	0.495	0.566	0.672	0.503	0.536	0.623	6.616	8.909	10.815
7	FAAR-D-5-RW	0.514	0.550	0.633	0.539	0.533	0.579	5.153	6.999	8.718
8	FAAR-D-5-EW	0.529	0.561	0.629	0.515	0.568	0.633	6.749	9.211	11.070
9	FAVAR-I-AH-RW	0.636	0.679	0.753	0.611	0.620	0.642	4.510	6.539	7.614
10	FAVAR-I-AH-EW	0.573	0.689	0.821	0.566	0.613	0.656	4.608	6.223	7.756
11	FAVAR-I-5-RW	0.634	0.695	0.793	0.594	0.609	0.627	4.476	6.407	8.692
12	FAVAR-I-5-EW	0.603	0.711	0.842	0.556	0.598	0.652	5.171	6.718	8.956
	Equally Weighted Pools									
(5,6,7,8)	EWP FAAR - D	0.493	0.538	0.599	0.509	0.534	0.585	5.614	7.862	9.526
(9,10,11,12)	EWP FAVAR - I	17.67	34.99	64.05	6.56	10.67	20.19	0.480	0.528	0.587

VII. QUANTILE SCORES OF QUANTILE PROJECTIONS AND DM TESTS

Table A7. Average Quantile Scores of Quantile Projections and DM Tests

The values in **bold** indicate a model whose predictive ability as gauged by DM tests at 5% probability level is strictly better than any model in each column. Models with values both indicated in bold have most significantly different predictive performance according to the relevant DM tests.

		$\alpha = 0.05$			$\alpha = 0.10$			
Variable	Forecast horizon	3m	6m	12m	3m	6m	12m	
IPG	<i>Quantile Projections (no factors)</i>							
	QP-RW	0.2701	0.5389	0.9041	0.4295	0.8099	1.5961	
	QP-EW	0.3214	0.6514	1.2085	0.4982	0.9157	1.8857	
	<i>Factor Augmented Quantile Projections</i>							
	FAQP-AH-RW	0.2016	0.4153	0.7034	0.3410	0.7172	1.1560	
	FAQP-5-RW	0.2265	0.3894	0.7189	0.3486	0.7019	1.1753	
	FAQP-AH-EW	0.2392	0.4491	0.8571	0.3795	0.7320	1.2717	
	FAQP-5-EW	0.2394	0.4229	0.8123	0.3600	0.7038	1.2361	
	<i>EWP of QPs</i>							
	EWP QP	0.2906	0.5903	1.0416	0.4544	0.8564	1.7301	
	EWP FAQP	0.2013	0.3666	0.6609	0.3328	0.6449	1.0848	
	EMG	<i>Quantile Projections (no factors)</i>						
		QP-RW	0.0972	0.1650	0.2767	0.1513	0.2568	0.5196
		QP-EW	0.1083	0.1989	0.3617	0.1660	0.2842	0.5854
<i>Factor Augmented Quantile Projections</i>								
FAQP-AH-RW		0.0787	0.1223	0.2021	0.1261	0.2153	0.3757	
FAQP-5-RW		0.0762	0.1252	0.2120	0.1239	0.2168	0.3590	
FAQP-AH-EW		0.0867	0.1357	0.2561	0.1377	0.2455	0.4189	
FAQP-5-EW		0.0877	0.1311	0.2399	0.1417	0.2191	0.4012	
<i>EWP of QPs</i>								
EWP QP		0.1018	0.1819	0.3181	0.1577	0.2682	0.5474	
EWP FAQP		0.0775	0.1213	0.2166	0.1278	0.2128	0.3675	

Table A7. Average Quantile Scores of Quantile Projections and DM Tests (cont.)

The values in **bold** indicate a model whose predictive ability as gauged by DM tests at 5% probability level is strictly better than any model in each column. Models with values both indicated in bold have most significantly different predictive performance according to the relevant DM tests.

Panel B. Financial Variables

Variable	Forecast horizon	$\alpha = 0.05$			$\alpha = 0.10$			
		3 months	6 months	12 months	3m	6m	12m	
BDI	<i>Quantile Projections (no factors)</i>							
	QP-RW	0.005356	0.005570	0.006337	0.009951	0.010117	0.010940	
	QP-EW	0.005289	0.005293	0.005767	0.009605	0.009997	0.010567	
	<i>Factor Augmented Quantile Projections</i>							
	FAQP-AH-RW	0.005467	0.005195	0.005994	0.009415	0.009506	0.010190	
	FAQP-5-RW	0.005301	0.006201	0.008555	0.010076	0.009936	0.011694	
	FAQP-AH-EW	0.005800	0.005434	0.006043	0.009128	0.010089	0.010637	
	FAQP-5-EW	0.005605	0.005521	0.005512	0.009293	0.010034	0.010405	
	<i>EWP of QPs</i>							
	EWP QP	0.005257	0.005368	0.005980	0.009672	0.010019	0.010573	
	EWP FAQP	0.005281	0.005067	0.005243	0.008832	0.009303	0.009721	
	CDI	<i>Quantile Projections (no factors)</i>						
		QP-RW	0.004637	0.005513	0.006027	0.008358	0.009560	0.009764
		QP-EW	0.005022	0.004994	0.006495	0.008786	0.009101	0.009764
		<i>Factor Augmented Quantile Projections</i>						
FAQP-AH-RW		0.004534	0.006814	0.007705	0.008086	0.010045	0.009485	
FAQP-5-RW		0.005162	0.006392	0.006336	0.009696	0.010098	0.009289	
FAQP-AH-EW		0.004333	0.005309	0.006220	0.008115	0.008803	0.008917	
FAQP-5-EW		0.004532	0.004837	0.004651	0.008065	0.009016	0.008670	
<i>EWP of QPs</i>								
EWP QP		0.004695	0.005072	0.006030	0.008390	0.009150	0.009424	
EWP FAQP		0.004307	0.004674	0.004854	0.007946	0.008565	0.008148	
DNFCI		<i>Quantile Projections (no factors)</i>						
		QP-RW	0.0830	0.1140	0.1656	0.1048	0.1641	0.2307
		QP-EW	0.1118	0.1683	0.2432	0.1434	0.2259	0.3050
		<i>Factor Augmented Quantile Projections</i>						
	FAQP-AH-RW	0.0576	0.0743	0.0965	0.0930	0.1354	0.1575	
	FAQP-5-RW	0.0508	0.0665	0.0886	0.0883	0.1216	0.1512	
	FAQP-AH-EW	0.0701	0.1052	0.1380	0.1130	0.1656	0.2114	
	FAQP-5-EW	0.0680	0.0965	0.1255	0.1123	0.1568	0.1990	
	<i>EWP of QPs</i>							
	EWP QP	0.0956	0.1395	0.1980	0.1219	0.1918	0.2627	
	EWP FAQP	0.0598	0.0820	0.1055	0.0986	0.1389	0.1717	

VIII. COVERAGE RATIOS ($\alpha = 0.05$ AND $\alpha = 0.10$) OF EWP VaR_α FORECASTS OF
FACTOR-AUGMENTED AR AND QP MODELS

Table A8. Coverage ratios of the EWPAR and EWPQP VaR_α forecasts

Panel A: $\alpha = 0.05$

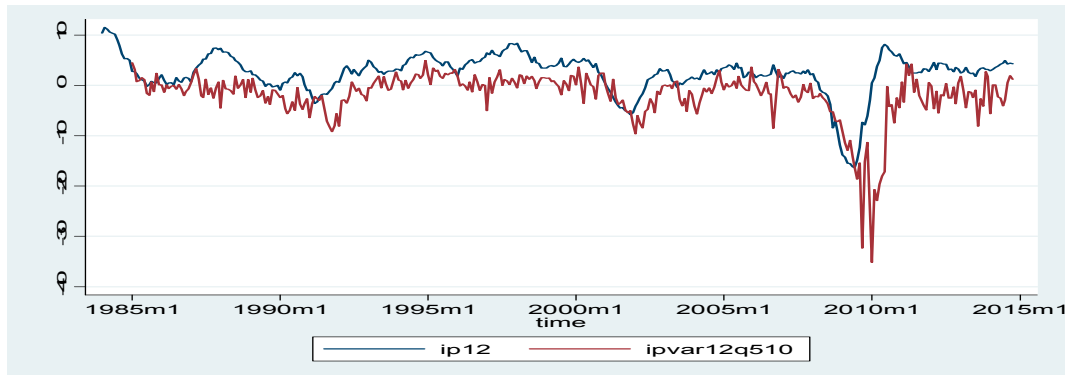
Variables	Model	EWPFAR			EWPQP			
		Forecast Horizon (months)	3	6	12	3	6	12
IPG	1984:1-2014:12		0.05	0.11	0.15	0.02	0.04	0.08
	2007:1-2014:12		0.09	0.15	0.24	0.04	0.09	0.12
EMG	1984:1-2014:12		0.11	0.15	0.22	0.04	0.07	0.09
	2007:1-2014:12		0.21	0.27	0.36	0.05	0.11	0.13
BDI	1984:1-2014:12		0.13	0.19	0.24	0.05	0.10	0.15
	2007:1-2014:12		0.17	0.31	0.36	0.04	0.16	0.20
CDI	1984:1-2014:12		0.09	0.11	0.17	0.03	0.04	0.10
	2007:1-2014:12		0.11	0.13	0.19	0.03	0.05	0.12
DNFCI	1984:1-2014:12		0.09	0.10	0.11	0.02	0.03	0.05
	2007:1-2014:12		0.15	0.21	0.27	0.03	0.06	0.05

Panel B: $\alpha = 0.10$

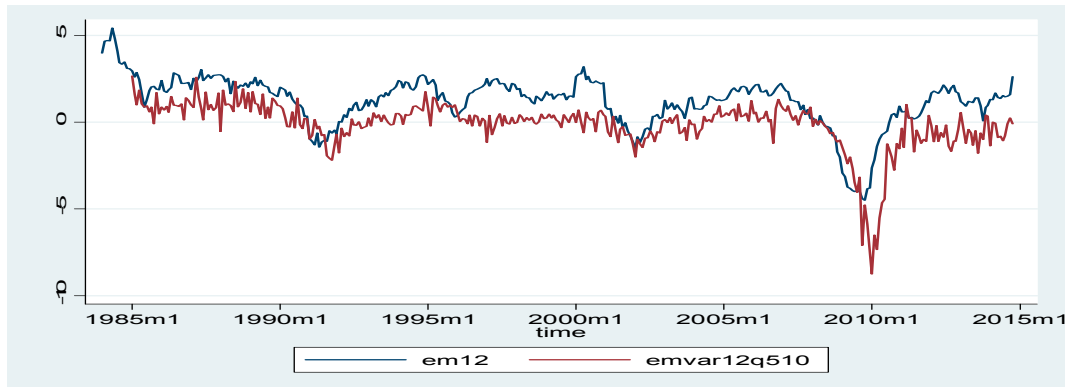
Variables	Model	EWPFAR			EWPQP			
		Forecast Horizon (months)	3	6	12	3	6	12
IPG	1984:1-2014:12		0.09	0.14	0.18	0.05	0.09	0.11
	2007:1-2014:12		0.13	0.17	0.24	0.10	0.12	0.15
EMG	1984:1-2014:12		0.16	0.22	0.27	0.10	0.12	0.14
	2007:1-2014:12		0.30	0.34	0.42	0.11	0.19	0.21
BDI	1984:1-2014:12		0.23	0.28	0.36	0.14	0.16	0.18
	2007:1-2014:12		0.27	0.36	0.45	0.07	0.23	0.20
CDI	1984:1-2014:12		0.18	0.20	0.24	0.13	0.06	0.15
	2007:1-2014:12		0.20	0.23	0.26	0.09	0.06	0.17
DNFCI	1984:1-2014:12		0.12	0.12	0.13	0.04	0.05	0.07
	2007:1-2014:12		0.17	0.24	0.29	0.11	0.13	0.15

IX. FIGURES A1. EWPQP $VaR_{0.05}$ FORECASTS AT 12 MONTH HORIZON

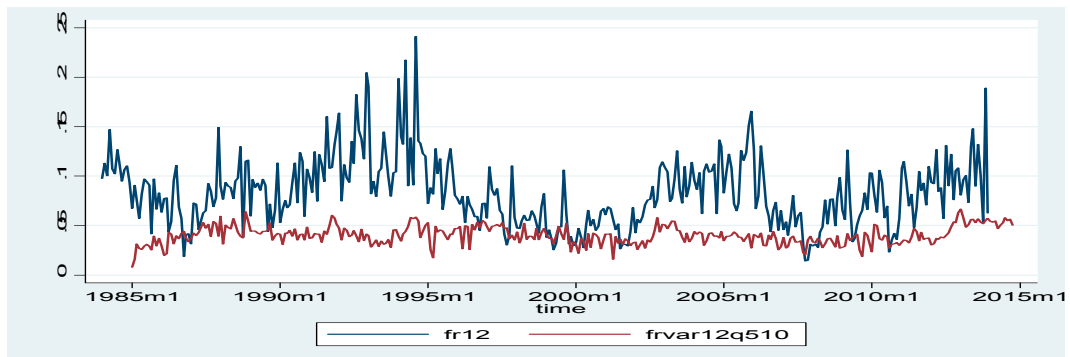
IPG and *Industrial Production-at-Risk* ($VaR_{0.05}(IPG)$)



EMG and *Employment-at-Risk* ($VaR_{0.05}(EMG)$)



CDI and *Corporate Sector-at-Risk* ($VaR_{0.05}(CDI)$)



X. DATA LIST

The data range of all variables is 1973:1-2014:12. The format of the tables is as follows: group, series number, transformation code, series mnemonic (id), and series description. The column “tcode” denotes the following transformations: (1) no transformation, (2) first difference, (3) first difference of logarithms. Application of transformations was implemented through standard unit root tests. All series are taken from the FRED-MD database, except those marked in *italics* (taken from DataStream), and in ***bold-italics*** (taken from the Fed Chicago website).

Group 1	#	tcode	id	description
	1	3	RPI	Real Personal Income
	2	3	W875RX1	RPI ex. Transfers
	3	3	INDPRO	IP Index
	4	3	IPFPNSS	IP: Final Products and Supplies
	5	3	IPFINAL	IP: Final Products
	6	3	IPCONGD	IP: Consumer Goods
	7	3	IPDCONGD	IP: Durable Consumer Goods
	8	3	IPNCONGD	IP: Nondurable Consumer Goods
	9	3	IPBUSEQ	IP: Business Equipment
	10	3	IPMAT	IP: Materials
	11	3	IPDMAT	IP: Durable Materials
	12	3	IPNMAT	IP: Nondurable Materials
	13	3	IPMANSICS	IP: Manufacturing
	14	3	IPB51222S	IP: Residential Utilities
	15	3	IPFUELS	IP: Fuels
	16	1	NAPMPI	ISM Manufacturing: Production
	17	2	CAPUTLB00004S	Capacity Utilization: Manufacturing

Group 2	#	tcode	id	description
	1	3	CLF16OV	Civilian Labor Force
	2	3	CE16OV	Civilian Employment
	3	2	UNRATE	Civilian Unemployment Rate
	4	2	UEMPMEAN	Average Duration of Unemployment
	5	3	UEMPLT5	Civilians Unemployed < 5 Weeks
	6	3	UEMP5TO14	Civilians Unemployed 5-14 Weeks
	7	3	UEMP15OV	Civilians Unemployed > 15 Weeks
	8	3	UEMP15T26	Civilians Unemployed 15-26 Weeks
	9	3	UEMP27OV	Civilians Unemployed > 27 Weeks
	10	3	CLAIMSx	Initial Claims
	11	3	PAYEMS	All Employees: Total nonfarm
	12	3	USGOOD	All Employees: Goods-Producing
	13	3	CES1021000001	All Employees: Mining and Logging
	14	3	USCONS	All Employees: Construction
	15	3	MANEMP	All Employees: Manufacturing
	16	3	DMANEMP	All Employees: Durable goods
	17	3	NDMANEMP	All Employees: Nondurable goods
	18	3	SRVPRD	All Employees: Service Industries
	19	3	USTPU	All Employees: TT&U
	20	3	USWTRADE	All Employees: Wholesale Trade
	21	3	USTRADE	All Employees: Retail Trade
	22	3	USFIRE	All Employees: Financial Activities
	23	3	USGOVT	All Employees: Government
	24	2	CES0600000007	Hours: Goods-Producing
	25	2	AWOTMAN	Overtime Hours: Manufacturing
	26	2	AWHMAN	Hours: Manufacturing
	27	1	NAPMEI	ISM Manufacturing: Employment
	28	3	CES0600000008	Ave. Hourly Earnings: Goods
	29	3	CES2000000008	Ave. Hourly Earnings: Construction
	30	3	CES3000000008	Ave. Hourly Earnings: Manufacturing

Group 3	#	tcode	id	description
	1	3	HOUST	Starts: Total
	2	3	HOUSTNE	Starts: Northeast
	3	3	HOUSTMW	Starts: Midwest
	4	3	HOUSTS	Starts: South
	5	3	HOUSTW	Starts: West
	6	3	PERMIT	Permits
	7	3	PERMITNE	Permits: Northeast
	8	3	PERMITMW	Permits: Midwest
	9	3	PERMITS	Permits: South
	10	3	PERMITW	Permits: West
Group 4	id	tcode	id	description
	1	3	DPCERA3M086SBEA	Real PCE
	2	3	CMRMTSPLx	Real M&T Sales
	3	3	RETAILx	Retail and Food Services Sales
	4	1	NAPM	ISM: PMI Composite Index
	5	1	NAPMNOI	ISM: New Orders Index
	6	1	NAPMSDI	ISM: Supplier Deliveries Index
	7	1	NAPMII	ISM: Inventories Index
	8	3	AMDMNOx	Orders: Durable Goods
	9	3	ANDENOx	Orders: Nondefense Capital Goods
	10	3	AMDMUOx	Unfilled Orders: Durable Goods
	11	3	BUSINVx	Total Business Inventories
	12	2	ISRATIOx	Inventories to Sales Ratio
	13	2	USCNFCONQ*	Conference Board Consumer Confidence Index
Group 5	id	tcode	id	description
	1	3	M1SL	M1 Money Stock
	2	3	M2SL	M2 Money Stock
	3	3	M2REAL	Real M2 Money Stock
	4	3	AMBSL	St. Louis Adjusted Monetary Base
	5	3	TOTRESNS	Total Reserves
	6	3	NONBORRES	Nonborrowed Reserves
	7	3	BUSLOANS	Commercial and Industrial Loans
	8	3	REALLN	Real Estate Loans
	9	3	NONREVSL	Total Nonrevolving Credit
	10	2	CONSPI	Credit to PI ratio
	11	3	MZMSL	MZM Money Stock
	12	3	DTCOLNVHFNM	Consumer Motor Vehicle Loans
	13	3	DTCTHFNM	Total Consumer Loans and Leases
	14	3	INVEST	Securities in Bank Credit

Group 6	#	tcode	id	description
	1	2	FEDFUNDS	Effective Federal Funds Rate
	2	2	CP3M	3-Month AA Comm. Paper Rate
	3	2	TB3MS	3-Month T-bill
	4	2	TB6MS	6-Month T-bill
	5	2	GS1	1-Year T-bond
	6	2	GS5	5-Year T-bond
	7	2	GS10	10-Year T-bond
	8	2	AAA	Aaa Corporate Bond Yield
	9	2	BAA	Baa Corporate Bond Yield
	10	1	COMPAPFF	CP - FFR spread
	11	1	TB3SMFFM	3 Mo. - FFR spread
	12	1	TB6SMFFM	6 Mo. - FFR spread
	13	1	T1YFFM	1 yr. - FFR spread
	14	1	T5YFFM	5 yr. - FFR spread
	15	1	T10YFFM	10 yr. - FFR spread
	16	1	AAAFFM	Aaa - FFR spread
	17	1	BAAFFM	Baa - FFR spread
	18	3	TWEXMMTH	Trade Weighted U.S. FX Rate
	19	3	EXSZUS	Switzerland / U.S. FX Rate
	20	3	EXJPUS	Japan / U.S. FX Rate
	21	3	EXUSUK	U.S. / U.K. FX Rate
	22	3	EXCAUS	Canada / U.S. FX Rate
Group 7	#	tcode	id	description
	1	3	PPIFGS	PPI: Finished Goods
	2	3	PPIFCG	PPI: Finished Consumer Goods
	3	3	PPIITM	PPI: Intermediate Materials
	4	3	PPICRM	PPI: Crude Materials
	5	3	oilprice	Crude Oil Prices: WTI
	6	3	PPICMM	PPI: Commodities
	7	1	NAPMPRI	ISM Manufacturing: Prices
	8	3	CPIAUCSL	CPI: All Items
	9	3	CPIAPPSL	CPI: Apparel
	10	3	CPITRNSL	CPI: Transportation
	11	3	CPIMEDSL	CPI: Medical Care
	12	3	CUSR0000SAC	CPI: Commodities
	13	3	CUUR0000SAD	CPI: Durables
	14	3	CUSR0000SAS	CPI: Services
	15	3	CPIULFSL	CPI: All Items Less Food
	16	3	CUUR0000SA0L2	CPI: All items less shelter
	17	3	CUSR0000SA0L5	CPI: All items less medical care
	18	3	PCEPI	PCE: Chain-type Price Index
	19	3	DDURRG3M086SBEA	PCE: Durable goods
	20	3	DNDGRG3M086SBEA	PCE: Nondurable goods
	21	3	DSERRG3M086SBEA	PCE: Services

Group 8	#	tcode	id	description
	1	3	TOTMKUS(PI)	US-DS Market - PRICE INDEX
	2	3	TOTMKUS(PE)	US-DS Market - PER
	3	2	TOTMKUS(DY)	US-DS Market - DIVIDEND YIELD
	4	3	TOTLIUS(PI)	US-DS NON-FINANCIAL - PRICE INDEX
	5	3	TOTLIUS(PE)	US-DS NON-FINANCIAL - PER
	6	2	TOTLIUS(DY)	US-DS NON-FINANCIAL - DIVIDEND YIELD
	7	3	INDUSUS(PI)	US-DS Industrials - PRICE INDEX
	8	3	INDUSUS(PE)	US-DS Industrials - PER
	9	2	INDUSUS(DY)	US-DS Industrials - DIVIDEND YIELD
	10	3	CNSMGUS(PI)	US-DS Consumer Gds - PRICE INDEX
	11	3	CNSMGUS(PE)	US-DS Consumer Gds - PER
	12	2	CNSMGUS(DY)	US-DS Consumer Gds - DIVIDEND YIELD
	13	3	FINANUS(PI)	US-DS Financials - PRICE INDEX
	14	3	FINANUS(PE)	US-DS Financials - PER
	15	2	FINANUS(DY)	US-DS Financials - DIVIDEND YIELD
	16	3	TECNOUS(PI)	US-DS Technology - PRICE INDEX
	17	3	TECNOUS(PE)	US-DS Technology - PER
	18	2	TECNOUS(DY)	US-DS Technology - DIVIDEND YIELD
	19	3	BANKSUS(PI)	US-DS Banks - PRICE INDEX
	20	3	BANKSUS(PE)	US-DS Banks - PER
	21	2	BANKSUS(DY)	US-DS Banks - DIVIDEND YIELD
	22	3	INSURUS(PI)	US-DS Insurance - PRICE INDEX
	23	3	INSURUS(PE)	US-DS Insurance - PER
	24	2	INSURUS(DY)	US-DS Insurance - DIVIDEND YIELD
	25	3	RLESTUS(PI)	US-DS Real Estate - PRICE INDEX
	26	3	RLESTUS(PE)	US-DS Real Estate - PER
	27	2	RLESTUS(DY)	US-DS Real Estate - DIVIDEND YIELD

Group 9	#	tcode	id	description
	1	1	dimarket	US-DS Market - Distance to Insolvency
	2	1	dinonfinancial	US-DS NON-FINANCIAL -Distance to Insolvency
	3	1	diindustrials	US-DS Industrials - Distance to Insolvency
	4	1	diconsumerg	US-DS Consumer Gds - Distance to Insolvency
	5	1	difinancials	US-DS Financials - Distance to Insolvency
	6	1	ditechnology	US-DS Technology - Distance to Insolvency
	7	1	dibanks	US-DS Banks - Distance to Insolvency
	8	1	diinsurance	US-DS Insurance - Distance to Insolvency
	9	1	direalestate	US-DS Real Estate - Distance to Insolvency
	10	2	NFCI	Fed Chicago National Financial Conditions Index