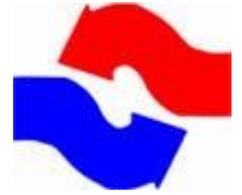




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# Those Unpredictable Recessions...

The 32nd Annual International Symposium on Forecasting  
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# The main idea

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*While predicting recessions a 'wishful bias' is common*

- ▶ I have no direct, strict and indisputable scientific proof;
- ▶ But I found some facts and pieces of evidence which could lead to indirect clues;
- ▶ So, I want to propose these facts to the attention of the experts – just as a lawyer would propose his arguments to a trial of jurors

# One preliminary note

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*By the words 'prediction of a recession' I mean:*

- ▶ Not the exact date of its beginning;
- ▶ But a definite statement that a recession will certainly take place in the nearest future

# First piece of evidence: budget projects

*Forecasts for real GDP growth rates made by OMB are almost always more optimistic than ones by CBO*

- ▶ Pay attention to the GDP figures for 2013;
- ▶ The difference is not always so large but it's usually positive - for the nearest years;
- ▶ The question is: Why?

## 2. ECONOMIC ASSUMPTIONS

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Table 2-2. COMPARISON OF ECONOMIC ASSUMPTIONS  
(Calendar years)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
<b>Nominal GDP:</b>												
2013 Budget <sup>1</sup> .....	15,106	15,779	16,522	17,397	18,448	19,533	20,651	21,689	22,666	23,659	24,688	25,760
Blue Chip .....	15,108	15,727	16,435	17,273	18,136	19,043	19,957	20,895	21,877	22,906	23,982	25,109
CBO .....	15,093	15,633	16,015	16,817	17,899	18,962	19,949	20,897	21,859	22,853	23,870	24,921
<b>Real GDP (year-over-year):</b>												
2013 Budget <sup>1</sup> .....	1.8	2.7	3.0	3.6	4.1	4.0	3.9	3.2	2.7	2.5	2.5	2.5
Blue Chip Consensus.....	1.7	2.2	2.6	2.9	2.9	2.9	2.7	2.5	2.5	2.5	2.5	2.5
CBO .....	1.7	2.2	1.0	3.6	4.9	4.2	3.3	2.8	2.6	2.5	2.4	2.4

Source: Analytical Perspectives, Budget of the United States Government, Fiscal Year 2013



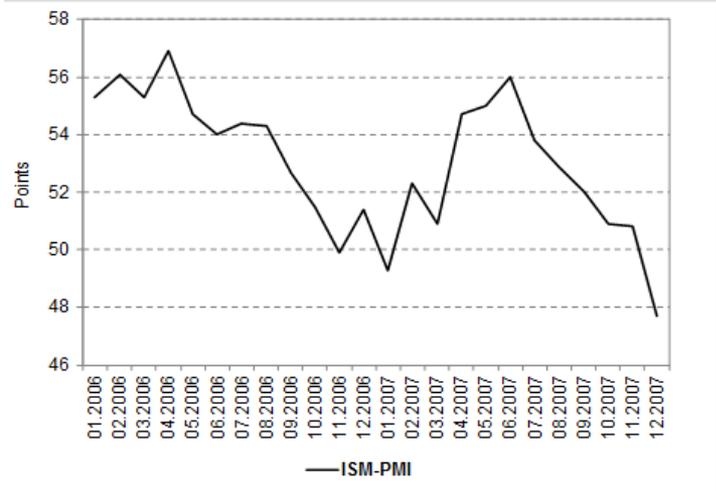
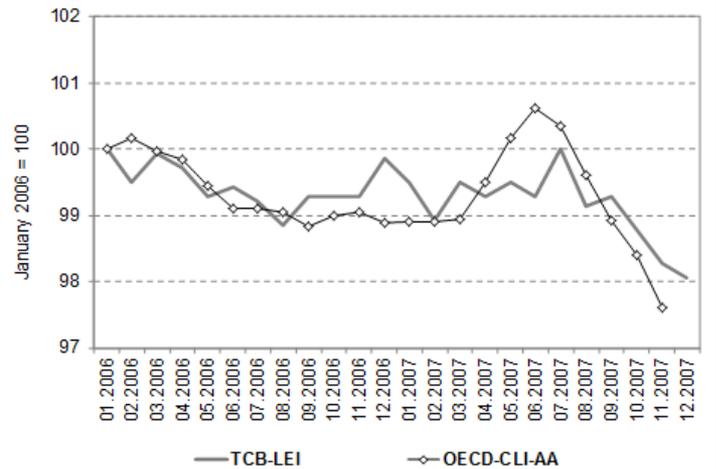
# Second piece of evidence: leading indicators

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## *Abstract*

- ▶ I tried three popular indicators: LEI by the Conference Board, CLI by OECD, and PMI by ISM;
- ▶ They gave timely signals for approaching turning points, especially for the peak of December 2007;
- ▶ On the other side, the 'real time' diagnoses of the peak were too cautious and usually too late;
- ▶ The diagnoses of the trough (July 2009) were much more definite and more timely;
- ▶ The question is: Why?

# Leading indicators at the peak of December 2007: an illustration



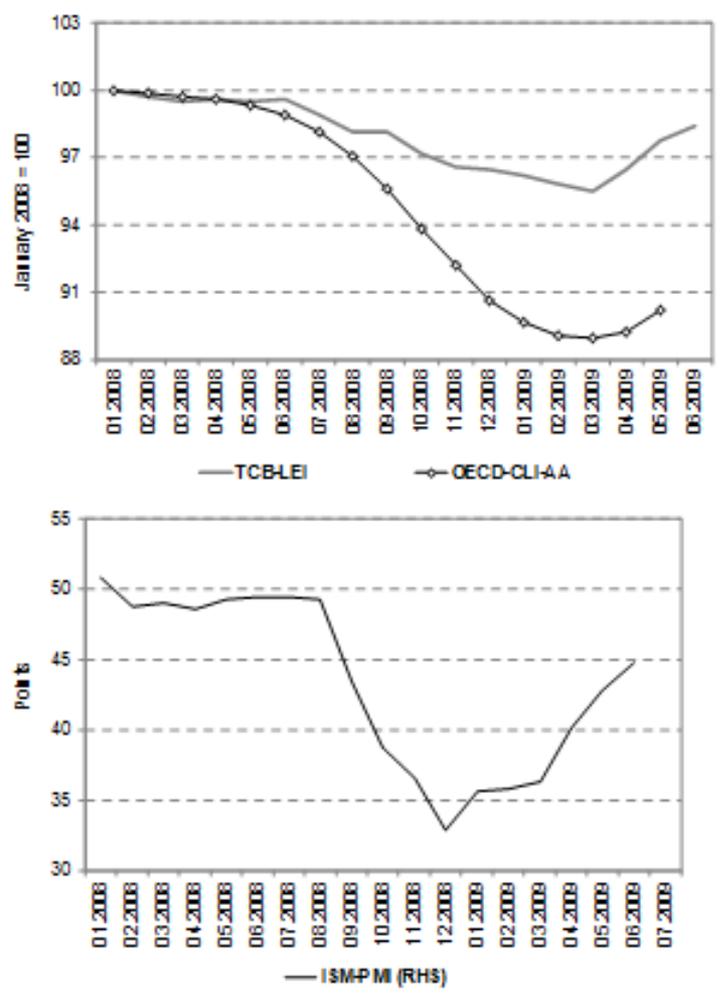
## Net Scores

Indicator	Date of release	R-T/R*	
		Initial Index	Y-o-Y change
LEI by TCB	18.01.08	-2/-4	-4/-4
CLI by OECD	11.01.08	-4/-4	-4/-2
PMI by ISM	02.01.08	-6/-2	0/0

## Conclusions

- ▶ There *were* signals for approaching recession;
- ▶ The PMI was the best but LEI and CLI were also good;
- ▶ The signals were not indisputable; experts “diagnosis” was obviously needed

# Leading indicators at the trough of June 2009: an illustration



## Net Scores

Indicator	Date of release	R-T/R*	
		Initial Index	Y-o-Y change
LEI by TCB	20.07.09	0/0	+2/+2
CLI by OECD	10.07.09	-2/0	0/0
PMI by ISM	01.07.09	+6/+6	+6/+6

## Conclusions

- ▶ The PMI was the best once again;
- ▶ Results for the LEI and CLI were less expressive (in comparison with the peak of December 2007) because the period of growth was too short;
- ▶ Again, the signals were not indisputable

# One more illustration: recalling official diagnoses (an example of LEI)

## *The peak of December 2007*

Indicators	Date of release	Diagnosis in real time	Notes
LEI by TCB	18.01.2008	"Increasing risks for further economic weakness; economic activity is likely to be sluggish"	For several months in 2008 TCB wrote "weak activity" or "weakening activity"; they wrote about <i>contraction</i> of the economy in November 2008 (!) for the first time ("Economy is unlikely to improve soon, and economic activity may contract further"); and mentioned the word <i>recession</i> only in December 2008 just after the NBER had announced the peak of December 2007 ("The recession that began in December 2007 will continue into the new year; and the contraction in economic activity could deepen further").

## *The trough of June 2009*

Indicators	Date of release	Diagnosis in real time	Notes
LEI by TCB	20.07.09	"The recession will continue to ease; and the economy may begin to recover."	The three months before (in April) The Conference Board predicted: "the contraction in activity could become less severe"; in July they mentioned the possibility of a recovery for the first time; in August they stated that the recession was bottoming out. Thereby, the predictions of the trough by TCB were more or less timely but they were hardly "leading", and were rather "coincidental".

- ▶ The diagnosis for the peak was very cautious; the word "recession" was mentioned for the first time only in December 2008 (just after the NBER);
- ▶ The diagnosis for the trough was more definite in spite of a shorter period of changes in the "proper" direction;
- ▶ The question is: Why?

# Leading indicators: “three-compound” paradox

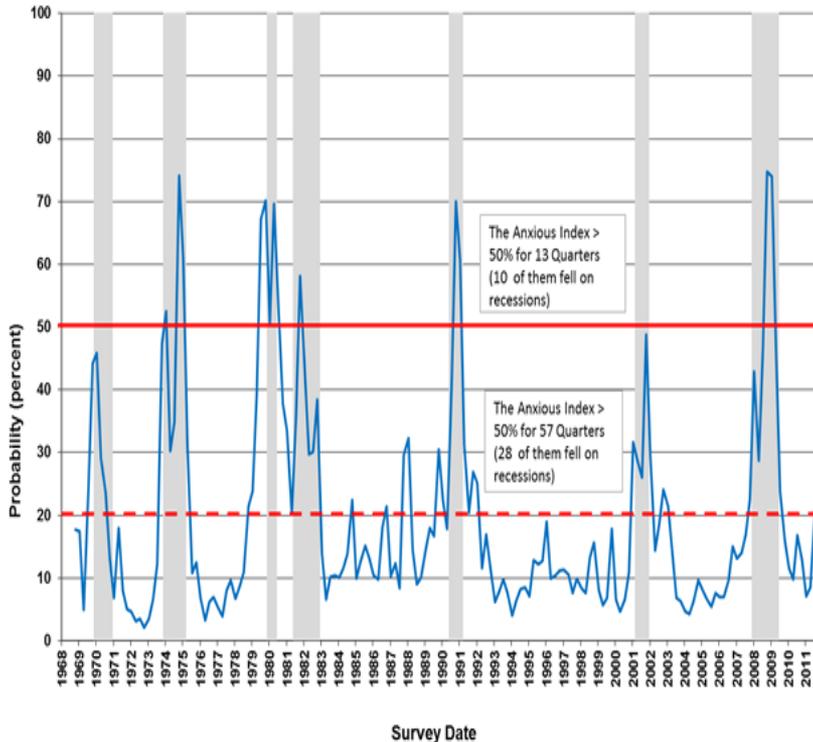
## *Leads and Lags at Peaks and Troughs*

Turning points (dated by NBER)		Leads (-) and Lags (+) of Cyclical Indicators, months							
		NBER's decision		LEI turning points		CLI turning points		PMI turning points	
Peaks	Troughs	Peaks	Troughs	Peaks	Troughs	Peaks	Troughs	Peaks	Troughs
Jan. 80	Jul. 80	5	12	-15	-2	-18	-3	-18	-2
Jul. 81	Nov. 82	6	8	-8	-10	-8	-6	-8	-6
Jul. 90	Mar. 91	9	21	-18	-2	-36	-3	-31	-2
Mar. 01	Nov. 01	8	20	-11	-2	-14	-2	-16	-1
Dec. 07	Jun. 09	12	15	-5	-3	-6	-4	-43	-6
Average		8.0	15.2	-11.4	-3.8	-16.4	-3.6	-23.2	-3.4

- ▶ leading indicators lead peaks more than troughs;
- ▶ peaks are announced by NBER with less lags than troughs;
- ▶ in spite of this, peaks are recognized by private experts worse than troughs;
- ▶ Why?

# Third piece of evidence: “anxious index” for SPF by PhilFed

“Anxious Index” According to the Survey of Professional Forecasters by FRB of Philadelphia



Note: “Anxious Index” is a probability of decline in real GDP in the following quarter (1968:Q4-2011:Q3)

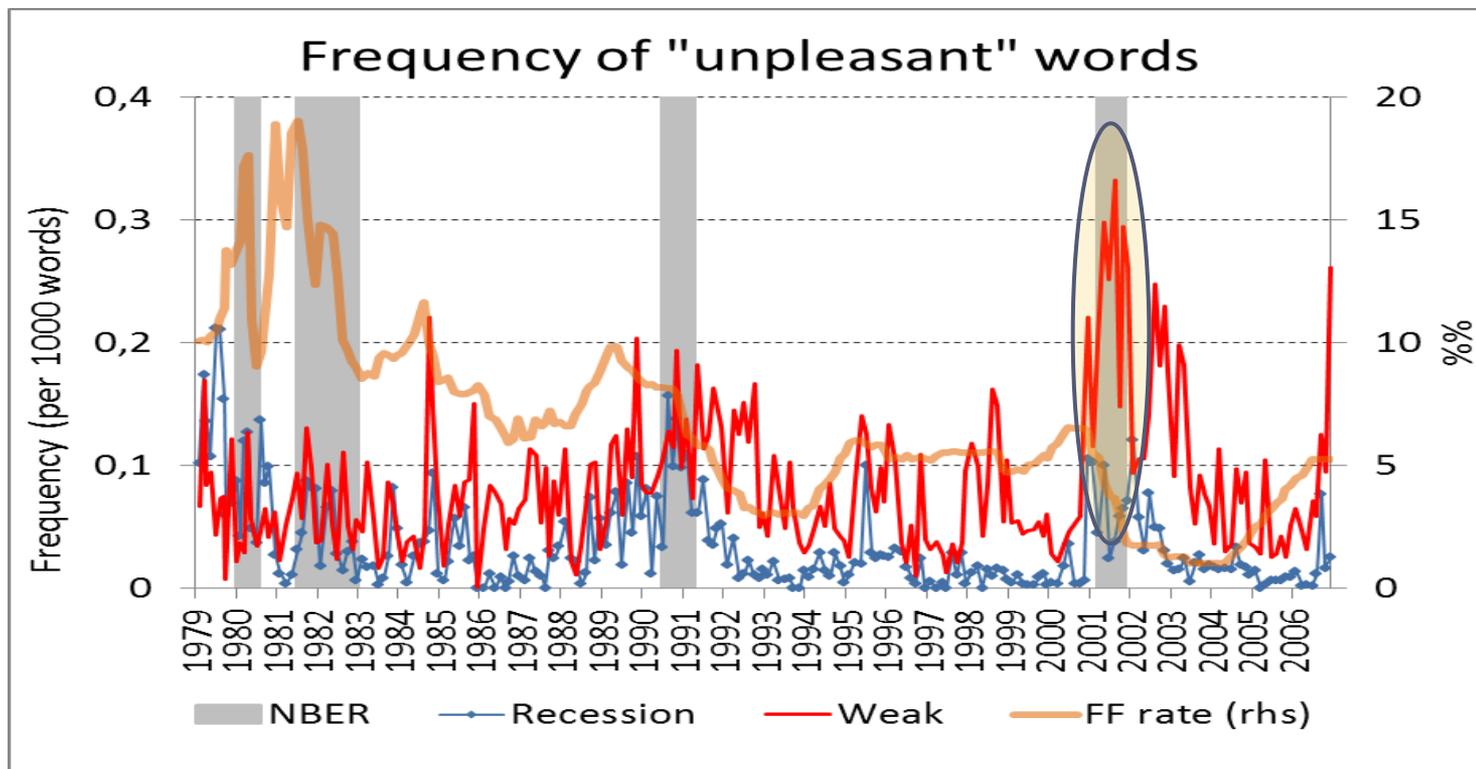
Source: FRB of Philadelphia.

*Most professional forecasters dislike predicting recessions*

- ▶ if “anxious index” is greater than 50%, the real probability is about 75% and even more;
- ▶ if it is greater than 20%, the real probability is about 50%;
- ▶ Why?

# Fourth piece of evidence: FOMC meetings

*FOMC members avoid using the word 'recession' in their internal discussions. Why?*



Source: Transcripts of FOMC meetings

# Why do experts recognize cyclical peaks in real time so rarely?

## *Economic reasons*

- ▶ While peaks are always lead by slowdowns, slowdowns do not always lead to a peak;
- ▶ Timely preventive measures may preserve the economy from sliding into a recession;
- ▶ In part, recessions are a result of shocks that are themselves unpredictable

## *Psychological reasons*

- ▶ “Dependency” on the dating committee of the NBER
- ▶ “Dependency” on real-time GDP dynamics

The USA: Advanced GDP Estimates by Vintages (% changes, SAAR)

Vintages	07Q1	07Q2	07Q3	07Q4	08Q1	08Q2	08Q3	08Q4
30.01.2008	0.6	3.8	4.9	0.6				
30.04.2008	0.6	3.8	4.9	0.6	0.6			
31.07.2008	0.1	4.8	4.8	-0.2	0.9	1.9		
30.10.2008	0.1	4.8	4.8	-0.2	0.9	2.8	-0.3	
30.01.2009	0.1	4.8	4.8	-0.2	0.9	2.8	-0.5	-3.8
29.07.2011	0.5	3.6	3.0	1.7	-1.8	1.3	-3.7	-8.9

# Forecasting of turning points is a decision-making process

## Some propositions

- ▶ Utility (loss) functions are not the same for all experts; there would be different predictions from the same value of an index;
- ▶ Utilities for being right depend upon “common view” (terms  $Y_c$  or  $N_c$ ); to be right while the others are wrong is better than to be right while the others are also right:  

$$YR_i(Y_i|N_c) \gg YR_i(Y_i|Y_c) \text{ and } NR_i(N_i|Y_c) \gg NR_i(N_i|N_c)$$
- ▶ Utilities of being right and being wrong – if in accord with all others – are around zero:  

$$YR_i(Y_i|Y_c) \approx 0; YR_i(N_i|N_c) \approx 0; NR_i(N_i|N_c) \approx 0; \text{ and } NR_i(Y_i|Y_c) \approx 0$$
- ▶ One may make the name only by forecasting recessions, not expansions  

$$YR_i(Y_i|N_c) \gg YE_i(Y_i|N_c)$$
- ▶ Et cetera..

Utilities Under Each Decision and State of Economy

Forecasting of Recession Decision*	Actual State of Economy	
	Recession	No recession
Common view: Yes		
$i$ -expert's forecast: Yes	$YR_i(Y_i Y_c)$	$NR_i(Y_i Y_c)$
$i$ -expert's forecast: No	$YR_i(N_i Y_c)$	$NR_i(N_i Y_c)$
Common view: No		
$i$ -expert's forecast: Yes	$YR_i(Y_i N_c)$	$NR_i(Y_i N_c)$
$i$ -expert's forecast: No	$YR_i(N_i N_c)$	$NR_i(N_i N_c)$

Note: \* - “Yes” means that according to the forecast there will be a recession; “no” means that there will be no recession.

# To predict a recession or not to predict? That is the question...

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## *A “wishful bias” exists*

- ▶ For a “good” alarm system, a false signal is better than a missed one:

$$NR_i(Y_i/N_c) > YR_i(N_i/Y_c)$$

- ▶ For a “wishful thinker” the opposite is true:

$$YR_i(N_i/Y_c) > NR_i(Y_i/N_c)$$

- ▶ The existence of the ‘wishful bias’ answers all our ‘Why’ questions

# Conclusions: Why experts could hardly recognize the peak in real time?

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- ▶ Economic reasons (unpredictable shocks; timely preventive measures, etc.);
- ▶ Psychological reasons (“dependency” on real-time GDP and from NBER’s decisions);
- ▶ Reasons connected with decision-making (the majority prefer to hide in the herd; the minority prefer to produce false signals but not to miss a peak);
- ▶ The “wishful bias” exists. The average probability of a recession (according to SPF by FRB of Philadelphia) is underestimated from 1.5 to 2.5 times

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*Thank you for your attention*



# Data and Methods

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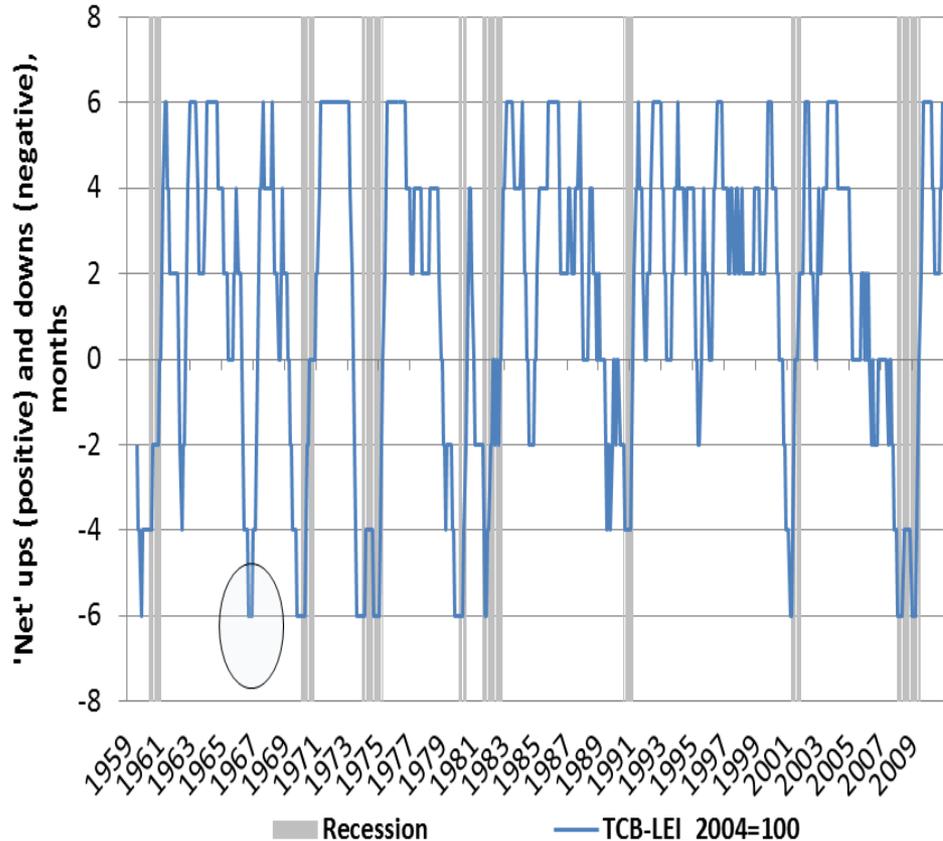
## *Three popular cyclical indicators for the USA*

- ▶ The Leading Economic Indicator (LEI) by the Conference Board
- ▶ The Composite Leading Index (CLI) by the OECD
- ▶ The Purchasing Managers' Index (PMI) by the ISM

## *Special features*

- ▶ Not only revised time-series but also real-time vintages
- ▶ Separate analyses for the peak of December 2007 and for the trough of June 2009
- ▶ “Five out of six” rule of thumb
- ▶ Remembering about real-time “diagnoses” in official press-releases

# “Five (minimum) out of six” rule of thumb



## *Properties*

- ▶ The net score is equal to -6 if an indicator is declining for all six last months; to -4 if it is declining for any 5 out of 6 last months, etc.;
- ▶ Changes in the range from -6 to +6
- ▶ For the “-4 threshold” only one false signal (June 1966-February 1967) for 52 years
- ▶ Very similar to the 6-months Diffusion Index by TCB but gives less false signals, especially during 1991-2001