

Catching a floating treasure

A genuine ex-ante forecasting experiment in real time

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The test of all knowledge is experiment.

Richard P. Feynman
Physicist, Nobel Laureate

Test forecasting method with survey data under *realistic* conditions.

Special features:

- surprise indicator methodology
- *genuine ex-ante* forecasting in *real time*

Research question: Can we derive an efficient, fast and reliable forecasting tool for Swiss GDP growth?

Research gaps

- experimental economics + time series economics
- genuine ex-ante forecasting: theorists vs. practitioners
- added value of surprise indicator
- forecasting of “moving targets”

Real time analyses

- Orphanides&van Norden (2005): misleading policy conclusions
- Diebold&Rudebusch (1991): leading indicators maybe misleading
- Graff&Sturm (2010), Siliverstovs (2011): modelling of data revisions

Survey data

- Zarnowitz (1973), Öller (1990), Balke & Petersen (2002) . . . : BTS data helpful
- Müller&Köberl (2007): surprise approach even more helpful?!

Experimental economics and forecasting

- Woodard & Federowsky (2011), Sornette: public forecast announcements of financial data
- Gunnar Bårdsen: Swedish GDP forecasts online

1 Motivation

2 The experiment

- Basic features
- The hypotheses
- Implementation
- Experiment evaluation

3 An almost infeasible horse race

- Relevance of survey data
- Relative forecasting performance

4 Summary

Common confounding factors in forecasting experiments

- ex-ante model choice
- selection of exogenous variables
- availability of vintage data for l.h.s. and r.h.s. variable(s)
- undocumented “expert” interventions
- the state of the art in econometrics
- hindsight

⇒ Ex-ante commitment is key!

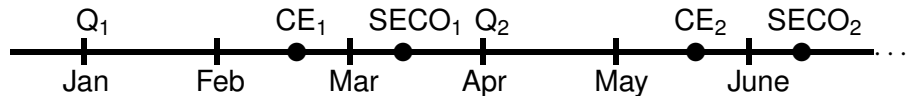
The commitment

- forecasts posted on the web
- emailing

Hypothesis # 1: A simple, parsimonious, linear time series model delivers forecasts which are

- more timely than official data
- as good as official data on average
- as good as official data in terms of forecast error variance
- serious competitors to latest rivals.

Figure: Data release and nowcasting process



CE: forecasting (nowcasting) with surprise indicator

SECO: SECO's forecasts (first releases)

Begin of experiment: 2007 q3

1st intermediate results: 2011 q3

2nd intermediate results: 2014 q2

Hypothesis # 2: The surprise indicator provides reliable and robust information.

- economic sophistication v. “brute force”

Why survey data?

- timely available
- (almost) not subject to revisions

- Capacity utilisation: *Combining* level judgement and quantitative changes

Currently, are your technical capacities

- too high?
 - just right?
 - too low?
-
- Plus: Percentage change in capacity utilisation
 - Result: Semantic assessment of firms' position!
 - too high? AND decrease \Rightarrow **negative shock**
 - too high/low? AND inc./dec. \Rightarrow **adjustment to normal**
 - too low AND increase \Rightarrow **positive shock**

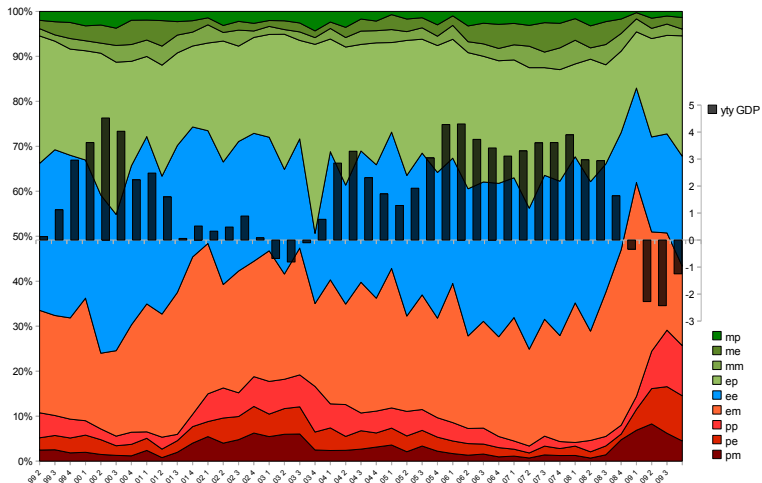
Empirical characteristics of surprises

		change in capacity utilisation (%)		
		-	=	+
judgment (level)	-	2.9	3.3	2.3
	=	24.6	31.5	23.4
	+	3.0	4.1	4.8

Percentage shares, $N = 92706$, period: 1989 – 2006, quarterly frequency

Digression: The surprise indicator

Figure: The surprise indicator



C:/ZHAW/Projekt/Quantifizierung/CMEK/Markov/Grafiken.odg

The general model which is going to be reduced to a special model by PcGets:

$$Y_t = D + \sum_{i=1}^4 A_i Y_{t-i} + \sum_{i=0}^4 B_i X_{t-i} + U_t \quad (1)$$

where

$$Y_t = \begin{bmatrix} \Delta y_t \\ \Delta_4 y_t \end{bmatrix}, X_t = \begin{bmatrix} em_t \\ pm_t \end{bmatrix}, U_t = \begin{bmatrix} u_t \\ 0 \end{bmatrix} \text{ and}$$
$$D = \begin{bmatrix} c & s_1 & s_2 & s_3 \\ 0 & 0 & 0 & 0 \end{bmatrix}, A_i = \begin{bmatrix} a_{i,1} & 0 \\ 1 & 0 \end{bmatrix}, B_i = \begin{bmatrix} b_{i,1} & b_{i,2} \\ 0 & 0 \end{bmatrix}.$$

em_t and pm_t represent the shares of qualitatively different negative surprises.

y_t : SECO's latest release

Note: SECO data subject to (several) revisions

- Forecast evaluation vs. final data
- comparison to SECO's genuine ex-ante approach

The floating problem

Ex-ante and ex-post information

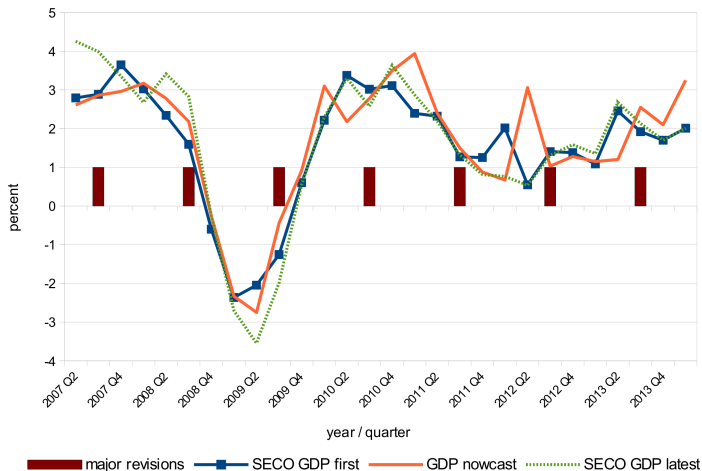


Figure: Ex-ante, ex-post information and nowcasts

Data vintages

Empirical basis

QUARTERLY	2005 Q1	2007 Q1	2007 Q2	2007 Q3	2007 Q4	2008 Q1	2008 Q2	2008 Q3	2008 Q4	2009 Q1	2009 Q2	2009 Q3	2009 Q4	2010 Q1	2010 Q2	2010 Q3	2010 Q4	2011 Q1	2011 Q2	2011 Q3	2011 Q4	
1999 Q1	-0.03	-0.03	-0.03	0.00	0.00	0.25	0.25	0.72	-0.72	0.72	0.72	0.72	0.72	0.72	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1999 Q2	0.41	0.41	0.41	-0.47	-0.47	-0.36	-0.36	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
1999 Q3	1.33	1.33	1.33	1.59	1.59	1.50	1.50	1.36	1.36	1.36	1.36	1.36	1.36	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
1999 Q4	2.14	2.14	2.14	2.98	2.98	2.93	2.93	2.37	2.37	2.37	2.37	2.37	2.37	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96
2000 Q1	3.02	3.02	3.02	4.06	4.06	4.10	4.10	3.85	3.85	3.85	3.85	3.85	3.85	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61
2000 Q2	4.87	4.87	4.87	4.95	4.95	4.77	4.77	4.53	4.53	4.53	4.53	4.53	4.53	4.02	4.02	4.02	4.02	4.02	4.02	4.02	4.02	4.02
2000 Q3	3.87	3.87	3.87	3.66	3.66	3.70	3.70	3.62	3.62	3.62	3.62	3.62	3.62	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69
2000 Q4	2.28	2.28	2.28	2.87	2.87	1.85	1.85	2.10	2.10	2.10	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23
2001 Q1	3.19	3.19	3.19	2.71	2.71	2.01	2.01	2.96	2.96	2.96	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48
2001 Q2	1.41	1.41	1.41	1.55	1.55	1.20	1.20	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
2001 Q3	-0.01	-0.01	-0.01	-0.06	-0.06	-0.03	-0.03	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
2001 Q4	-0.26	-0.26	-0.26	0.11	0.11	0.51	0.51	0.41	0.41	0.41	0.41	0.41	0.41	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
2002 Q1	-0.50	-0.50	-0.50	0.22	0.22	0.02	0.02	0.36	0.36	0.36	0.36	0.36	0.36	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
2002 Q2	0.09	0.09	0.09	0.62	0.62	0.82	0.82	0.77	0.77	0.77	0.77	0.77	0.77	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48
2002 Q3	0.97	0.97	0.97	0.71	0.71	0.69	0.69	0.68	0.68	0.68	0.68	0.68	0.68	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
2002 Q4	0.63	0.63	0.63	0.23	0.23	0.24	0.24	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
2003 Q1	-0.63	-0.63	-0.63	-0.52	-0.52	-0.53	-0.53	-0.71	-0.71	-0.71	-0.71	-0.71	-0.71	-0.69	-0.69	-0.69	-0.69	-0.69	-0.69	-0.69	-0.69	-0.69
2003 Q2	-0.63	-0.63	-0.63	-0.61	-0.61	-0.47	-0.47	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.61	-0.61	-0.61	-0.61	-0.61	-0.61	-0.61	-0.61	-0.61
2003 Q3	-0.00	-0.00	-0.00	-0.23	-0.23	-0.31	-0.31	-0.09	-0.09	-0.09	-0.09	-0.09	-0.09	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10
2003 Q4	0.82	0.82	0.82	0.95	0.95	0.93	0.93	0.66	0.66	0.66	0.66	0.66	0.66	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
2004 Q1	2.81	2.81	2.81	2.62	2.62	2.45	2.45	2.54	2.54	2.54	2.54	2.54	2.54	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65
2004 Q2	2.67	2.67	2.67	3.12	3.12	3.38	3.38	3.40	3.40	3.40	3.40	3.40	3.40	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25
2004 Q3	2.26	2.26	2.26	2.31	2.31	2.32	2.32	2.09	2.09	2.09	2.09	2.09	2.09	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31
2004 Q4	1.51	1.51	1.51	2.10	2.10	2.18	2.18	2.11	2.11	2.11	2.11	2.11	2.11	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71
2005 Q1	0.90	0.90	0.90	1.51	1.51	1.65	1.65	1.40	1.40	1.40	1.40	1.40	1.40	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28
2005 Q2	1.87	1.87	1.87	2.01	2.01	2.00	2.00	1.82	1.82	1.82	1.82	1.82	1.82	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92
2005 Q3	2.36	2.36	2.36	2.88	2.88	2.86	2.86	3.18	3.18	3.18	3.18	3.18	3.18	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04
2005 Q4	3.82	3.82	3.82	3.26	3.26	3.20	3.20	3.40	3.40	3.40	3.40	3.40	3.40	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28
2006 Q1	3.19	3.19	3.19	3.53	3.53	3.43	3.43	4.05	4.05	4.05	4.05	4.05	4.05	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30
2006 Q2	3.05	3.05	3.05	3.24	3.24	3.14	3.14	3.22	3.22	3.22	3.22	3.22	3.22	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45
2006 Q3	2.37	2.37	2.37	3.32	3.32	3.45	3.45	3.37	3.37	3.37	3.37	3.37	3.37	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64
2006 Q4	2.22	2.22	2.22	2.88	2.88	2.95	2.95	2.93	2.93	2.93	2.93	2.93	2.93	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11
2007 Q1	2.43	2.43	2.43	2.69	2.69	2.66	2.66	2.76	2.76	2.76	2.76	2.76	2.76	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
2007 Q2	2.79	2.79	2.79	3.02	3.02	3.03	3.03	3.40	3.40	3.40	3.40	3.40	3.40	3.72	3.72	3.72	3.72	3.72	3.72	3.72	3.72	3.72
2007 Q3	2.89	2.89	2.89	3.03	3.03	2.99	2.99	3.08	3.08	3.08	3.08	3.08	3.08	3.34	3.34	3.34	3.34	3.34	3.34	3.34	3.34	3.34
2007 Q4	3.59	3.59	3.59	3.80	3.80	3.80	3.80	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90
2008 Q1	3.83	3.83	3.83	3.99	3.99	3.10	3.10	3.29	3.29	3.29	3.29	3.29	3.29	3.12	3.12	3.12	3.12	3.12	3.12	3.12	3.12	3.12
2008 Q2	2.34	2.34	2.34	2.66	2.66	2.69	2.69	2.72	2.72	2.72	2.72	2.72	2.72	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94
2008 Q3	1.43	1.43	1.43	1.64	1.64	1.64	1.64	1.78	1.78	1.78	1.78	1.78	1.78	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67
2008 Q4	-0.34	-0.34	-0.34	-0.34	-0.34	-0.34	-0.34	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.26	-0.26	-0.26	-0.26	-0.26	-0.26	-0.26	-0.26	-0.26
2009 Q1	-2.36	-2.36	-2.36	-2.18	-2.18	-2.28	-2.28	-2.54	-2.54	-2.54	-2.54	-2.54	-2.54	-2.47	-2.47	-2.47	-2.47	-2.47	-2.47	-2.47	-2.47	-2.47
2009 Q2	-2.04	-2.04	-2.04	-2.04	-2.04	-2.04	-2.04	-2.04	-2.04	-2.04	-2.04	-2.04	-2.04	-2.04	-2.04	-2.04	-2.04	-2.04	-2.04	-2.04	-2.04	-2.04
2009 Q3	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25
2009 Q4	0.60	0.60	0.60	0.64	0.64	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
2010 Q1	2.26	2.26	2.26	2.19	2.19	1.81	1.81	1.80	1.80	1.80	1.80	1.80	1.80	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44
2010 Q2	3.31	3.31	3.31	3.24	3.24	2.55	2.55	2.55	2.55	2.55	2.55	2.55	2.55	2.89	2.89	2.89	2.89	2.89	2.89	2.89	2.89	2.89
2010 Q3	3.02	3.02	3.02	2.61	2.61	2.62	2.62	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72
2010 Q4	3.11	3.11	3.11	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10
2011 Q1	2.32	2.32	2.32	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16
2011 Q2	2.32	2.32	2.32	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19
2011 Q3	2.32	2.32	2.32	2.19	2.19																	

Data vintages

Empirical basis

X37 $f(x) \sum = 3.826595601608592$

	A	B	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	A
1		QUARTERLY	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
2			2009 Q1	2009 Q2	2009 Q3	2009 Q4	2010 Q1	2010 Q2	2010 Q3	2010 Q4	2011 Q1	2011 Q2	2011 Q3	2011 Q4	2012 Q1	2012 Q2	2012 Q3	2012 Q4	2013 Q1	2013 Q2	2013 Q3	2013 Q4	2014 Q1	2014 Q2	
26	2004 Q4	2.11	2.11	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65
27	2005 Q1	1.4	1.43	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47
28	2005 Q2	1.82	1.94	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32
29	2005 Q3	3.18	3.27	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33
30	2005 Q4	3.59	3.89	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	3.65	3.65	3.65	3.65	3.65	3.65	3.65	3.65	3.65
31	2006 Q1	4.05	4.29	4.3	4.3	4.3	4.3	4.3	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.57	4.57	4.57	4.57	4.57	4.57	4.57	4.57	4.57
32	2006 Q2	3.22	3.46	3.73	3.73	3.73	3.73	3.73	3.39	3.39	3.39	3.39	3.39	3.39	3.39	3.39	3.47	3.47	3.47	3.47	3.47	3.47	3.47	3.47	3.47
33	2006 Q3	3.37	3.64	3.41	3.41	3.41	3.41	3.41	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40
34	2006 Q4	2.93	3.21	3.11	3.11	3.11	3.11	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40
35	2007 Q1	3.01	3.33	3.3	3.3	3.3	3.33	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.79	3.79	3.79	3.79	3.79	3.79	3.79	3.79	3.79
36	2007 Q2	3.4	3.72	3.8	3.8	3.8	3.82	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20
37	2007 Q3	3.08	3.34	3.61	3.61	3.61	3.64	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90
38	2007 Q4	3.8	4.01	3.9	3.9	3.9	3.96	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35
39	2008 Q1	3.11	3.2	2.97	2.97	2.97	3.07	3.12	3.12	3.12	3.12	3.12	3.12	3.12	3.12	3.12	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68
40	2008 Q2	2.69	2.72	2.94	2.94	2.94	3.05	3.24	3.24	3.24	3.24	3.41	3.65	3.65	3.65	3.65	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41
41	2008 Q3	1.43	1.4	1.94	1.94	1.94	1.78	1.87	1.87	1.87	1.91	1.91	1.91	1.91	1.91	1.91	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83
42	2008 Q4	-0.6	-0.67	-0.34	-0.34	-0.34	-0.22	-0.35	-0.35	-0.35	-0.13	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25
43	2009 Q1		-2.38	-2.18	-2.28	-2.54	-2.47	-2.95	-2.95	-2.95	-2.84	-2.51	-2.51	-2.51	-2.51	-2.51	-2.00	-2.00	-2.00	-2.00	-2.71	-2.71	-2.71	-2.71	-2.71
44	2009 Q2			-2.04	-2.43	-2.62	-2.6	-3.3	-3.3	-3.3	-3.25	-3.5	-3.5	-3.50	-3.50	-3.50	-3.69	-3.69	-3.69	-3.68	-3.54	-3.54	-3.54	-3.54	-3.54
45	2009 Q3					-1.25	-1.27	-1.3	-1.86	-1.86	-1.86	-1.86	-1.81	-1.81	-1.81	-1.81	-2.41	-2.41	-2.41	-2.42	-1.98	-1.98	-1.98	-1.98	-1.98
46	2009 Q4						0.8	0.54	0.26	0.26	0.26	0.24	0.12	0.12	0.12	0.52	0.52	0.52	0.51	0.55	0.55	0.55	0.55	0.55	
47	2010 Q1							2.22	2.26	2.13	1.91	1.9	2.44	2.44	2.44	2.44	2.35	2.35	2.35	2.31	2.30	2.30	2.30	2.30	
48	2010 Q2							2.64	2.55	2.55	2.59	2.59	2.59	2.59	2.59	2.59	3.4	3.40	3.33	3.30	3.30	3.30	3.30	3.30	
49	2010 Q3							3.02	2.81	2.82	2.72	2.72	2.72	2.72	2.72	2.83	2.83	2.83	2.83	2.54	2.58	2.58	2.58	2.58	
50	2010 Q4										3.11	3.1	3.09	3.09	3.09	3.09	3.76	3.76	3.76	3.64	3.63	3.63	3.63	3.63	
51	2011 Q1												2.34	2.39	2.40	2.87	2.87	2.87	2.74	2.87	2.87	2.87	2.87	2.87	
52	2011 Q2												2.32	2.19	2.17	2.30	2.5	2.50	2.50	2.35	2.19	2.19	2.19	2.19	
53	2011 Q3													1.27	1.81	1.69	1.54	1.54	1.54	1.38	1.32	1.32	1.32	1.32	
54	2011 Q4														1.25	2	0.82	0.82	0.73	0.81	0.81	0.81	0.81	0.81	
55	2012 Q1															2	1.2	1.00	1.01	0.93	0.77	0.77	0.77	0.77	
56	2012 Q2																0.55	0.35	0.30	0.29	0.53	0.53	0.53	0.53	
57	2012 Q3																1.41	1.24	1.28	1.31	1.31	1.31	1.31	1.31	
58	2012 Q4																1.38	1.37	1.06	1.68	1.58	1.58	1.58	1.58	
59	2013 Q1																			1.16	1.22	1.32	1.35	1.35	
60	2013 Q2																			2.46	2.54	2.88	2.88	2.88	
61	2013 Q3																				1.92	2.13	2.13	2.13	
62	2013 Q4																					1.7	1.7	1.7	
63	2014 Q1																							2.01	
64	2014 Q2																								
65	2014 Q3																								

Figure: Data vintages and data revisions

Observations

- No finalised data for entire sample
- Revisions after more than seven years
- No finalised data for experiment period available!
- 1st intermediate results: Reasonably finalised data: 1999 – 2010q3 ($N = 11$)
- 2nd intermediate results: Reasonably finalised data: 2007q3 – 2010q1 ($N = 11$)
- 2nd intermediate results: moving target data: 2007q3 – 2012q1 ($N = 19$)

Characteristics of revisions I

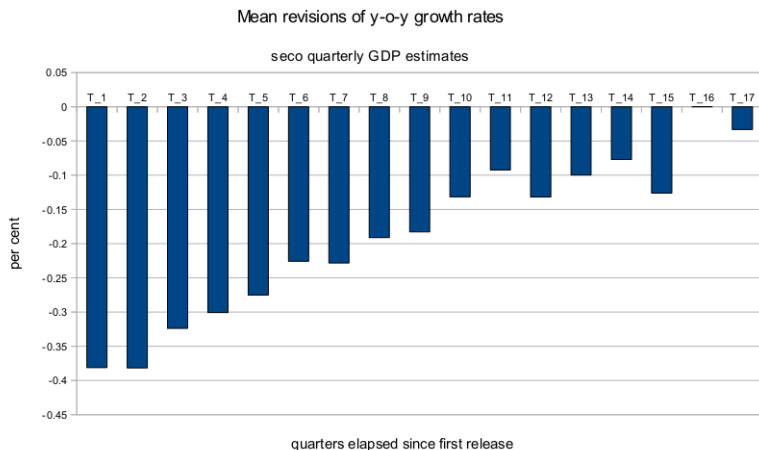


Figure: Mean revision: Cumulated sum of average revisions -3.2% (2006–2010)

Characteristics of revisions II

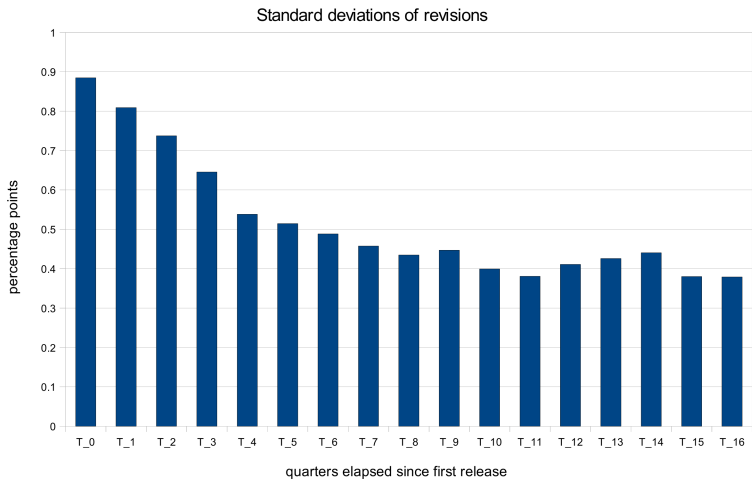


Figure: Standard deviation of revisions

Characteristics of revisions

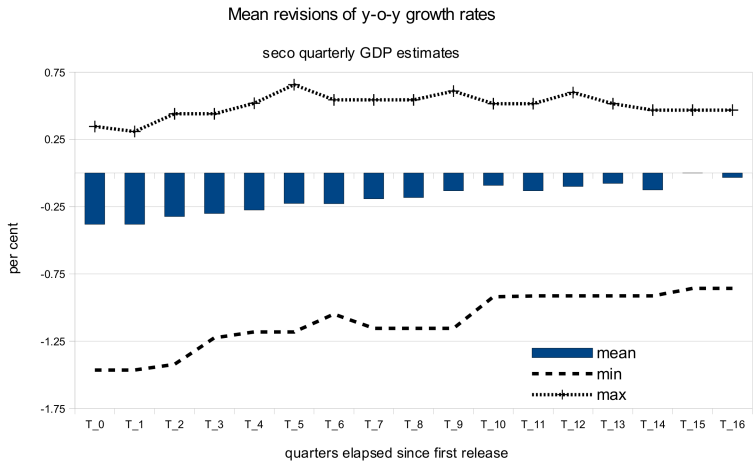


Figure: Mean, minimum and maximum of SECO revisions (final data: 2010q1)

The floating problem

Ex-ante and ex-post information

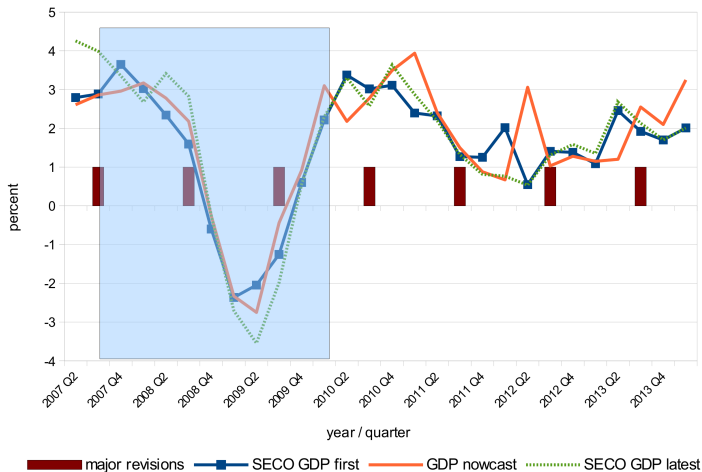


Figure: Seco data releases, nowcasts and narrow forecasting window

The floating problem

Ex-ante and ex-post information

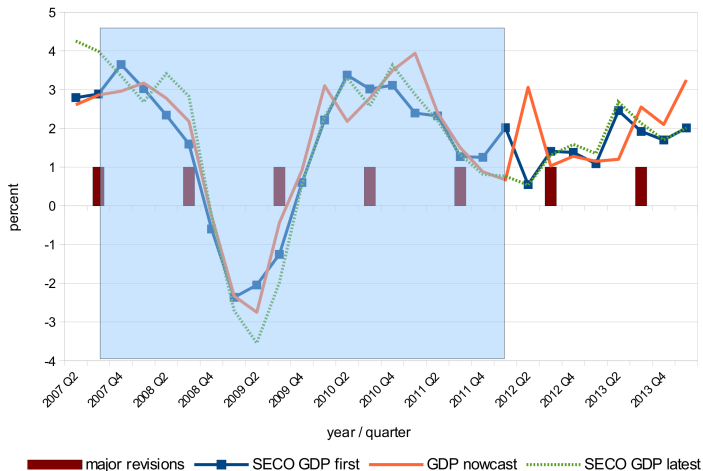


Figure: Seco data releases, nowcasts and wide forecasting window

Genuine ex-ante forecasts

- SECO first releases v. GDP nowcast (surprise indicator)

Forecast evaluations

model	MFE	MAFE	RMSFE
2007q3 through 2010q1 ($N = 11$ one-step forecasts)			
SECO first	-.052	.645	.647
GDP nowcast	.142	.653	.584
2007q3 through 2012q1 ($N = 19$ one-step forecasts)			
SECO first	-.037	.552	.505
GDP nowcast	.101	.541	.472

Forecast evaluation for $N = 11$ one-step forecasts: Test statistics

model	sign change	Test statistics	
		D-M MAFE	D-M RMSFE
GDP nowcast	3 (.344)	n.a.	n.a.
SECO first	4 (.753)	.05 (.48)	-.23 (.59)

Diebold-Mariano modified test statistics (p -values for two-sided test)

Evaluation summary

- 1 indicator forecast errors with lowest variance
- 2 SECO forecasts not significantly better

CAVEAT: Benchmark still going to be revised.

Experiment largely successful

- Evidence for surprise indicator's informational advantage
- Forecasting model delivers
 - timely
 - accurate
 - efficient

GDP nowcasts.

Further research

- Develop *economy-wide, sector-specific, regional* surprise indicators
- Investigate role of y_t (SECO's first release)
- Employ more sophisticated (but simple) models in genuine ex-ante experiment

Note: Continuous evaluation of ongoing experiment required.

Catching a floating treasure

`www.s-e-i.ch`

The double floating problem

Ex-ante and ex-post information

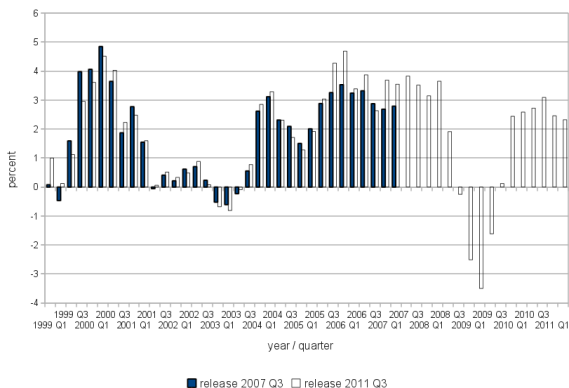


Figure: Swiss GDP growth (y-o-y) at the beginning and at the end of the experiment

The floating problem

Ex-ante and ex-post information

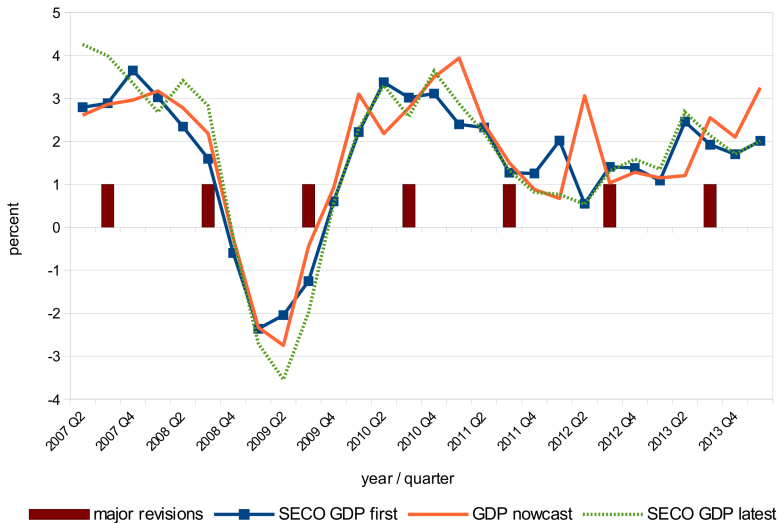


Figure: Ex-ante, ex-post information and nowcasts

Characteristics of revisions

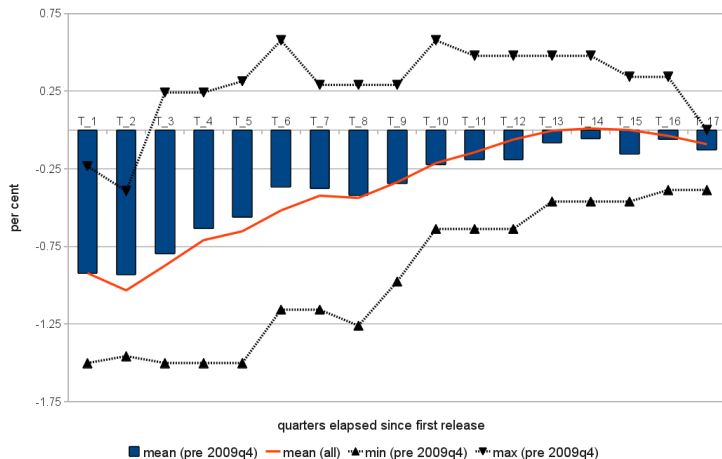


Figure: Mean, minimum and maximum of SECO revisions (final data)

Characteristics of revisions

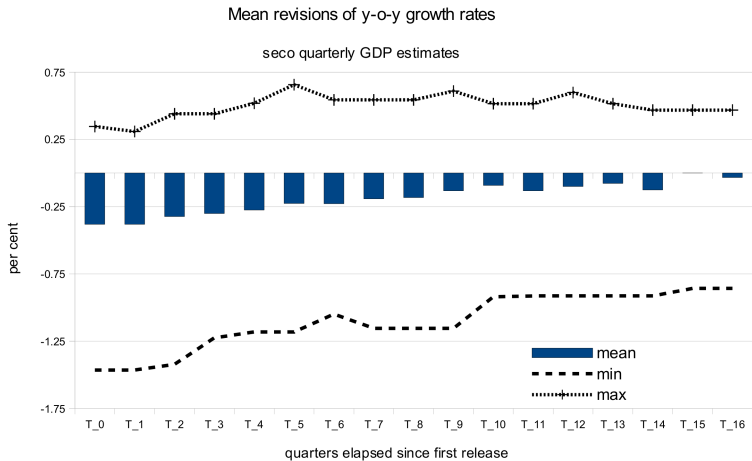


Figure: Mean, minimum and maximum of SECO revisions (final data: 2010q1)

Characteristics of revisions I

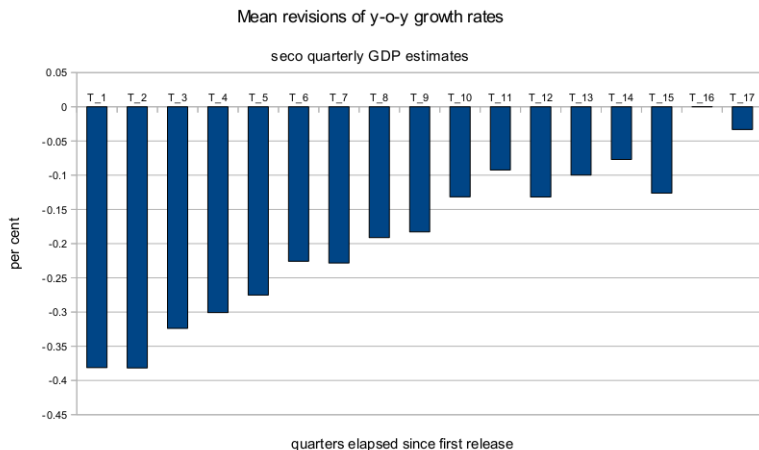


Figure: Mean revision: Cumulated sum of average revisions -3.2% (2006–2010)

Characteristics of revisions II

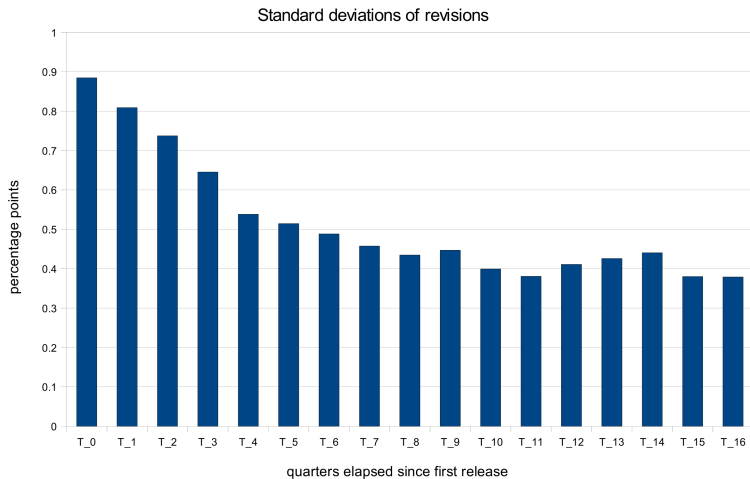


Figure: Standard deviation of revisions

Data vintages

Empirical basis

QUARTERLY	2006 Q1	2007 Q1	2008 Q1	2009 Q1	2010 Q1	2011 Q1	2012 Q1	2013 Q1	2014 Q1	2015 Q1	2016 Q1	2017 Q1	2018 Q1	2019 Q1	2020 Q1	2021 Q1	2022 Q1	2023 Q1	2024 Q1	2025 Q1	2026 Q1	2027 Q1	2028 Q1	2029 Q1	2030 Q1				
1999 Q1	-0.03	-0.03	-0.03	0.00	0.00	0.25	0.25	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72			
1999 Q2	0.41	0.41	0.41	-0.47	-0.47	-0.36	-0.36	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27			
1999 Q3	1.33	1.33	1.33	1.59	1.59	1.50	1.50	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36		
1999 Q4	2.14	2.14	2.14	2.98	2.98	2.93	2.93	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37		
2000 Q1	3.02	3.02	3.02	4.06	4.06	4.10	4.10	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85		
2000 Q2	4.87	4.87	4.87	4.95	4.95	4.77	4.77	4.53	4.53	4.53	4.53	4.53	4.53	4.53	4.53	4.53	4.53	4.53	4.53	4.53	4.53	4.53	4.53	4.53	4.53	4.53	4.53		
2000 Q3	3.87	3.87	3.87	3.66	3.66	3.69	3.70	3.70	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	
2000 Q4	2.28	2.28	2.28	2.87	2.87	1.85	1.85	2.10	2.10	2.10	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23		
2001 Q1	3.19	3.19	3.19	2.71	2.71	2.01	2.01	2.96	2.96	2.96	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	
2001 Q2	1.41	1.41	1.41	1.55	1.55	1.20	1.20	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	
2001 Q3	-0.01	-0.01	-0.01	-0.06	-0.06	-0.03	-0.03	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06	
2001 Q4	-0.26	-0.26	-0.26	0.11	0.11	0.51	0.51	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	
2002 Q1	-0.50	-0.50	-0.50	0.22	0.22	0.02	0.02	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	
2002 Q2	0.09	0.09	0.09	0.62	0.62	0.82	0.82	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	
2002 Q3	0.97	0.97	0.97	0.71	0.71	0.69	0.69	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	
2002 Q4	0.63	0.63	0.63	0.23	0.23	0.24	0.24	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	
2003 Q1	-0.63	-0.63	-0.63	-0.52	-0.52	-0.53	-0.53	-0.71	-0.71	-0.71	-0.71	-0.71	-0.71	-0.71	-0.71	-0.71	-0.71	-0.71	-0.71	-0.71	-0.71	-0.71	-0.71	-0.71	-0.71	-0.71	-0.71	-0.71	
2003 Q2	-0.63	-0.63	-0.63	-0.61	-0.61	-0.47	-0.47	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	-0.67	
2003 Q3	-0.00	-0.00	-0.00	-0.23	-0.23	-0.31	-0.31	-0.09	-0.09	-0.09	-0.09	-0.09	-0.09	-0.09	-0.09	-0.09	-0.09	-0.09	-0.09	-0.09	-0.09	-0.09	-0.09	-0.09	-0.09	-0.09	-0.09	-0.09	
2003 Q4	0.82	0.82	0.82	0.56	0.56	0.93	0.93	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	
2004 Q1	2.81	2.81	2.81	2.62	2.62	2.45	2.45	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	
2004 Q2	2.67	2.67	2.67	3.12	3.12	3.38	3.38	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	
2004 Q3	2.26	2.26	2.26	2.31	2.31	2.32	2.32	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	
2004 Q4	1.51	1.51	1.51	2.10	2.10	2.18	2.18	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	
2005 Q1	0.90	0.90	0.90	1.51	1.51	1.65	1.65	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	
2005 Q2	1.87	1.87	1.87	2.01	2.01	2.00	2.00	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	
2005 Q3	2.36	2.36	2.36	2.88	2.88	2.86	2.86	3.18	3.18	3.18	3.18	3.18	3.18	3.18	3.18	3.18	3.18	3.18	3.18	3.18	3.18	3.18	3.18	3.18	3.18	3.18	3.18	3.18	
2005 Q4	2.82	2.82	2.82	3.26	3.26	3.20	3.20	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	
2006 Q1	3.19	3.19	3.19	3.53	3.53	3.43	3.43	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05
2006 Q2	3.05	3.05	3.05	3.24	3.24	3.14	3.14	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	
2006 Q3	2.37	2.37	2.37	3.32	3.32	3.45	3.45	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37	
2006 Q4	2.22	2.22	2.22	2.88	2.88	2.95	2.95	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	
2007 Q1	2.43	2.43	2.43	2.69	2.69	2.66	2.66	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	
2007 Q2	2.79	2.79	2.79	3.02	3.02	3.03	3.03	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	
2007 Q3	2.89	2.89	2.89	3.03	3.03	2.99	2.99	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	
2007 Q4	2.65	2.65	2.65	3.59	3.59	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	
2008 Q1	3.03	3.03	3.03	2.99	2.99	3.11	3.11	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	
2008 Q2	2.34	2.34	2.34	2.56	2.56	2.69	2.69	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	
2008 Q3	1.43	1.43	1.43	1.64	1.64	1.64	1.64	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	
2008 Q4	-0.07	-0.07	-0.07	-0.34	-0.34	-0.34	-0.34	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	-0.22	
2009 Q1	-2.36	-2.36	-2.36	-2.18	-2.18	-2.28	-2.28	-																					

Data vintages

Empirical basis

X37 $f(x) \sum = 3.826595601608592$

	A	B	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	A
1		QUARTERLY	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
2			2009 01	2009 02	2009 03	2009 04	2010 01	2010 02	2010 03	2010 04	2011 01	2011 02	2011 03	2012 01	2012 02	2012 03	2012 04	2013 01	2013 02	2013 03	2013 04	2014 01	2014 02	2014 03	
26	2004 04	2.11	2.11	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65
27	2005 01	1.4	1.43	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47
28	2005 02	1.82	1.94	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32
29	2005 03	3.18	3.27	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33
30	2005 04	3.59	3.89	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	3.65	3.65	3.65	3.65	3.65	3.65	3.65	3.65	3.65
31	2006 01	4.05	4.29	4.3	4.3	4.3	4.3	4.3	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.57	4.57	4.57	4.57	4.57	4.57	4.57	4.57	4.57
32	2006 02	3.22	3.46	3.73	3.73	3.73	3.73	3.73	3.39	3.39	3.39	3.39	3.39	3.39	3.39	3.39	3.47	3.47	3.47	3.47	3.47	3.47	3.47	3.47	3.47
33	2006 03	3.37	3.64	3.41	3.41	3.41	3.41	3.41	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40
34	2006 04	2.93	3.21	3.11	3.11	3.11	3.11	3.11	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40
35	2007 01	3.01	3.33	3.3	3.3	3.3	3.33	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.79	3.79	3.79	3.79	3.79	3.79	3.79	3.79	3.79
36	2007 02	3.4	3.72	3.8	3.8	3.8	3.82	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20
37	2007 03	3.08	3.34	3.61	3.61	3.61	3.64	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.99	3.99	3.99	3.99	3.99	3.99	3.99	3.99	3.99
38	2007 04	3.8	4.01	3.9	3.9	3.9	3.96	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35
39	2008 01	3.11	3.2	2.97	2.97	2.97	3.07	3.12	3.12	3.12	3.12	3.12	3.12	3.12	3.12	3.12	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68
40	2008 02	2.69	2.72	2.94	2.94	2.94	3.05	3.24	3.24	3.24	3.24	3.41	3.65	3.65	3.65	3.65	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41
41	2008 03	1.43	1.4	1.94	1.94	1.94	1.78	1.87	1.87	1.87	1.91	1.91	1.91	1.91	1.91	1.91	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83
42	2008 04	-0.6	-0.67	-0.34	-0.34	-0.34	-0.22	-0.35	-0.35	-0.35	-0.13	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25
43	2009 01		-2.38	-2.18	-2.28	-2.54	-2.47	-2.95	-2.95	-2.95	-2.84	-2.51	-2.51	-2.51	-2.51	-2.51	-2.00	-2.00	-2.00	-2.00	-2.71	-2.71	-2.71	-2.71	-2.71
44	2009 02			-2.04	-2.43	-2.62	-2.6	-3.3	-3.3	-3.3	-3.25	-3.5	-3.5	-3.50	-3.50	-3.50	-3.69	-3.69	-3.69	-3.68	-3.54	-3.54	-3.54	-3.54	-3.54
45	2009 03					-1.25	-1.27	-1.3	-1.86	-1.86	-1.86	-1.86	-1.81	-1.81	-1.81	-1.81	-2.41	-2.41	-2.41	-2.42	-1.98	-1.98	-1.98	-1.98	-1.98
46	2009 04						0.8	0.54	0.26	0.26	0.26	0.24	0.12	0.12	0.12	0.52	0.52	0.52	0.51	0.55	0.55	0.55	0.55	0.55	0.55
47	2010 01							2.22	2.26	2.13	1.91	1.9	2.44	2.44	2.44	2.44	2.35	2.35	2.31	2.30	2.30	2.30	2.30	2.30	2.30
48	2010 02							2.64	2.55	2.55	2.59	2.59	2.59	2.59	2.59	2.59	3.4	3.40	3.33	3.30	3.30	3.30	3.30	3.30	3.30
49	2010 03								3.37	3.02	2.81	2.82	2.72	2.72	2.72	2.72	2.83	2.83	2.83	2.54	2.58	2.58	2.58	2.58	2.58
50												3.11	3.1	3.09	3.09	3.09	3.76	3.76	3.76	3.64	3.63	3.63	3.63	3.63	3.63
51	2011 01													2.34	2.39	2.40	2.87	2.87	2.87	2.74	2.87	2.87	2.87	2.87	2.87
52	2011 02													2.32	2.19	2.17	2.30	2.5	2.50	2.50	2.35	2.19	2.19	2.19	2.19
53	2011 03																2.32	2.19	1.81	1.69	1.54	1.32	1.32	1.32	1.32
54	2011 04																2	0.82	0.82	0.73	0.81	0.81	0.81	0.81	0.81
55	2012 01																1.2	1.00	1.01	0.93	0.77	0.77	0.77	0.77	0.77
56	2012 02																0.55	0.35	0.30	0.29	0.53	0.53	0.53	0.53	0.53
57	2012 03																1.41	1.24	1.28	1.31	1.31	1.31	1.31	1.31	1.31
58	2012 04																1.38	1.37	1.06	1.68	1.58	1.58	1.58	1.58	1.58
59	2013 01																			1.16	1.22	1.32	1.32	1.32	1.32
60	2013 02																				2.46	2.54	2.88	2.88	2.88
61	2013 03																					1.92	2.13	2.13	2.13
62	2013 04																						1.7	1.7	1.7
63	2014 01																								2.01
64	2014 02																								
65	2014 03																								

Figure: Data vintages and data revisions

The floating problem

Ex-ante and ex-post information

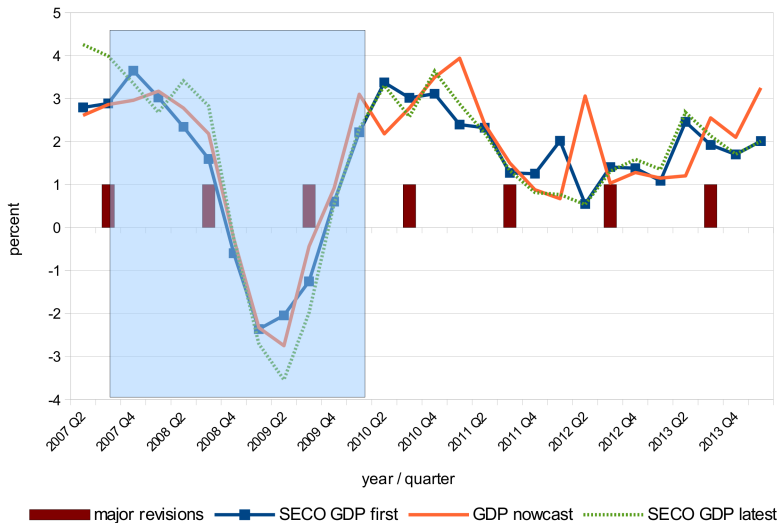


Figure: See data releases, nowcasts and narrow forecasting window

The floating problem

Ex-ante and ex-post information

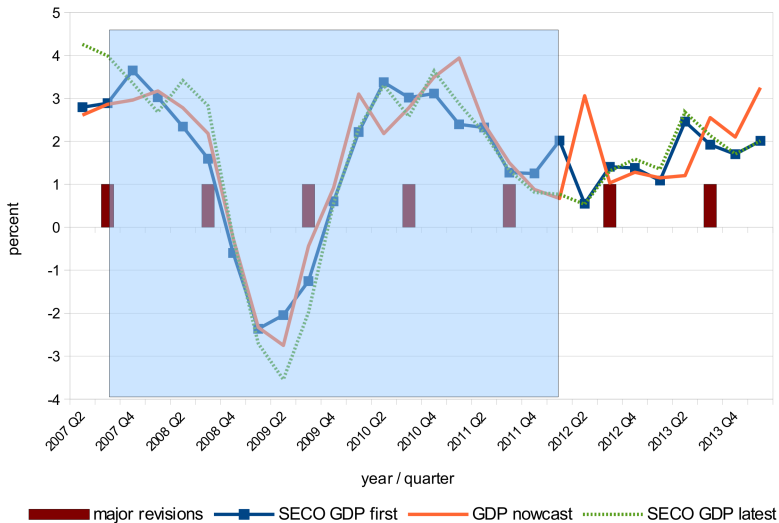


Figure: Same data releases, nowcasts and wide forecasting window

The moving target

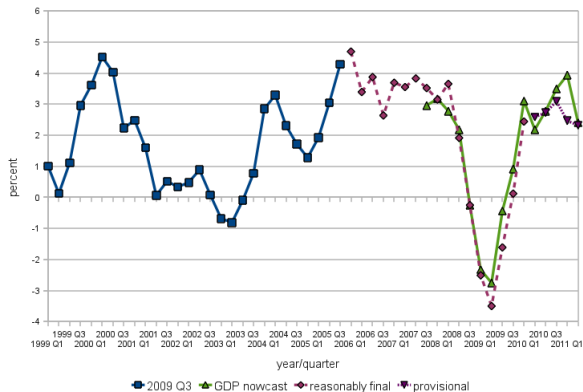


Figure: Final, reasonably final, provisional GDP data and surprise indicator nowcasts