

Using the Monthly Business Survey
for the creation of the Business Sentiment
Indicator and the Nowcast GDP

The Banque de France experience

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1. **Why does the BdF carry out business sentiment surveys?**
2. **Business sentiment surveys launched at the BDF**
3. **Publication and communication**
4. **Survey methodology**
5. **The Business Sentiment Indicator (BSI)**
6. **Monthly Index of Business Activity (MIBA)**
7. **Conclusion: main challenges for the future**

1. Why does the BdF carry out business climate surveys?

1. **Legacy:** the business climate surveys conducted by the Banque de France were important tools for the monitoring of the industry situation in order to assess the quality of the collateral tendered to the discounting desks
2. **Objective:** obtain its own “independent” evaluation of the current economic environment: business sentiment surveys are an important component of such assessment
3. Use the Network/branches in order to obtain **additional information** relevant for monetary policy purposes: preparation of special surveys (one shot surveys) on the basis of existing samples
4. The branches’ personnel maintains very close relationships with enterprises and knows them well: this is an advantage for the **quality of the surveys** (high response rate) but it can also create selection bias: “good pupils” effect
5. The surveys shall be supplemented by an enterprise **balance sheet data** base (FIBEN), facilitating the conduct of the survey

2. Business surveys launched by the BDF: widening its range

The BdF carries out business surveys - mostly opinions surveys - covering different sectors with two frequencies

a. The manufacturing sector

- **Monthly:** 14 series
 - changes in: production, deliveries, overall and foreign orders, commodity prices, prices of finished goods, inventories of finished goods
 - expected changes in: production, inventories of finished goods
 - level of: inventories of finished goods and of commodities, order books, weakly order levels, capacity utilisation rate
- **Quarterly:** capital expenditures, forecasts, treasury situation, profit margins
- **Quarterly:** *Survey on the access to credit for SMEs (counting of firms)*

a. Market services

- **Monthly:** 7 series - past activity, forecasts, demand, price changes, treasury balances, headcount

b. The building sector

- **Monthly:** past activity, forecasts, price changes, level of the order books

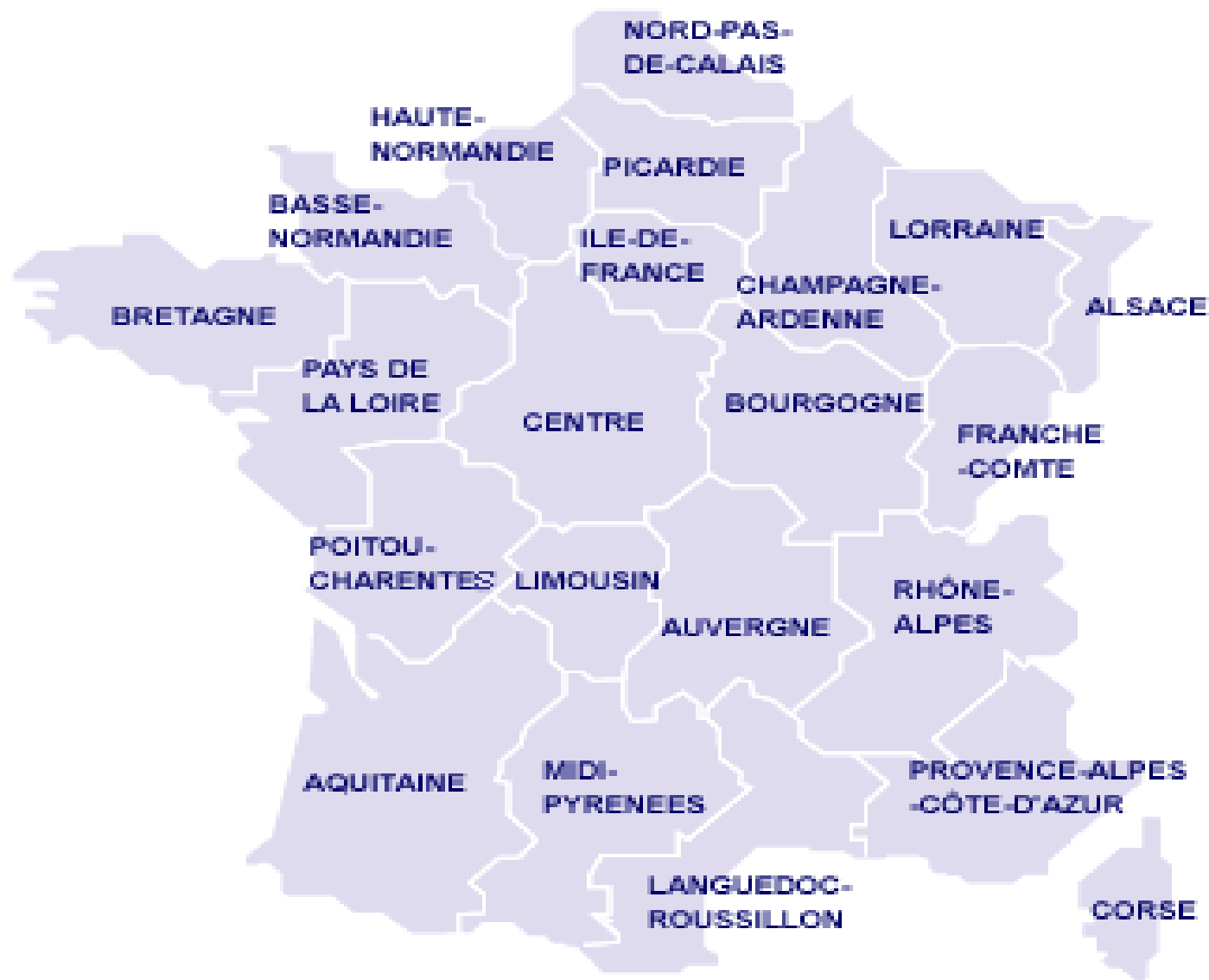
c. Wholesale trade

- **Quarterly:** purchase and sale volumes, forecasts, purchase and sale prices, inventories and order books

d. Retail trade

- **Monthly:** *Turnover indices (calculation of indexes in terms of volume and value, based on year-on-year change in monthly retail sales)*

Banque de France branches



3. Publication and communication

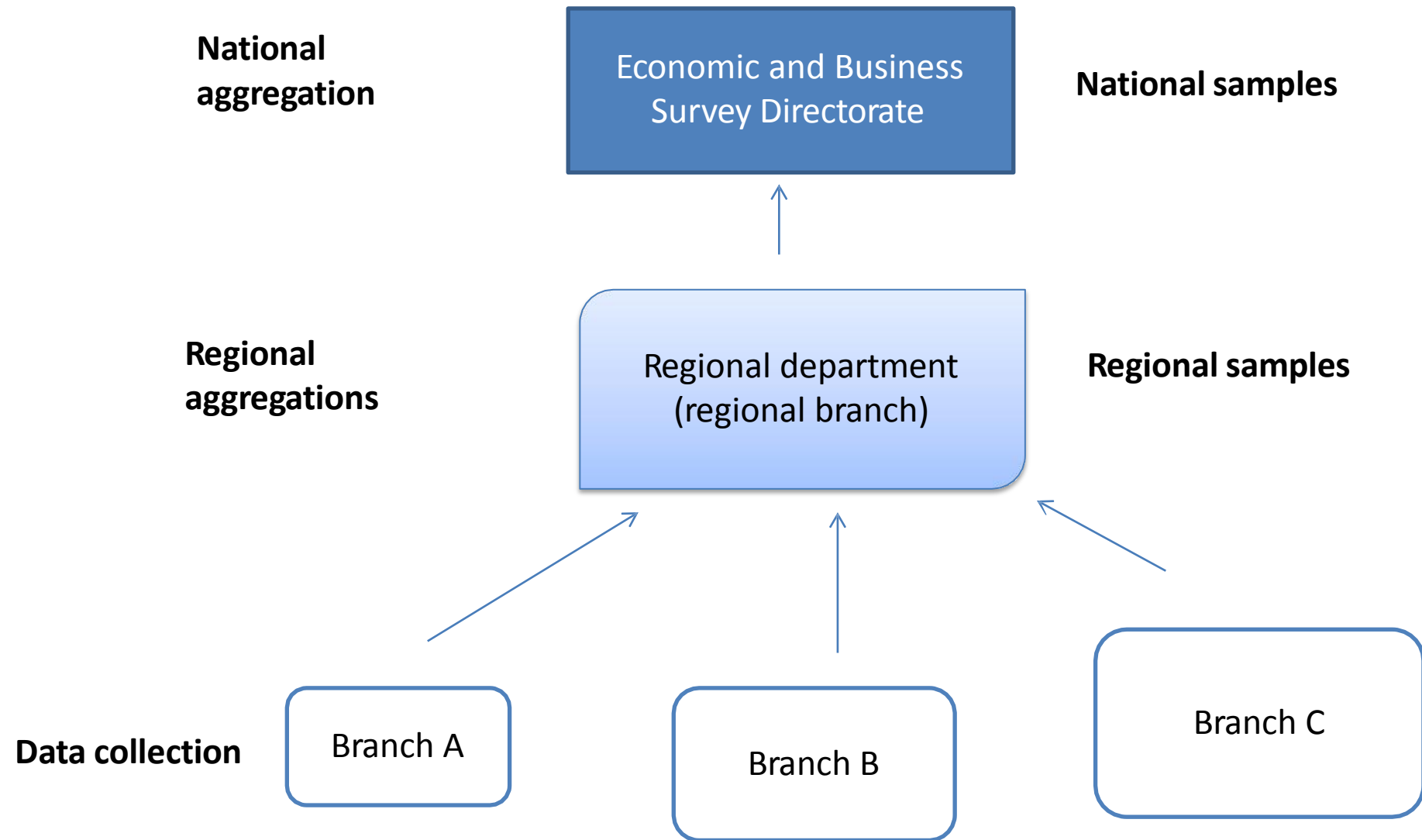
Results are communicated at two levels: **national and regional**

- **National level:** <http://www.banque-france.fr/en/economics-statistics/stats-info/detail/survey-on-industry-and-services.html>
 - ✓ The results are published on the Bank of France website, on the sixth business day after the end of the relevant month.
 - ✓ **Press agencies and daily newspapers are informed on a priority basis in order to allow for their publication in the economic press on the same day.**
- **Regional level:** <http://www.banque-france.fr/en/economics-statistics/business-and-survey/regional-publications.html>
 - ✓ Regional results are published three days after the national ones.
 - ✓ Regional branches organize presentations or press conferences in order to communicate on both regional and national economic outlook.

4. Survey methodology

1. These surveys are aimed at capturing monthly (or quarterly) changes (comparison between the relevant month/quarter and the preceding month/quarter).
2. These opinion surveys are **carried out by the staff of the branch network**
 - the responding entities are questioned every month/quarter
 - the information is collected by telephone
 - the staff responsible for interviewing the entities enters the information into the BdF's IT system
3. The data collection period is short: 5 days from the penultimate day of the month under review
4. The agenda has been adapted in order to make a flash estimate for the board of ECB's Governors at the end of the third day of data collection. At that time, more than 50% of the data are available.

4. Survey methodology



4. Survey methodology

- **The information collected in order to compile the national results is also used to compile the regional results.**
- **Therefore, the design of the samples is subject to constraints stemming from the regional dimension of the surveys**
- In addition, so that the regional results reflect the economic structure, it is necessary to introduce plants into the sample (approximately 15% of the respondents are plants).
- Such regional dimension makes impossible any random sampling.
- **The precision of the regional results is lower than those of the national aggregation (precision depends on the number of answering firms). Consequently the statistical quality of regional aggregations must be frequently and deeply assessed.**

4. Survey methodology

A seven-degree scale in order to measure the responses

The possible responses concerning production in the manufacturing survey are:

1. Sharply increasing (rating + 2)
2. Increasing (+ 1)
3. Slightly increasing (0.5)
4. **Identical (0)**
5. Slightly decreasing (-0.5)
6. Decreasing (-1)
7. Strongly decreasing (-2)

The same scale applies in terms of level: comparison with the normal levels.

Such seven-degree scale amounts to **giving**

•**greater weight to the extreme responses:** “strongly increasing” and “strongly decreasing” than to the responses “increasing” and “decreasing”

•**smaller weight to the responses** “slightly decreasing’ and “slightly increasing” than to the responses “increasing” and “decreasing”

This implies that the values of the opinion balances (average weighted responses) ranges between -200 and +200 (-100 % and +100% in current practice). This is important for analysts if they compare the results of this survey with results of similar surveys.

4. Survey methodology

Sample size

- Manufacturing 3,800 firms or plants
- Market services 2,800 firms or plants
- Building 1,300 firms or plants
- Wholesale 1000 firms or plants
- Retail 7,500 units

(SA) Seasonally Adjusted / (WDA) working day adjustment

- in **2005**, introduction of an August survey and of X12-Arima
- in **2008**, addition of adjustments for working days and new estimate of August points, previously deducted by interpolation
- In **2011**, publication of new sectors in services and retail trade surveys, seasonally adjusted
- In **2013**, monthly publication of the Building survey

The opinion balances are weighted averages

- individual responses are weighted according to the headcounts of the enterprises or establishments (in addition to the weighting resulting from the 7-degree scale)
- manufacturing results are then weighted by added value

The Business Sentiment Indicator and the Monthly Index of Business Activity

In addition to the balances of opinions, 2 indicators derived from the surveys are published

- a **Business Sentiment Indicator (BSI)**

One for the manufacturing sector and one for the services sector

BSI is based on the first factor of an **Principal Component Analysis (PCA)** applied to balances of opinions, smoothed over three months

- a **Monthly Index of Business Activity (MIBA)**: this indicator is an estimate of GDP growth for the current quarter

Extract from the publication

The business sentiment indicator in manufacturing industry* stood at 97 in September 2013, as in August.

The business sentiment indicator in services* stood at 93 in September 2013, as in August.

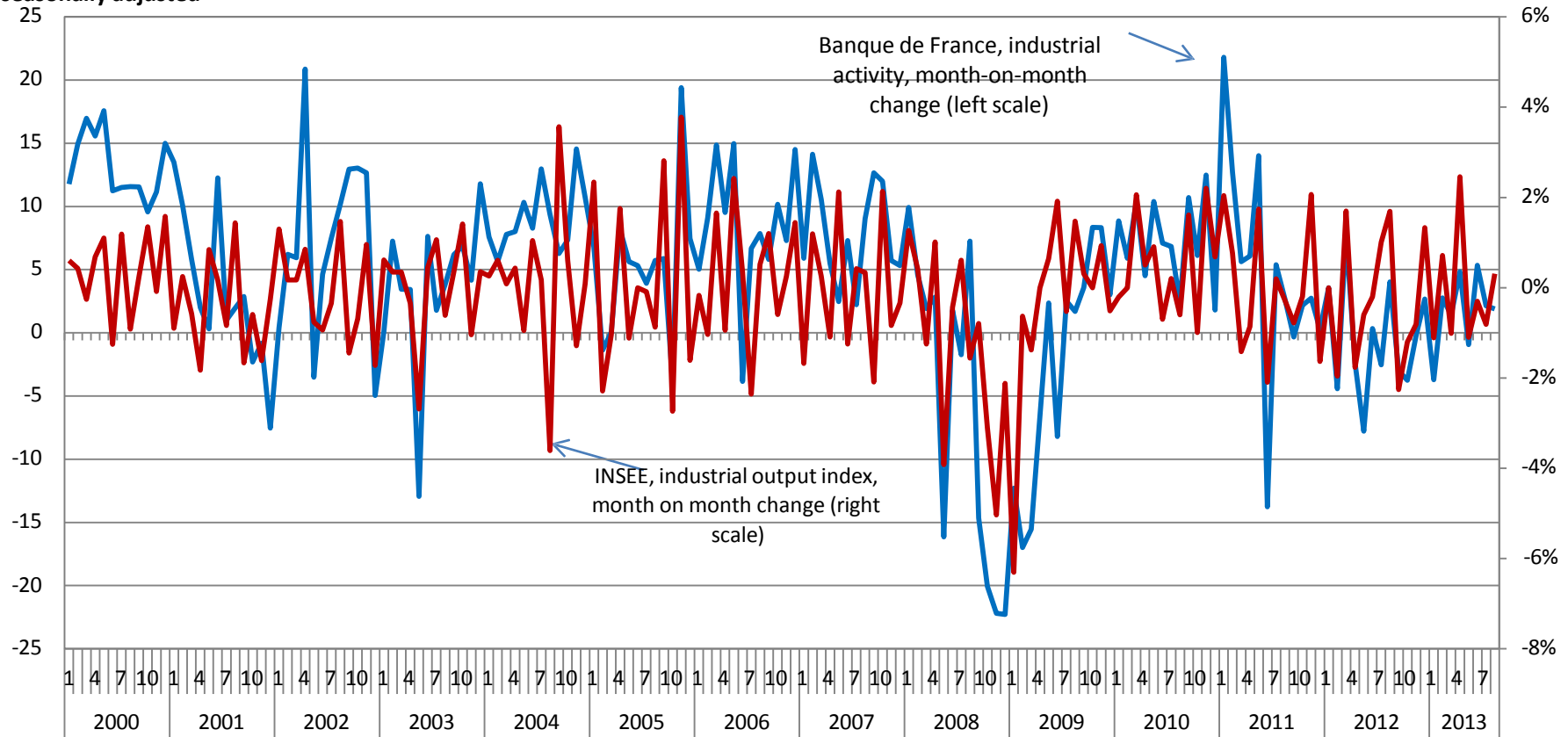
According to the monthly index of business activity (MIBA), GDP is expected to increase by 0.1% in the third quarter of 2013 (third estimate, revised downwards by 0.1 percentage point).

**Calculations are based on survey data smoothed over three months.*

Business Survey variables and manufacturing output index: high volatilities

Correlation between BDF manufacturing monthly series and INSEE industrial output index month-on-month change, SA-WDA : 43% (41% before 2009)

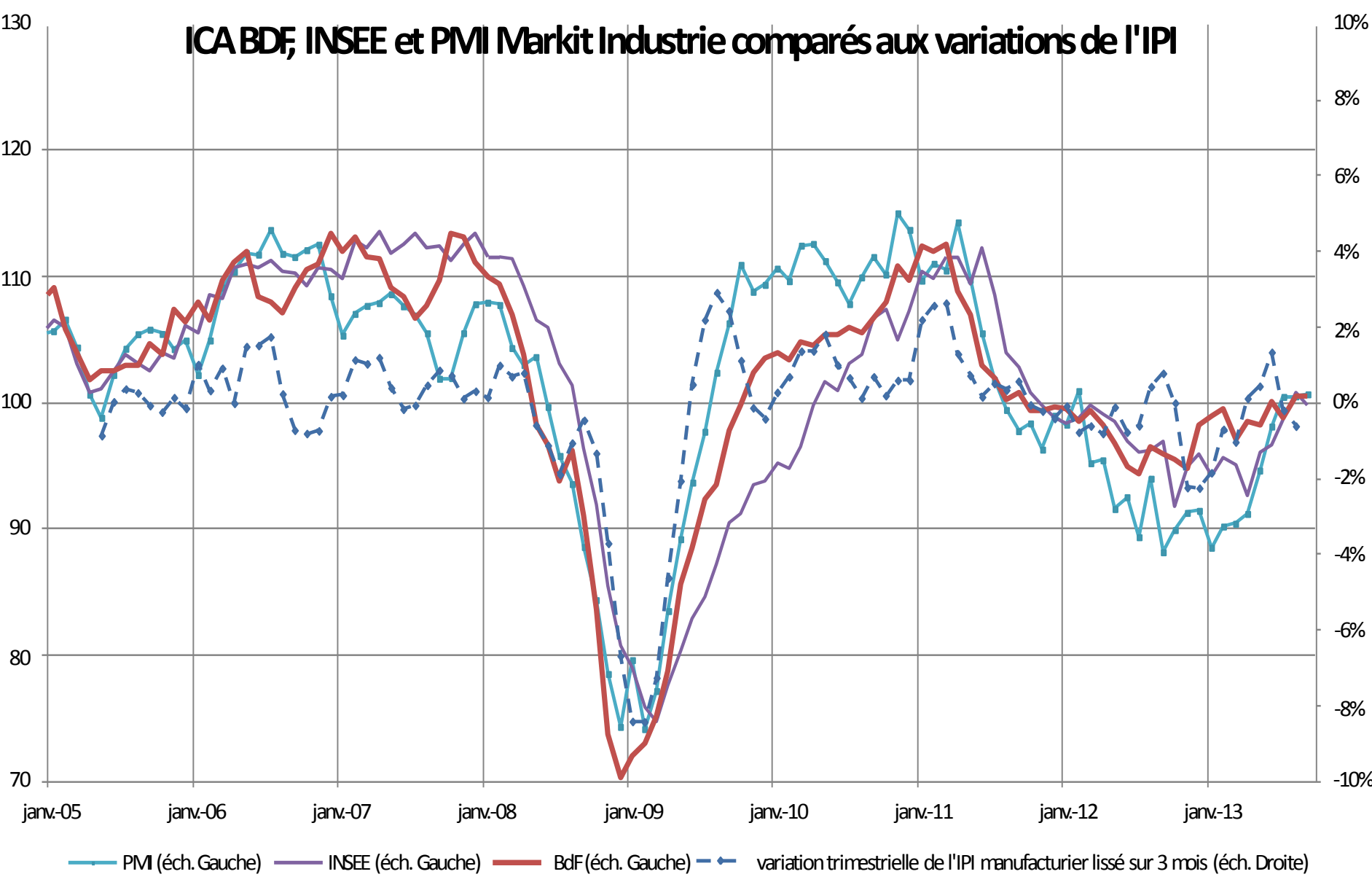
Net balance of opinions,
seasonally adjusted



5. Manufacturing Business Sentiment Indicator: +0.13 in September 2013

14 Variables from 1981 to 2013	Variation in September	Weight		Contribution
Changes in overall orders *	-0.35	* 0.38	=	-0.13
Changes in foreign orders *	-0.45	* 0.35	=	-0.17
Changes in deliveries *	0.38	* 0.37	=	0.14
Changes in production *	0.27	* 0.38	=	0.10
Expected changes in production *	0.36	* 0.37	=	0.13
Expected changes in inventories	-0.40	* 0.10	=	-0.04
Change in inventories of finished goods	0.57	* -0.14	=	-0.08
Change in commodity prices	0.08	* 0.08	=	0.01
Change in prices of finished goods	0.06	* 0.01	=	0.0
Order books	0.29	* 0.33	=	0.10
Inventories of commodities	-0.14	* -0.10	=	0.01
Inventories of finished goods	-0.03	* -0.30	=	0.01
Capacity utilization rate	0.19	* 0.26	=	0.05
Weekly order levels	0.10	* 0.03	=	0.0
TOTAL: VARIATION IN SEPTEMBER				0.13

5. Different Business Sentiment Indicators (PMI Markit, INSEE, BdF and quarterly manufacturing output index variation)

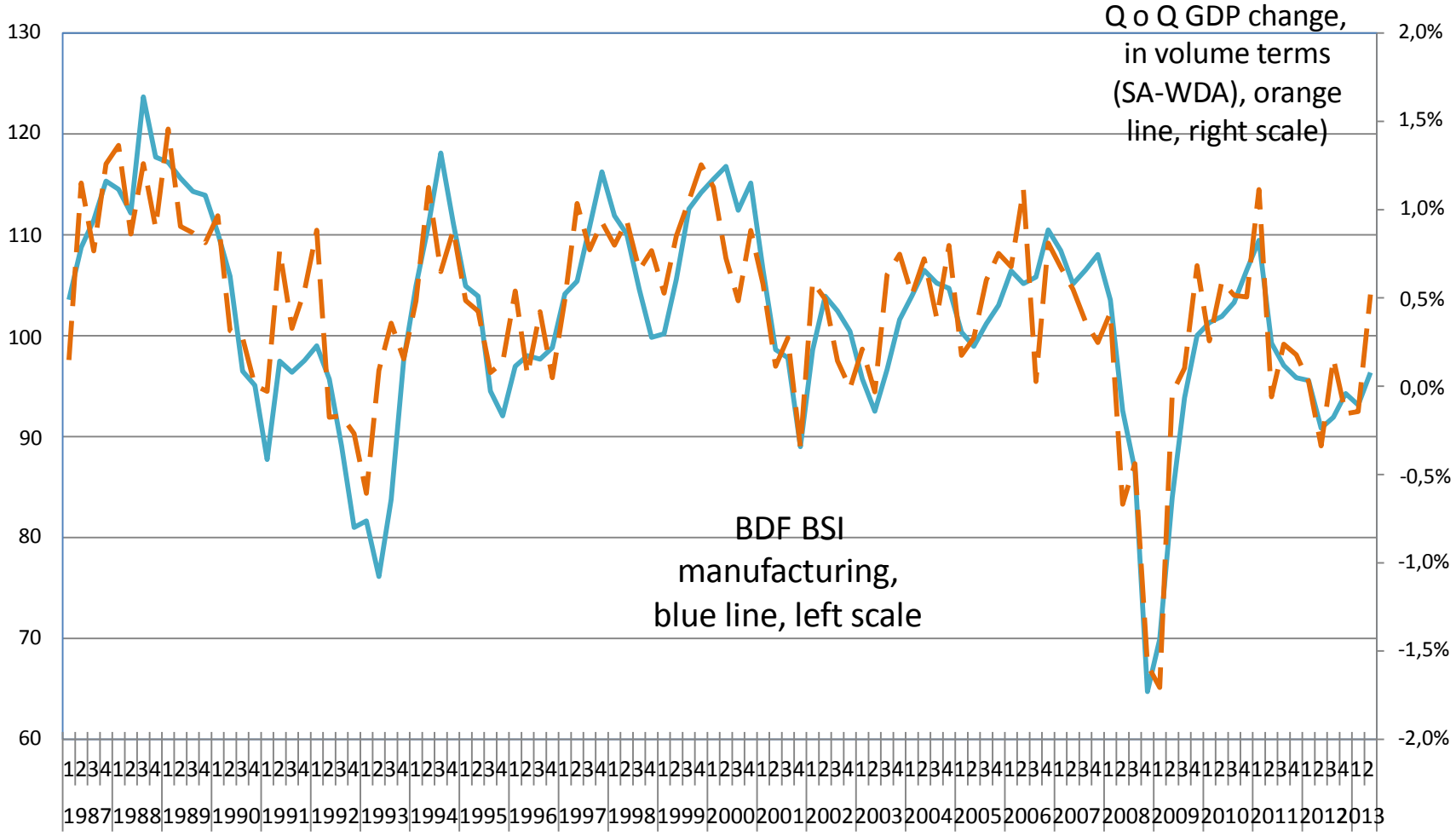


5. Correlation coefficients over the 2005-2013 period with the manufacturing output index

- 0,46 with INSEE BSI
- 0,62 with Markit PMI
- 0,69 with Bank of France BSI
- This relatively good correlation is seen in the graph and explained by the crisis;
 - the Bof BSI reached the lowest values during the crisis;
 - then Insee indicator was slower to recover
- Mechanically, the crisis period improves the correlation for each indicator.

5. Manufacturing BSI and GDP Q-o-Q growth rate - 1987 - 2013

Correlation between Banque de France BSI (3rd month of quarter) and Q-o-Q GDP change = 84%

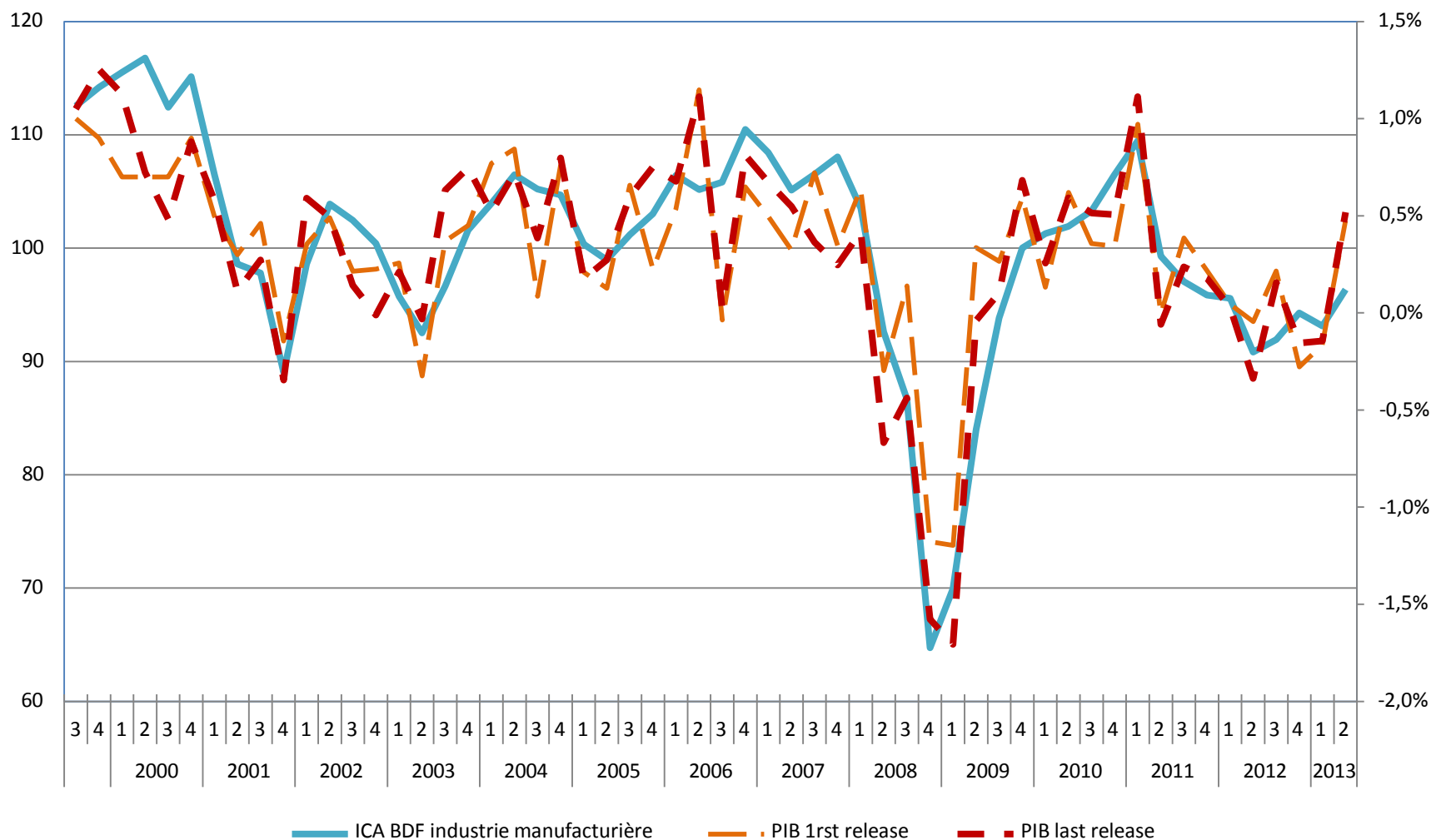


5. Correlation between BSI (3rd month of quarter) and Q-O-Q GDP changes

1999-2013

Correlation with q-o-q GDP change (1st release) = 82%

Correlation with q-o-q GDP change (last release) = 87%



6. Monthly Index of Business Activity (MIBA)

- The estimate of the MIBA forecasting model for GDP¹
- New version used since 2013
- Main reason of the re-assessment of the model
 - systematic upward predictive bias in the MIBA forecast
- Major changes
 - a shift from an ACP approach to a model forecasting the first release of the quarterly growth rate of France's GDP
 - The use of the blocking approach to deal with mixed frequency and missing observations
 - Three monthly equations, consistent with the timeframe of the real-time forecast exercise
 - Main variables : business survey data only from the manufacturing survey and not anymore from the services survey

1. Source: New estimate of the MIBA Model, Modeling first release GDP using the Banque de France's Monthly Business Survey and the blocking approach, M.Mogliani and alii, September 2013, available in a few weeks in the BdF website n the BdF working papers series.

6. New MIBA estimates – Q1 1992 – Q4 2012

M1		
Variable	Coeff.	T-stat
Constant	16.47	3.8
Y_{t-1}	-0.41	-5.0
Changes in deliveries ^{M1} _t	1.9 1	3.4
Expected changes in production ^{M1} _t	4.0 9	5.8
Dummy 09Q1	-103.2	-3.6
R ²	0.67	

6. New MIBA estimates – Q1 1992 – Q4 2012

M1			M2		
Variable	Coeff.	T-stat	Variable	Coeff.	T-stat
Constant	16.47	3.8	Constant	8.19	1.9
Y_{t-1}	-0.41	-5.0	Y_{t-1}	-0.37	-4.9
Changes in deliveries ^{M1} _t	1.91	3.4	Changes in deliveries ^{M2} _t	2.14	5.3
Expected changes in production ^{M1} _t	4.09	5.8	Expected changes in production ^{M2} _t	2.17	3.2
			Changes in deliveries ^{M1} _t	1.93	3.8
Dummy 09Q1	-103.2	-3.6	Dummy 09Q1	-82.7	-3.1
R ²	0.67		R ²	0.71	

6. New MIBA estimates – Q1 1992 – Q4 2012

M1			M2			M3		
Variable	Coeff.	T-stat	Variable	Coeff.	T-stat	Variable	Coeff.	T-stat
Constant	16.47	3.8	Constant	8.19	1.9	Constant	9.11	2.1
Y_{t-1}	-0.41	-5.0	Y_{t-1}	-0.37	-4.9	Y_{t-1}	-0.39	-4.8
Changes in deliveries ^{M1} _t	1.91	3.4	Changes in deliveries ^{M2} _t	2.14	5.3	Changes in deliveries ^{M3} _t	0.94	2.4
Expected changes in production ^{M1} _t	4.09	5.8	Expected changes in production ^{M2} _t	2.17	3.2	Changes in deliveries ^{M2} _t	2.22	5.4
			Changes in deliveries ^{M1} _t	1.93	3.8	Changes in deliveries ^{M1} _t	2.54	5.6
Dummy 09Q1	-103.2	-3.6	Dummy 09Q1	-82.7	-3.1	Dummy 09Q1	-96.4	-3.5
R ²	0.67		R ²	0.71		R ²	0.69	

6. Monthly Index of Business Activity (MIBA)

Features

1. The three equations are consistent with the information progressively available across the quarter.
2. Selected variables on current and past activity: changes in deliveries give better results than changes in production, both are highly correlated
3. Hypothesis: deliveries are better measured by respondents than production
4. One information added to the survey selected variables : the previous quarter GDP (autoregressive term)
5. GDP is not available for the first month equation: use of GDP predicted by the equation 3 of the previous quarter

What next?

- 1. Internet data collection:** in link with staff reduction and reorganization in branches, could firms answer on a monthly basis through a secured website? Easier for some surveys (retail trade: turnover indices) than others
- 2. Sample issues:** with the economic crisis, the structure of economy has changed dramatically (failures, for example). What about the representativeness and accuracy of certain sectors? National and regional
- 3. BSI versus MIBA:** two complementary approaches
 - **BSI: ongoing revision**, work in progress. A synthetic indicator more focus on manufacturing Production Index. Questions:
 - Estimation period? Some coefficients (prices variables) are pretty sensitive to the period selection
 - Variables: only real ones (activity) or also prices ones?
 - Smoothing: moving average or different weights depending of the month, with higher weights for the last months
 - **MIBA: Nowcast GDP** has been revised **early 2013**

Thank you for your attention
Questions ?

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2. Ad-hoc surveys (or special surveys)

Examples:

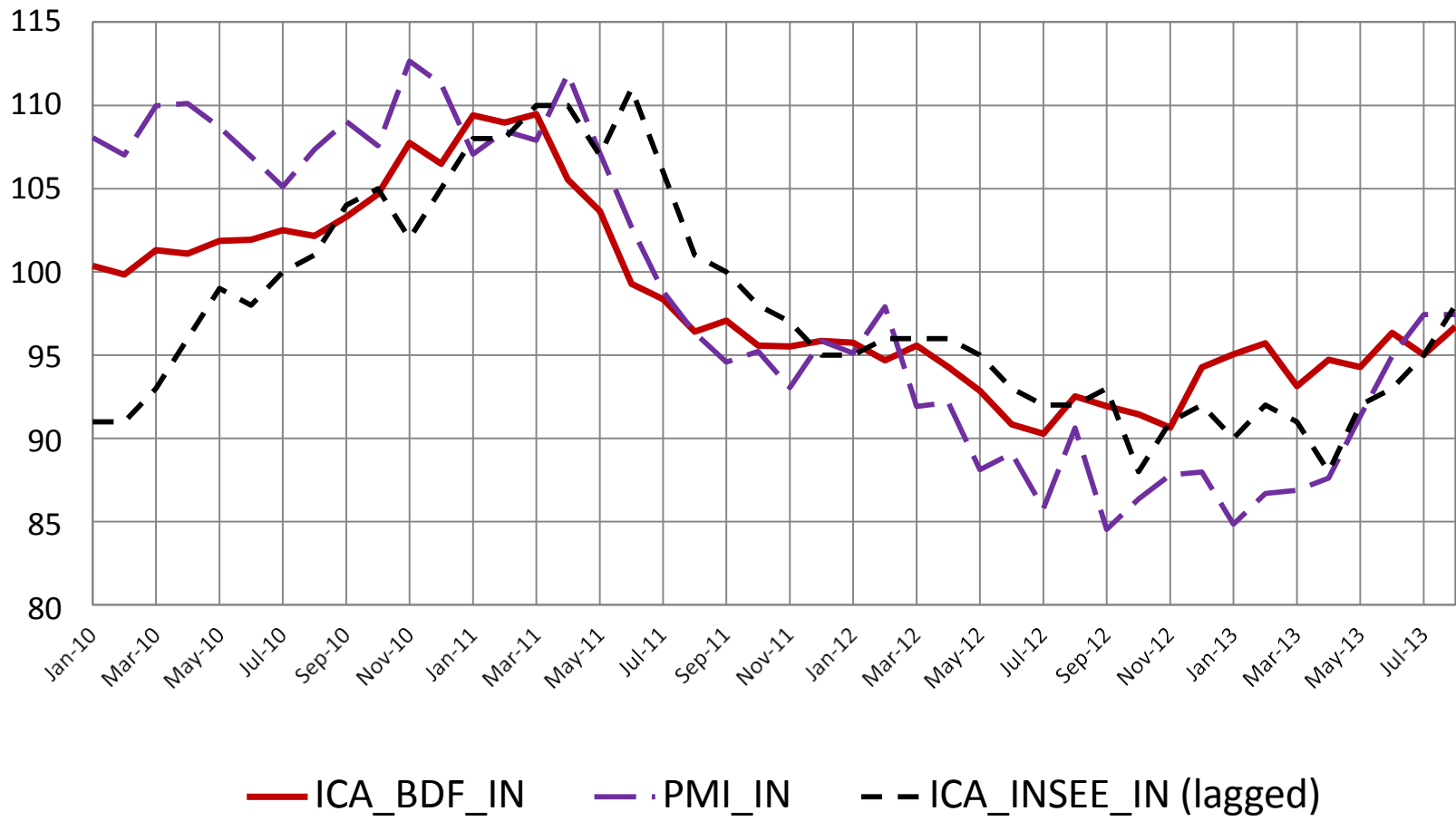
- *Survey prepared by the bank in 2003/2004 in order to study the price-setting behaviour of French manufacturing enterprises*
- *Survey prepared in 2007 in order to study the wage-setting behaviour of French enterprises (industrial and services enterprises)*
 - *Survey concerning enterprises' reactions to the current economic downturn (industry and services)*

This study carried out in 2009 made it possible to obtain information concerning the manner in which enterprises adapted to the consequences of the financial crisis in wage and employment policy terms.

These special surveys cover at the same time trends and quantitative data.

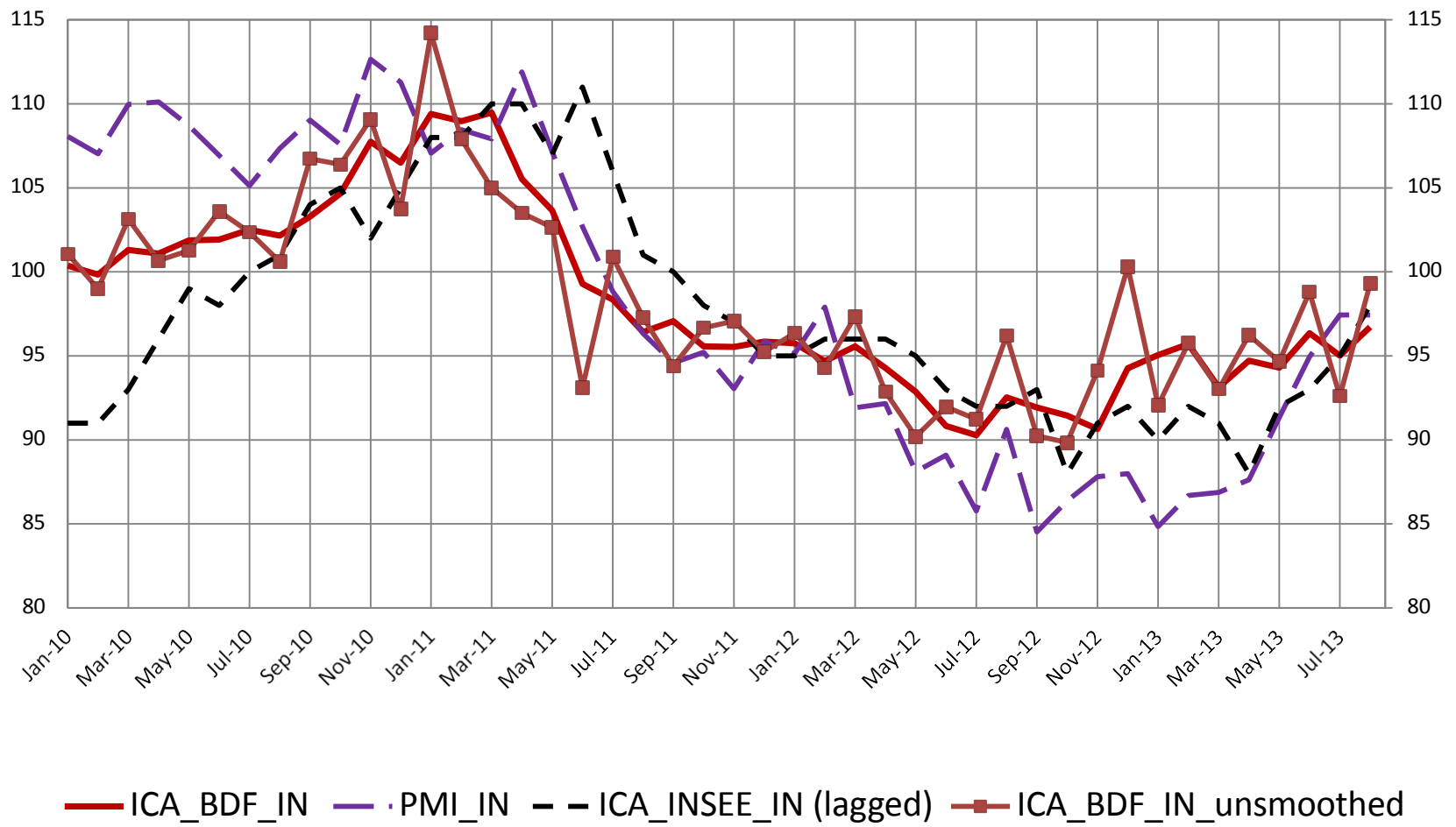
5. Business Sentiment Index from other institutions: INSEE, Markit PMI

Manufacturing industry: main published BSI

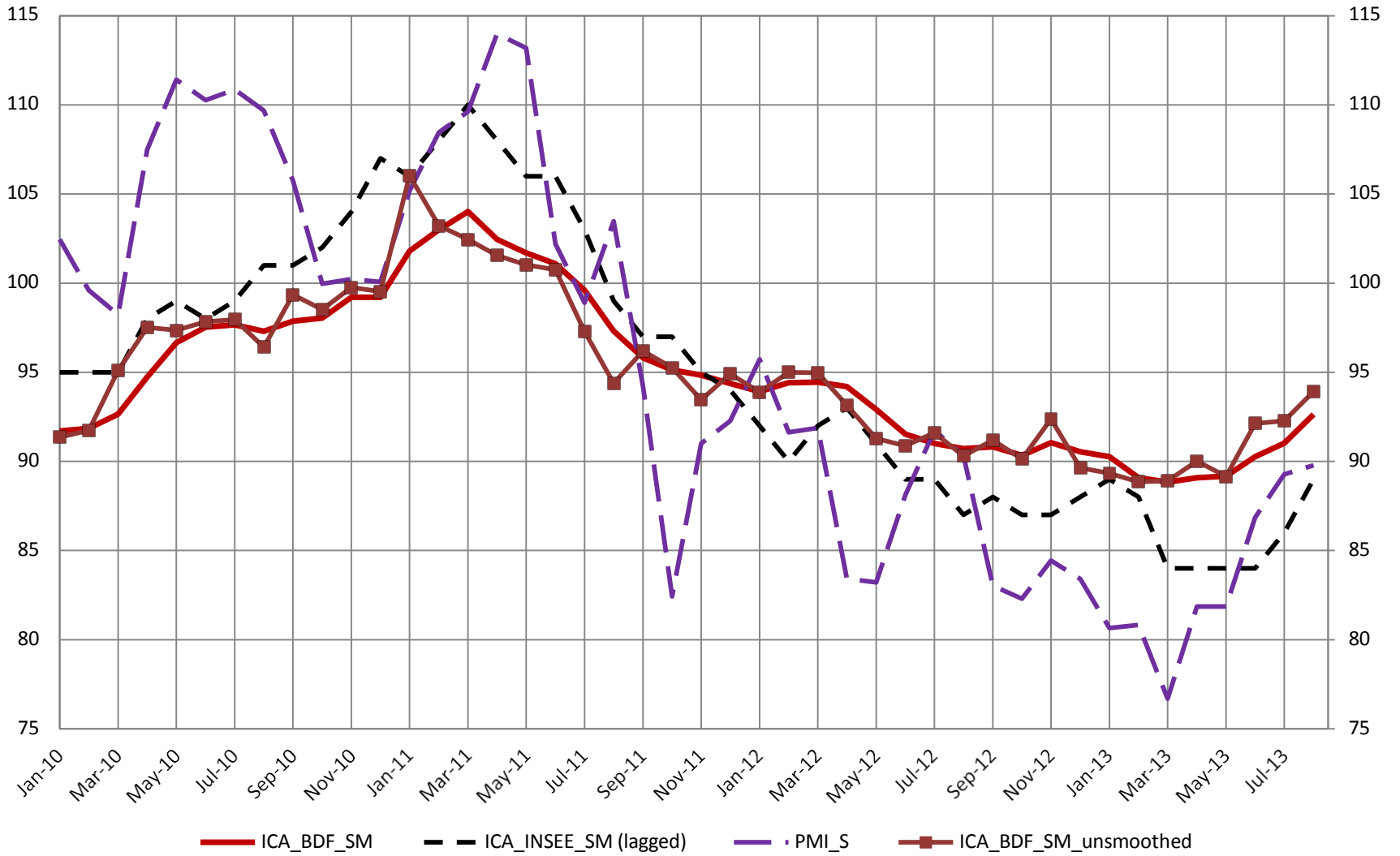


Business Sentiment Index from other institutions (INSEE, Markit PMI) and BDF unsmoothed BSI

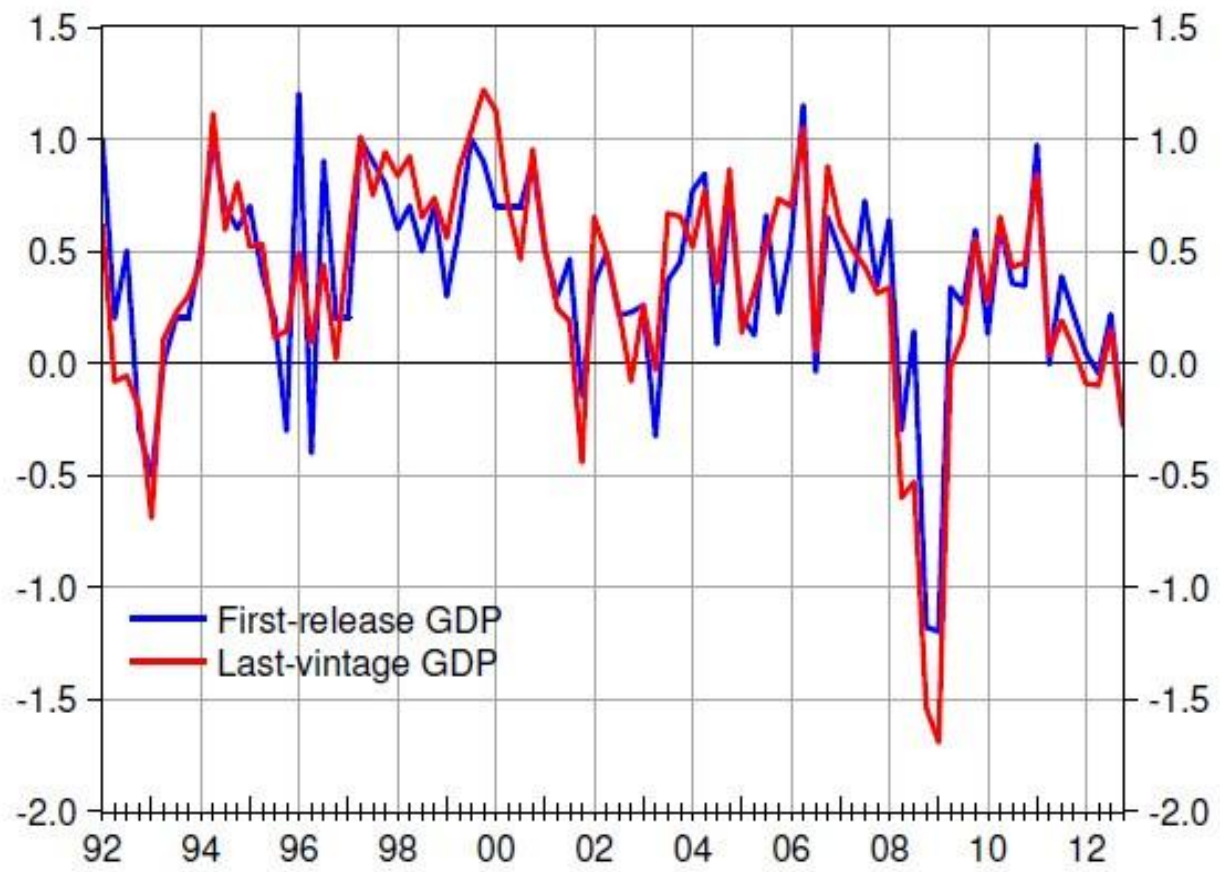
Manufacturing industry: main published BSI



Services: main published BSI

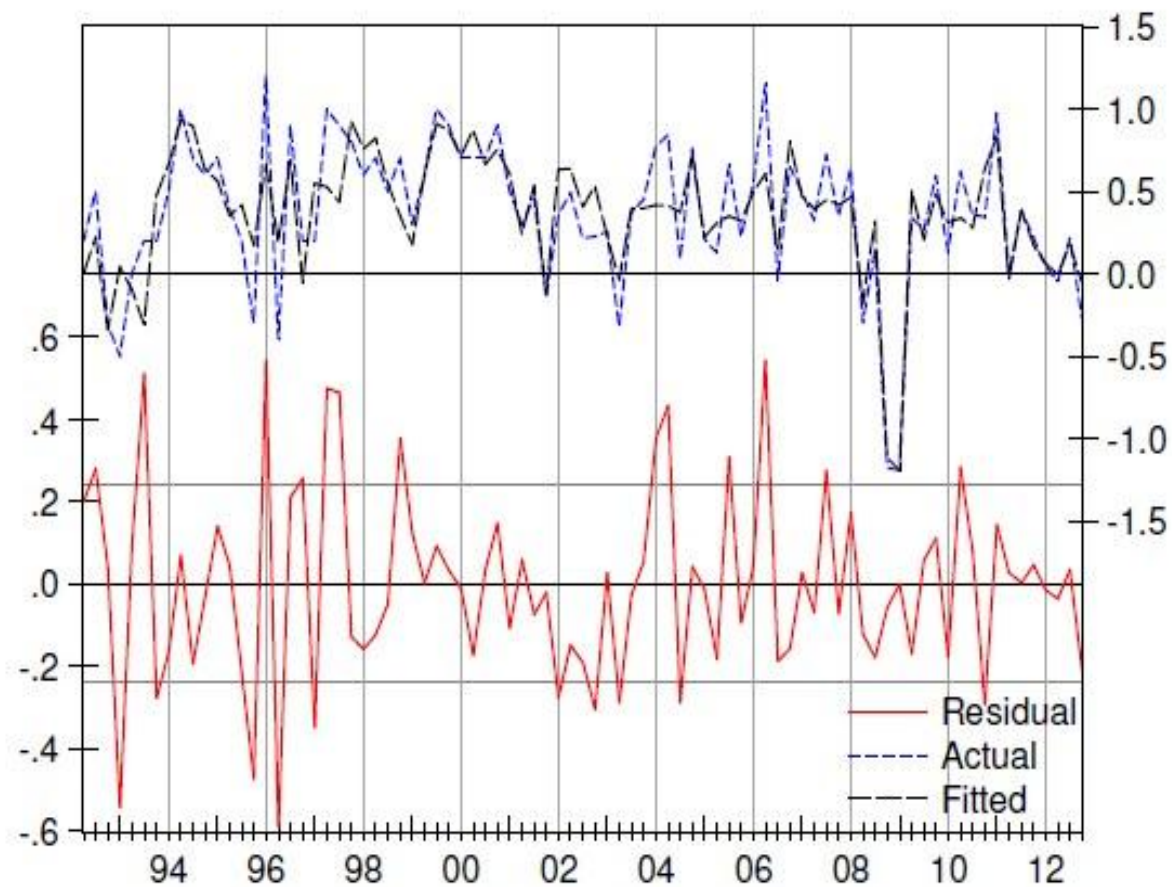


GDP plot (Q1 1992Q1 - 2012Q4)



Source: Mogliani and alii (2013)

M2 equation: in-sample fit and residuals



Source: Mogliani and alii (2013)